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Urban Dynamics in New York City

Proceedings of a Conference Sponsored
by the Federal Reserve Bank of New York
April 22, 2005

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Contents

Urban Dynamics in New York City

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1 Conference Overview and Summary of Papers
Erica L. Groshen and Giorgio Topa

Session 1: Spatial Dynamics and Growth

7 Urban Colossus: Why Is New York America's Largest City?
Edward L. Glaeser

25 Commentary
J. Vernon Henderson

29 The Geography of Entrepreneurship
in the New York Metropolitan Area
Stuart S. Rosenthal and William C. Strange

55 Commentary
Robert Inman

61 Exogenous Shocks and the Dynamics of City Growth: Evidence from New York
Andrew F. Haughwout and Bess Rabin

75 Commentary
Stephen L. Ross

Keynote Address

81 The Promised City: Openness and Immigration in the Making of a World Metropolis
Kenneth T. Jackson

Session 2: Immigration

91 Immigration Trends in the New York Metropolitan Area
George J. Borjas

103 Commentary
Stephen J. Trejo

105 Trajectories for the Immigrant Second Generation in New York City
John Mollenkopf

121 Commentary
Douglas S. Massey

Session 3: Socioeconomic Outcomes

127 Immigration, Health, and New York City: Early Results Based on the U.S. New Immigrant Cohort of 2003
Guillermina Jasso, Douglas S. Massey, Mark R. Rosenzweig, and James P. Smith

153 Commentary
Adriana Lleras-Muney

157 Public Education in the Dynamic City: Lessons from New York City
Amy Ellen Schwartz and Leanna Stiefel

173 Commentary
Dalton Conley

Erica L. Groshen and Giorgio Topa

Conference Overview and Summary of Papers

1. Introduction

Over the past two decades, researchers and practitioners alike have increasingly focused their attention on cities. This attention arises for a variety of reasons. Urban agglomerations can be seen as laboratories for studying the mechanisms of sustained economic growth, the dynamics of economic activities, and the trajectories of immigration flows. By the same token, cities are also viewed as volatile and fragile organisms that can rise and decline dramatically over a short time span. New York City, in particular, has weathered long-run adverse trends as well as sudden unanticipated shocks.

To promote the discussion of these important processes, in April 2005 the Federal Reserve Bank of New York organized a conference on "Urban Dynamics in New York City." The goal of the conference was threefold: to examine the historical transformations of the engine-of-growth industries in New York and distill the main determinants of the city's historical dominance as well as the challenges to its continued success; to study the nature and evolution of immigration flows into New York; and to analyze recent trends in a range of socio-economic outcomes, both for the general population and recent immigrants more specifically.

2. Spatial Dynamics and Growth

New York City has demonstrated remarkable growth over the past four centuries. Edward L. Glaeser offers an in-depth historical account of the major contributors to the city's economic dominance over such a long period. The first of the three central themes identified by Glaeser is the importance of geography in determining New York's early success. The city enjoyed a natural advantage provided by its port and by its proximity to the Hudson River and a water-borne connection to the Great Lakes. The second theme is the value of simple transportation cost and scale economies. The rise of manufacturing in the city, observes Glaeser, hinged on New York's place at the center of a large transport hub and the benefits afforded by that prime location. Lastly, the author describes the city's clear advantage in facilitating information flows and face-to-face interactions. The fast and convenient dissemination of knowledge, for example, has been essential to the success of information-intensive industries such as finance—the undisputed engine of growth in New York's more recent history.

The discussion by J. Vernon Henderson complements Glaeser by emphasizing two other themes that have been instrumental in the city's success. One is the role played by New York's vibrant ethnic neighborhoods in providing

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networks of contacts to new immigrants. These networks have made it easier and more desirable for immigrants to stay in New York. The other is the importance of the knowledge spillovers that arise from the city's dense centers of commercial activities. Knowledge spillovers are vital not only to the health of finance, notes Henderson, but also to the health of other innovative New York City industries, such as fashion, advertising, and the arts.

Another key aspect of New York's dynamism is the city's entrepreneurs. Stuart S. Rosenthal and William C. Strange analyze the geography of entrepreneurship in the New York metro area to uncover its determinants. They find that births of new establishments and the number of jobs in new establishments—their measures of entrepreneurial activity—are positively affected by the density of local employment and even more so by the amount of local employment in the entrepreneur's own industry. Interestingly, the most powerful effects are for the smallest distances—within a city block or so. The results obtained by Rosenthal and Strange provide fresh evidence on the importance of very local agglomeration economies to sustained growth.

Robert Inman's commentary argues that the very local nature of the agglomeration economies identified by the Rosenthal-Strange analysis suggests that economic development policies can be locally designed and, more significantly, locally funded. Countrywide or statewide policies, according to Inman, should then be limited to projects that have clear effects on multiple communities.

To advance the understanding of the dynamics of city growth, Andrew F. Haughwout and Bess Rabin examine the response of New York City's economy to an exogenous, unanticipated, and large—yet localized—shock. Specifically, they study the response in terms of the spatial distribution of activities following the September 11 terrorist attacks. The authors identify several patterns: long-run demand for city locations relative to locations elsewhere in the country was hardly affected; after a temporary weakening, long-run demand for residential space in Lower Manhattan strengthened; and both short- and long-run demand for office space weakened in Lower Manhattan while it strengthened in Midtown. Haughwout and Rabin conclude that the city's economy was remarkably resilient to the shock, and that the shock itself only accelerated a preexisting trend that was making Lower Manhattan a mixed-use community as offices gravitated toward Midtown, to be replaced by residences and shops. They also suggest that government activities and announcements can serve as valuable coordination tools in the presence of agglomeration economies.

An alternative and complementary explanation for the attacks' relatively minor impact on the city economy is put forth in the remarks by Stephen L. Ross. The shock was small compared with the total stock of commercial real estate in the New York metro area, Ross argues. Furthermore, the relatively high mobility of workers and firms throughout the area enabled the shock to be absorbed fairly quickly.

3. The Making of a World Metropolis

In the sessions' keynote address, Kenneth T. Jackson offers his insight into the characteristics that continue to make New York a unique and vibrant city. He observes that New York is very different from other American cities in the sense that wealth is concentrated in its center, Manhattan, rather than in its suburbs; its population density is several times that of most U.S. cities; and the density is increasing rather than declining over time. Another unique characteristic of New York is its openness to newcomers, whether they take the form of new ideas, new communities, or new religious groups. The constant inflow of innovations embodied by newcomers, explains Jackson, has enabled the city to reinvent itself amid such economic challenges as the decline of its port and of manufacturing in general. Jackson adds that a long history of diversity has made New York a haven for dissent and tolerance—a characteristic that he views as one of the city's fundamental strengths.

4. Immigration

The nature and evolution of immigration flows into the New York metro area offer myriad avenues of research. George J. Borjas focuses on immigration trends from 1970 to 2000, characterizing the skill levels and earnings of immigrant workers in the New York area relative to those of immigrants who settle elsewhere in the United States and to those of native New Yorkers. He finds that in terms of educational attainment over the thirty-year period, skill levels increased more for native- and foreign-born workers in the New York metro area than for their counterparts elsewhere in the country. Over the same period, though, the skill gap between New York native and immigrant workers has widened. Wages reflect the same pattern: immigrant wages have risen in New York relative to other areas of the country, but they have fallen relative to

those of New York natives. Borjas' results also reveal that immigrants in New York are substantially more skilled than immigrants in Los Angeles or Miami.

The immigrant population in New York is remarkably diverse relative to other immigrant populations in the United States. Stephen J. Trejo, in his commentary, suggests that a large share of the skill differential between immigrants in New York and those elsewhere can be explained by differences in national origins. He places Borjas' findings in the larger context of optimal immigration policy, touching upon questions of the optimal skill mix of immigrants to the United States as well as the spatial distribution of immigrants within the country.

Focusing on the socioeconomic achievements of second-generation immigrants, John Mollenkopf sheds light on the intergenerational trajectories of immigrant groups, linking the experiences of U.S.-born children of immigrants to those of their parents. He paints a varied picture. Children of South American, Dominican, and West Indian immigrant families fare slightly better on a range of outcome measures than do children growing up in very similar native Puerto Rican or African American families. Moreover, second-generation Chinese and Russians have made extraordinary educational progress vis-à-vis their parental backgrounds. These two groups in fact have outdistanced the native white children who grew up and stayed in New York, even after the author controls for parental background. Mollenkopf's findings suggest that intergenerational transmission strategies interact with perceptions about race and neighborhood conditions in complex ways when determining second-generation immigrant trajectories.

A reductive view of segmented immigrant assimilation revolving only around race and ethnicity warrants caution, observes Douglas S. Massey. His comments on Mollenkopf identify a variety of factors that can also play important roles in shaping intergenerational trajectories. Massey points to the original motivation for migration, the immigrant's legal status, and the characteristics of the residential location in which the immigrant family resides as the most notable factors.

5. Socioeconomic Outcomes

The relationship between immigration and health outcomes motivates the work by Guillermina Jasso, Douglas S. Massey, Mark R. Rosenzweig, and James P. Smith. The authors employ a novel data set on new legal immigrants to the United States to study health trajectory from the beginning of the immigration process and continuing after arrival in the United States. This approach enables the authors to identify three distinct sources of health change: visa stress, migration stress, and U.S. exposure. Jasso et al. find that the combined effects on health outcomes of visa stress and migration stress are negative, while the pure effect of U.S. exposure is positive, especially for men. Weight measures are found to increase with time in the country, suggesting a role for environmental and dietary influences. In addition, the study finds that immigrants in New York tend to be healthier on arrival relative to immigrants who settle elsewhere and that their subsequent trajectories do not differ significantly from those of other immigrants.

Adriana Lleras-Muney discusses biases that could affect the Jasso et al. analysis, including cultural differences across countries of origin and recollection bias. Should one, she asks, provide special health services to particular immigrant groups during the immigration process? Can one disentangle the impact of changes in job and earnings upon arrival from that of environmental conditions? As these questions suggest, Lleras-Muney argues that the authors' findings must be viewed in the broader context of immigration and health policy.

Pursuing a different line of inquiry, Amy Ellen Schwartz and Leanna Stiefel offer a rich portrait of changing educational outcomes and public education in New York City. One of their most striking results is that children of immigrants tend to perform better than native children on several standardized tests, despite their less favorable initial background. Moreover, this "immigrant advantage" tends to increase in higher grades. Their finding that immigrant students of Russian or Chinese descent perform especially well is consistent with Mollenkopf's results. Furthermore, Schwartz and Stiefel conclude that several recent reforms to the New York City public school system—aimed at, among other things, improving resource allocation and opening new and smaller schools—have had slightly positive effects on the test scores of immigrant and native children alike.

Dalton Conley adds a few cautionary notes to the Schwartz-Stiefel paper. A study of the peer effects of immigrants on native-born students, he contends, would be useful for gaining a better understanding of the overall impact of immigrant students on the New York City public school system. Attrition out of the system could bias the "immigrant advantage" results. With respect to the effects of school reform, Conley observes that such reforms could be endogenous to school quality.

6. Conclusion

How does a large urban agglomeration such as New York City survive, even thrive, in an ever-changing environment? How does this dynamic affect a city's population and institutions? The papers and discussions from this conference consider these two fundamental questions from a variety of perspectives. A central theme that emerges is the importance of "openness," both to new ideas and to newcomers. A degree of openness and the cross-fertilization it allows seem essential to ensuring a city's ability to reinvent itself in the face of adverse circumstances. With this openness, however, come challenges, including the need for institutions to coordinate individual actions and integrate newcomers in a productive way. Challenges like this and the ways in which cities meet them will no doubt command the attention of future researchers on urban dynamics.

Session 1

Spatial Dynamics and Growth

Paper by

Edward L. Glaeser

Commentary by

J. Vernon Henderson

Paper by

Stuart S. Rosenthal and William C. Strange

Commentary by

Robert Inman

Paper by

Andrew F. Haughwout and Bess Rabin

Commentary by

Stephen L. Ross

Edward L. Glaeser

Urban Colossus: Why Is New York America's Largest City?

1. Introduction

For 200 years, New York City has been the largest city in the nation, and it continues to outperform most cities that were once its competitors. In the 1990s, the city's population grew by 9 percent and finally passed the eight-million mark. New York is the only one of the sixteen largest cities in the northeastern or midwestern United States with a larger population today than it had fifty years ago. Its economy remains robust. Payroll per employee is more than $80,000 per year in Manhattan's largest industry and almost $200,000 per year in its second-largest industry.

All cities, even New York, go through periods of crisis and seeming rebirth, and New York certainly went through a real crisis in the 1970s. However, while the dark periods for Boston, Chicago, or Washington, D.C., lasted for thirty or fifty years, New York's worst period lasted for less than a decade. While Boston's history is one of ongoing crises and reinvention (Glaeser 2005), New York's is one of almost unbroken triumph. The remarkable thing about New York is its ability to thrive despite the massive technological changes that challenged every other dense city built around public transportation.

What explains New York's ongoing ability to dominate America's urban landscape? In this paper, we explore the economic history of the city and argue that three themes emerge. First, New York's emergence as the nation's premier port was not the result of happenstance followed by lemming-like agglomeration. While there are limits to geographic determinism, the clear superiority of New York's port in terms of its initial depth, the Hudson River and its location, and the other advantages provided by the water-borne connection to the Great Lakes ensured that this port would be America's port. In this case, geography really was destiny, and the significance of trade and immigration to the early republic ensured that New York would dominate.

The second theme to emerge from New York's history is the importance of simple transportation cost and scale economies. The rise of the city's three great manufacturing industries in the nineteenth century—sugar refining, publishing, and the garment trade—depended on New York's place at the center of a transport hub. In all three industries, manufacturing transformed products from outside the United States into finished goods to be sold within the country. Because New York was a hub and products were dispersed throughout the country and the world after entry into that hub, it made perfect sense to perform the manufacturing in the city.

The tendency of people to attract more people is the central idea of urban economics, and nowhere is that idea more obvious than in America's largest city. New York's initial advantage as a port then attracted manufacturing and services to cater to the mercantile firms and to take advantage of their low shipping costs. The traditional model of this phenomenon (Krugman 1991) emphasizes that scale matters because it

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allows manufacturers to save on the costs of supplying goods to residents of the city. But the history of New York suggests that this phenomenon was less important than the advantage of producing in a central location for export elsewhere. Obviously, scale economies were also important; otherwise, there would be no incentive to centralize manufacturing.

New York's growth in the early nineteenth century was driven by the rise of manufacturing in the city, which itself depended on New York's primacy as a port. New York's growth in the late nineteenth century owed at least as much to its role as the entryway for immigrants into the United States. Indeed, the basic industrial structure of New York remained remarkably consistent between 1860 and 1910 while the scale increased enormously. Immigrants stayed in New York in port for "consumption" reasons. Ethnic neighborhoods made the transition to the New World easier, and New York as a city acquired over time a remarkable capacity to cater to immigrant needs. However, immigrants also stayed because the traditional New York industries, especially the garment trade, were able to increase in scale to accommodate extra labor without a huge drop in wages.

In the mid-twentieth century, a large number of technological changes challenged cities throughout the United States. Declining transport costs reduced the advantages of access to waterways. The air conditioner helped move citizens west and south. The automobile and the truck enabled the population to disperse from city centers to outlying areas. Almost all of America's biggest cities declined—sometimes precipitously—over the past fifty years in response to the shock. Eight of the ten largest U.S. cities in 1930 have a smaller population today than they did then (Table 1). New York and Los Angeles are the exceptions.

New York's remarkable survival is a result of its dominance in the fields of finance, business services, and corporate management. Forty years ago, Chinitz (1961) described New York as a model of diversity in comparison with industrial Pittsburgh. New York in 2005 does not look nearly as diverse. Today, 28 percent of Manhattan's payroll goes to workers in a single three-digit industry; 56 percent goes to workers in four three-digit industries. New York's twentieth-century success primarily reflects an ability to attract and retain a single industry, and the city's future appears to be linked to a continuing ability to hold that industry.

The attraction of finance and business services to New York reflects the city's advantages in facilitating face-to-face contact and the spread of information. Transportation costs for goods have declined by 95 percent over the twentieth century (Glaeser and Kohlhase 2004), but there has been no comparable reduction in the cost of moving people. After all, the primary cost involved in the movement of people is the opportunity cost of time, which rises with wages. For this reason, cities, which represent the elimination of physical distance between people, still excel in delivering services. In addition, as the demand for timely information rises, the proximity that facilitates the flow of that information continues to be critical. The success of finance and business services on the island of Manhattan hinges critically on the advantage that the island has in bringing people together and speeding the flow of knowledge.

Table 1
Growth in Top Ten U.S. Cities by 1930 Population

		Percentage Growth in Population					
City	Population in 1930	1950-60	1960-70	1970-80	1980-90	1990-2000	Population in 2000
New York	6,930,446	-0.01	0.01	-0.10	0.04	0.09	8,008,278
Chicago	3,376,438	-0.02	-0.05	-0.11	-0.07	0.04	2,896,016
Philadelphia	1,950,961	-0.03	-0.03	-0.13	-0.06	-0.04	1,517,550
Detroit	1,568,662	-0.10	-0.09	-0.20	-0.15	-0.07	951,270
Los Angeles	1,238,048	0.26	0.14	0.05	0.17	0.06	3,694,820
Cleveland	900,429	-0.04	-0.14	-0.24	-0.12	-0.05	478,403
St. Louis	821,960	-0.12	-0.17	-0.27	-0.12	-0.12	348,189
Baltimore	804,874	-0.01	-0.04	-0.13	-0.06	-0.12	651,154
Boston	781,188	-0.13	-0.08	-0.12	0.02	0.03	589,141
Pittsburgh	669,817	-0.11	-0.14	-0.17	-0.13	-0.10	334,563
United States	151,325,798	0.19	0.13	0.11	0.09	0.13	281,421,906

Source: U.S. Census Bureau, U.S. Census of Population.

These advantages are the result of scale and density, which themselves result from New York's unique history. The vast number of people crammed together on a narrow island is what makes Manhattan an information hub. The flow of ideas has been exacerbated by the tendency of highly skilled people and industries to locate in the city, which is natural, given that density and idea flows appear to complement one another. The most visible result of New York's strength as a conduit for information is its penchant for information-intensive industries, such as finance or publishing, to locate in the city.

While New York's ability to weather past challenges has been remarkable, we cannot be certain that its future success is assured. New York's importance as a port is long past. The declining transport costs of moving goods indicate that the scale advantages remain important only in services. Even in this area, technological changes may reduce New York's transportation cost advantages. In the long run, New York City's success depends on its advantage in transmitting knowledge quickly. This advantage may also be eroded by changes in information technology; however, in the short run, information technology may increase the value of face-to-face interaction and make New York stronger, not weaker (Gaspar and Glaeser 1998).

2. The Early City: 1624-1790

The traditional story of New York's origin is that in 1626, the island of Manhattan was bought by Peter Minuit from the Lenapes for "sixty guilders worth of trade goods" (Burrows and Wallace 1999, p. 23). New Amsterdam was founded by the Dutch West India Company as a trading post oriented toward the lucrative fur trade. As Burrows and Wallace (p. 23) explain, the fur trade involved two exchanges: "In the first, European traders and coastal Algonkians exchanged manufactured goods for wampum; in the second, European traders used wampum (and manufactured goods) to obtain first at Fort Orange [Albany]." Manhattan's location—a deep-water port at the heart of the Hudson—made it an ideal center for commerce, connecting Europeans, coastal native Americans who dealt in wampum, and upriver native Americans who had access to furs.

Manufacturing had a place in New York from its inception. An essential part of trade with the natives was the production of manufactured goods, and these were cheaper to make in New Amsterdam than to import from the Netherlands. Agglomeration in a city was natural because of the gains from centralized commerce and because there was substantial risk from ongoing battles with natives. A significant advantage of Lower Manhattan was that it was easier to defend because it was surrounded on three sides by water.

The Dutch colonies of New Netherlands were not solely fur-trading outposts. Land was abundant, and a steady stream of settlers acquired land (sometimes vast tracts of it such as Rensselaerswyck) and began making basic agricultural products like bread, corn, and meat. The density of settlers was much lower than it was in Massachusetts, but gradually the New Amsterdam area also developed an agricultural hinterland that could both feed the traders and seamen in the city and begin to export basic foodstuffs to more colonies that exported cash crops.

In 1664, the town was conquered by the English and renamed New York. The city was conquered, but the English were able to keep the city only by giving the Dutch West India Company the more lucrative colony of Surinam. The integration of New York with the English colonies increased the potential for trading opportunities, and the population of the city surged to approximately 3,000 in 1680 (Burrows and Wallace 1999) and 5,000 in 1698 (Kantrowitz 1995). While many Dutch merchants continued to trade with the Netherlands and the Dutch colonies, a growing group of English merchants and laborers came to the city as well.

During this period, New York's trade became primarily oriented toward the West Indies. The primary exports of the port were bread and flour, made from wheat grown in the farms of New York, Connecticut, and New Jersey. This model of selling foodstuffs to the colonies, which had cash crops that could be sold back in Europe, had been pioneered by Bostonians in the late 1630s, but New Yorkers (and Philadelphians) had several significant advantages over the Boston merchants. The land in New York and Pennsylvania was better than the land in Massachusetts. The Hudson and Delaware rivers were longer, bigger rivers than the Charles. Indeed, the one long river in New England, the Connecticut, suffered from heavy silt that formed a sandbar near its mouth. New York's Dutch heritage gave it an advantage over Philadelphia in dealing with the Dutch colonies in the Caribbean.

New York also offered one more striking advantage over Boston: its ethnic heterogeneity and religious tolerance. Boston's Puritan heritage carried both advantages and disadvantages. The strong religious community invested in education and generally proved able to organize the city and provide basic public goods. Quaker Philadelphia may have been more tolerant than Puritan Boston, but it was still fundamentally a faith-based colony. In contrast, New York was irreligious from the start, and there were fewer barriers against Jewish or Catholic immigrants. Commercial interests ensured that New York City was unusually tolerant relative to other

colonies and relative to England itself. New York's place as a haven for America's ethnically heterogeneous immigrants made the city a magnet for immigrants from its earliest years.

Despite these advantages, the growth of New York during its first 130 years was relatively modest. Generally, New York was America's third or fourth busiest port. In tonnage, it lagged behind Boston and Charleston in the early eighteenth century and behind Boston and Philadelphia in the late colonial period. Boston had a stronger maritime tradition; Philadelphia had a more developed hinterland. As of 1753, Manhattan had 13,000 inhabitants, making it one of the colonies' bigger cities, but hardly a dominant metropolis.

The French and Indian War ended the French presence in Canada and increased the relative value of New York's access through the Hudson to the north. The Revolutionary War had an even more remarkable effect on New York City. The port was the only large city that remained in British hands throughout the war. While combat was certainly disruptive, the port's activity also expanded as it provided entry and exit for military men and material. Perhaps just as important, Boston and Philadelphia's long-term reputations as centers of revolution meant that New York would end up being the preferred delivery point for British goods coming into the new republic.

As of 1786, Manhattan had 23,614 residents. In the first American census, the City of New York had 33,131 residents. Over the entire 1698-1786 period, the population of Manhattan had grown by 1.8 percent annually. This increase is impressive, but ultimately it is far less impressive than the growth of Philadelphia over the same period. Even though New York was larger than Philadelphia in 1790, Philadelphia was a newer city and it had been bigger than New York for many years during the eighteenth century. When the U.S. Constitution was signed in 1789, New York was an important port, but its rise to dominance was still ahead.

3. The Rise to Dominance: 1790-1860

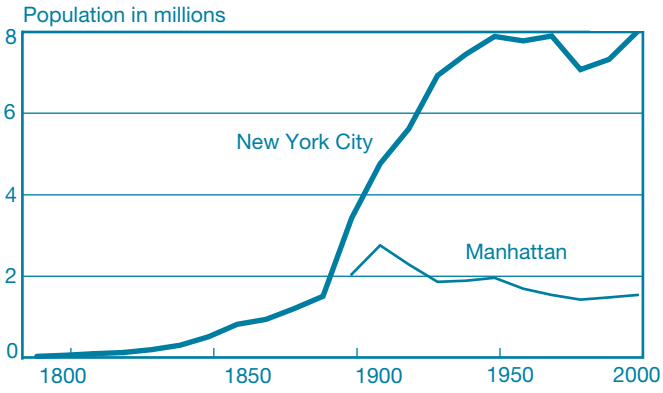
If the growth of New York City prior to 1790 was impressive, the expansion over the next seventy years was nothing short of spectacular. Chart 1 depicts the growth of New York City's population since 1790 and the growth of Manhattan's population since 1900. Chart 2 shows the growth of New York City and Manhattan as a share of the U.S. population. Between 1790 and 1860, New York City's population rose from 33,131 to 813,669. The annual rate of increase rose from 1.8 percent to 4.7 percent. Chart 3 presents the time path of the decadal growth rates of New York City. During every decade, except the war-torn period between 1810 and 1820, New York grew by more than 50 percent per decade. Except for the period when New York's population soared because of the incorporation of Brooklyn, the city would never grow by comparable rates again.

By 1860, New York was far and away the biggest and most important city in the United States, with almost 250,000 more residents than Philadelphia. Over the 140 years since then, New York's preeminence among American cities has never been challenged. In a sense, the key to understanding New York's tremendous success lies in understanding the 1790-1860 period.

There are two distinct but closely related growth processes that occurred over this period. First, the port of New York came to dominate American shipping and immigration completely. Second, New York exploded as a manufacturing town, as industries such as sugar, publishing, and most importantly the garment trade clustered around the port. The growth of New York City's port seems like an almost inevitable result of New York's clear geographic advantages (especially when nature was helped along by the Erie Canal). The growth of manufacturing in the city informs us about the nature of agglomeration economies and transportation costs.

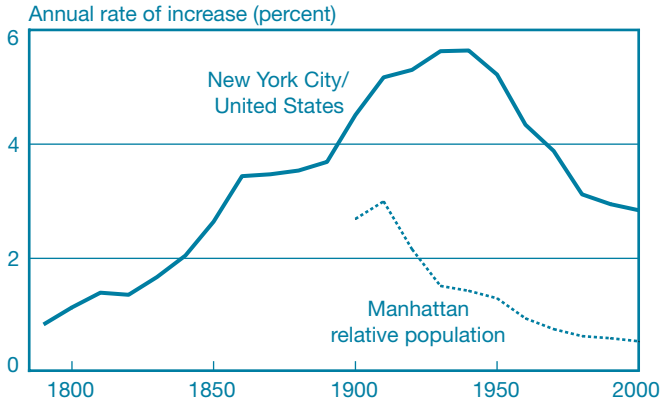
Albion (1970) describes the increased use of New York City as a dumping ground for European goods. The Napoleonic Wars (and the War of 1812) had severely curtailed trade between the United States and the United Kingdom. As soon as peace was declared, British merchantmen with millions of dollars of goods hastened to America to finally sell these wares. The merchantmen packed large ships and came to New York to

Chart 1
Growth of New York City and Manhattan Populations



Source: U.S. Census Bureau (for city population, 1790-1990: <http://www.census.gov/population/www/documentation/twps0027.html>; for borough population, 1900-90: <http://www.census.gov/population/cencounts/ny190090.txt>).

Chart 2
Growth of New York City and Manhattan Populations as a Share of U.S. Population



Source: U.S. Census Bureau, U.S. Census of Population.

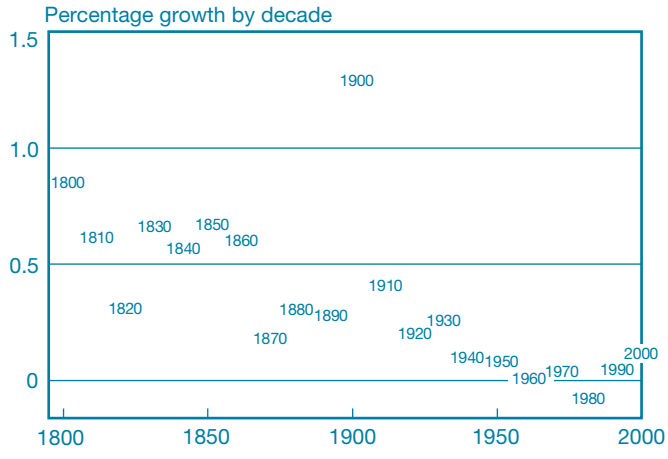
drop their wares, which were then shipped throughout the republic. This basic pattern became the model for trade with Europe over the nineteenth and early twentieth centuries.

At the end of the colonial period, Boston, not New York, was America's premier port. Between 1790 and 1820, New York came to supersede Boston and ultimately attracted a large number of Boston merchants and sailors into its harbor. From 1820 to 1860, New York completely surpassed its northern competition in terms of trade. Chart 4 shows the time path of annual imports, measured in dollars, between 1821 and 1860. At the start of the period, New York's exports were $13 million and Boston's were $12 million. By the end of the period, New York's exports were $145 million and Boston's were $17 million. As the chart shows, New Orleans, not Boston or Philadelphia, rivaled New York City by the mid-nineteenth century.

What changed? Why had the harbors of Boston and Philadelphia been good enough to be the leading ports of the colonial era, but not good enough to maintain their strength over the nineteenth century? There are actually two different sets of answers to this question. First, there are the technical factors that make New York a somewhat superior port. Second, there are the economic factors that translated this modest geographic superiority into complete mercantile dominance. We start with New York's geographic advantages.

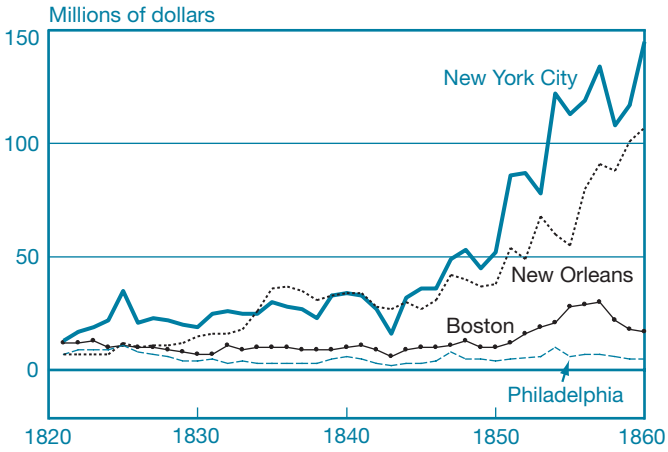
One advantage was New York's central location. While Boston is at the northern edge of the United States, New York is in the center. For ships from England and elsewhere trying to make a single delivery to the colonies, New York offered a better location because it would be cheaper to ship goods from there to the southern colonies or Philadelphia than from Boston. One of the great advantages of the Constitution over the Articles of Confederation is that the Constitution significantly reduced the barriers to interstate trade. As these barriers fell, the possibility for interstate trade rose and the advantage of a location near the center of the colonies increased.

Chart 3
Population Growth Rates of New York City by Decade



Source: U.S. Census Bureau, U.S. Census of Population (<http://www.census.gov/population/www/documentation/twps0027.html>).

Chart 4
Exports from Principal Ports, 1821-60



Source: Historical Statistics of the United States.

A second advantage was New York's large river, which facilitated shipping deep into the American continent. The Charles quickly becomes narrow and shallow and is less than 100 miles long. The Hudson is longer than 300 miles and is extremely navigable. The Erie Canal connects the Hudson to the Great Lakes system, which enables goods to travel from the American heartland to Europe completely by water. In an age when water-borne transport was far cheaper than land transport, New York's access to canals, lakes, and rivers gave it a significant edge over most competitors.

Philadelphia shared some of New York's advantages of centrality and water access to the interior. Of course, Philadelphia's connection with Pittsburgh and the west used both rail and water, and as such was decidedly more difficult to travel than New York's pure water connection. Moreover, New York enjoys a third advantage over Philadelphia: direct access to the ocean. The port of Philadelphia is more than 100 miles from the Atlantic, whereas the port of New York is less than 20 miles from the ocean. As such, a European ship looking to save time and money would naturally be attracted to New York. The ports along the Chesapeake Bay, such as Baltimore, also suffered from a greater distance to the ocean.

Finally, New York's port is also superb in terms of its combination of depth, shelter, and freedom from ice. New York harbor is protected from the ocean by Staten Island and the Brooklyn peninsula. It is much deeper than the harbors of Boston or Philadelphia—a factor that became increasingly important as ship tonnage increased starting in the 1790s. Finally, New York harbor is less prone to ice than either Boston or Philadelphia. The advantage over Philadelphia occurs because despite Philadelphia's more southern locale, its location on a river makes its water freeze faster.

These advantages were significant, but they implied only that New York would be the first among equals. The city's remarkable dominance over America's exports requires more explanation. Why did New York end up having five or six times the exports of Boston and twenty-five times the exports of Philadelphia in 1860? This question lies at the essence of the agglomeration economies behind cities.

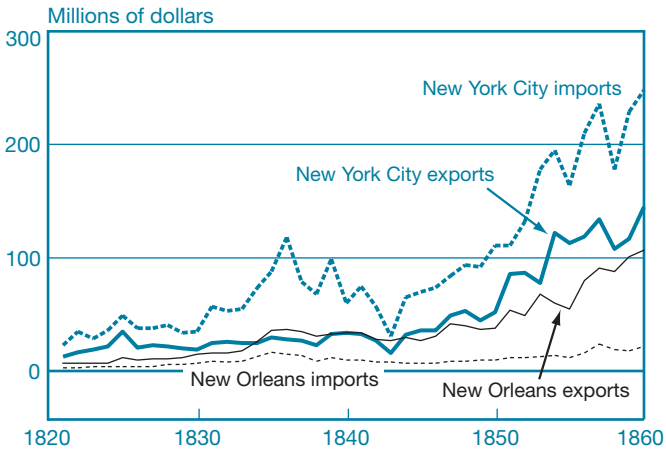
The rise of New York City as the dominant port can be seen as an early example of a hub-and-spoke transportation network. In the earliest period of colonial history, the dominant form of transportation between the New and Old Worlds consisted of point-to-point transport, where bales of tobacco were picked up in Virginia and transported to England. But point-to-point transport was plagued by a problem: the exporting areas did not import nearly enough goods from England to fill the ships on their voyage to the Americas. First, the southern plantation owners generally maintained a large current account surplus that was offset either by capital accumulation or by paying debts on the purchase of land and slaves. Second, the manufactured goods that were imported from the Old World used much less space than the tobacco or cotton that was exported. Third, the southern plantation owners found it increasingly efficient to buy from New World producers of manufactured goods or food and avoid the lengthy Atlantic trip.

The lack of southern imports can be seen from Chart 5, which shows the imports and exports of New York and New Orleans. Throughout the 1821-60 period, the New York harbor imported more than it exported. This pattern reflected the general tendency of America to run a current account deficit that was offset by shipments of bullion back to the Old World. Throughout the same period, New Orleans maintained a staggering current account surplus. By 1860, New Orleans exported $107 million of goods and imported $22 million of goods. In a sense, this imbalance made it somewhat amazing that New Orleans' port could thrive as an export market, despite the enormous advantage of being at the mouth of the Mississippi.

This lack of coincidence of wants was solved in the eighteenth century by the early "triangle" trade, in which manufactured goods in England were brought to Africa and traded for slaves, which were in turn brought to the Caribbean and the South. The ships reloaded with plantation produce that was then sent to England. But this triangle could hardly survive the elimination of the slave trade in 1808. Moreover, the elimination of the slave trade coincided with an enormous increase in the production of cotton following Eli Whitney's invention of the cotton gin in 1794. At the same time as the

Chart 5

Exports and Imports of New York and New Orleans



Source: Historical Statistics of the United States.

South had more and more to export, the importation of slaves became illegal.

The "cotton triangle" in New York City solved this problem. Cotton was shipped to New York and was transferred from coastal ships to trans-Atlantic lines. Manufactured goods, often made in the city, went south. Ships coming to New York were filled with imported goods from the Old World. Ships leaving the city were filled with cotton and other basic commodities being shipped east. While the New York port of the eighteenth century had focused on shipping flour grown in the vicinity of the harbor, the port of the nineteenth century became a conduit through which a large amount of the colonies' trade would pass.

The cotton triangle is just one example of New York becoming a hub connecting two spokes. Obviously, New York also connected the river, lake, and canal traffic from the west with the trans-Atlantic ships to the New World. Tobacco products from the South came to New York from Baltimore and other, more southern, ports. More surprisingly, New York also served as a hub for goods from Philadelphia and even Boston. For example, Boston textile producers would often ship their wares to New York to be sold in that large entrepot to buyers from across the country. Similarly, Philadelphia shipped coal from the Pennsylvania anthracite mines up to Manhattan.

The increasing attractiveness of hub-and-spoke shipping owed much to changes in shipping technology. Two large changes occurred, which added advantages to having a focal port. First, trans-Atlantic ships became increasingly large over the early nineteenth century. For example, Albion (1970, p. 398) reports that in 1834, 1,950 vessels entered New York harbor carrying 465,000 tons of cargo. In 1860, 3,982 vessels entered the harbor carrying 1,983,000 tons of cargo. The average tonnage per ship entering the harbor increased from 238 to 498 tons of cargo over that twenty-six-year period. The rise in ship size is particularly clear when considering the packet lines that provided regular service from New York to Liverpool. In the early 1820s, these ships typically carried between 300 and 400 tons. By 1838, 1,000 tons became normal and the *Amazon* carried 1,771 tons in 1854 (Albion 1970).

These large ships provided great scale economies in the sense that they required smaller crews per ton. Furthermore, they were generally safer and faster than their smaller predecessors. However, large ships created an indivisibility that makes the gains from a centralized port obvious. While small ships could readily go point-to-point, dropping their small cargoes at disparate locations, large ships needed a market that could accept their bigger cargoes. This created a centralizing tendency, just as scale economies and indivisibilities do in standard models of economic geography (Krugman 1991). This effect is exactly parallel to the tendency to use the largest planes only for travel between the largest airports. These bigger ships also increased the advantage inherent in New York's deeper harbor. Although Philadelphia could readily compete in handling the shallow draft ships of the eighteenth century, the Delaware was simply not deep enough to handle regular commerce with the largest ships of the nineteenth century.

The second significant change of the nineteenth century was an increase in specialized shipping, which was itself a by-product of the increased use of large ships for trans-Atlantic crossings. In a small-ship world, the ships that plied the coastal trade and the ships that crossed the ocean were not all that different. However, the rise of big ships meant that it became efficient to use different ships to carry goods up and down the American coast and to carry goods across the Atlantic. Small ships are far more appropriate for picking up smaller cargoes and carrying them on shallower waters. Big ships had more of a risk of running aground, and could not be used to pick up the smaller cargoes being shipped to and from the disparate settlements of the young republic. Instead, it increasingly made sense to use smaller ships, such as schooners, to ply the coastal trade. These ships would then bring their cargoes to New York and be consolidated into larger cargoes carried in big ships for the trans-Atlantic crossing.

These technological advantages were further abetted by learning-by-doing, specialized investment in port-related infrastructure, and the agglomeration of manufacturing (described in the next section). There is little doubt that New York gradually acquired an unequal set of skills and institutions that supported large-scale trade. Its auction houses and insurance system became the largest in the Americas. New York invested in its wharves, further enhancing its port. Indeed, the Erie Canal should also be seen as a form of port-related investment that further exacerbated its initial advantages. As trade became more intricate and as financial transactions became larger, gains to specialization increased. As such, the initial advantage that New York had because of its deep harbor and central location ultimately translated into massive dominance as a port.

The rise of the New York port does not illustrate a random accident leading to geographic concentration. New York was the best port in the United States and it should have been the largest. However, its rise does show the conditions under which an initial advantage, which might have been slight, translates into vast scale. Probably the most important reason for centralization was the mismatch between supply and demand, especially in the southern colonies. This mismatch in New York's case, as in most cases, led to the advantages of a large market that eliminated the need for bilateral commodity transactions. A secondary factor was the changes in technology

that create larger boats and benefits from specialization. These changes also created scale economies in the port. Finally, these advantages were further advanced by trade-specific infrastructure and trade-specific human capital, which became increasingly important in the more complicated world of the nineteenth century.

3.1 The Rise of the Manufacturing City

Although the rise of New York City as a port is a striking example of agglomeration economies at work, the majority of New York's burgeoning population was not involved either directly in commerce or in the maritime trades. While Boston specialized in seafaring men, New York's population increasingly engaged in manufacturing. As early as 1820, New York had 9,523 workers in manufacturing and 3,142 in commerce. By 1850, there were 43,340 people in manufacturing and 11,360 in commerce. New York's port may have been the catalyst for the city's rise, but New Yorkers were far more likely to be involved in producing manufactured goods than in working on the ships themselves.

Drennan and Matson (1995) include data from the census of manufacturers in various decades. The dominant industries, measured by value, are generally sugar refining, printing and publishing, and the garment industry. In the 1810 economic census, sugar refining was the largest industry, and it was responsible for more than one-third of the value of total manufactured products in the city. In 1870, sugar would be the second-largest industry, by value, in New York City and the largest industry in Kings County (Brooklyn). Even in 1900, sugar was the second-largest industry in the city. Needless to say, sugar's dominance did not continue into the twentieth century.

The sugar industry began in New York in the eighteenth century, when Nicholas Bayard opened the first sugar refinery in the city in 1730. Several other refineries followed and in the nineteenth century, the Havemeyers began refining in Brooklyn. Sugar refining, certainly relative to the garment industry, was highly capital intensive for its day. The refineries were large industrial undertakings that produced vast returns for early industrialists.

New York's dominant role in the sugar industry resulted from its trade with the West Indies, which increasingly specialized in sugar production in the 1750s and 1760s. During this period, New York flour was shipped to the Caribbean and raw sugar was one of the commodities that returned in the holds of the ships. The raw sugar would be refined in New York and consumed in the city, or shipped elsewhere. This pattern would continue after the Revolutionary War, when New York's central role as the hub of a trading network meant that sugar passed through the city on its way both to Europe and to markets within the United States.

But why was New York the natural place to refine sugar? In principle, sugar could have been refined in the West Indies at the final point of consumption. In the case of some commodities, processing removes so much weight that it is generally efficient to engage in processing at source. Indeed, even in the case of sugar, it would have been madness to ship untouched sugar cane up to New York for processing without first turning the sugar cane into raw sugar. The excess weight would have badly compromised profits, and even more important, unprocessed sugar cane rots quickly.

While initial processing must be done soon after the cane is cut to avoid rot and close to the sugar plantation to avoid the carrying of excess weight, sugar refining occurs "close to where the sugar is to be consumed" (Galloway 1989, p. 17). Galloway writes, "the fundamental reason for the separation of the final stage in the manufacture of sugar—refining—from the cane fields, a separation that in the western world dates back several hundred years, lies in the fact that crystals of sugar coalesce during the human conditions of a long sea voyage, and so any imported refined sugar would have had to have been reworked if customers were to have received the top quality." Galloway also emphasizes the lack of cheap fuel for refining in the tropics, and he might have also stressed the high cost of labor in the tropics that was skilled enough to run refineries.

Sugar refining occurred in North America rather than in the Caribbean because of high transport costs, but sugar refining occurred in New York rather than in small towns throughout the country because of scale economies. By the standards of early-nineteenth-century industry, sugar refining involved large infrastructure investment and significant fixed costs. Sugar refineries were among the largest factories of this early period. These scale economies meant that it was impractical to spread sugar refineries throughout the colonies in every town or village. The technology of sugar production almost dictated that sugar refining occur in a central location close to most centers of consumption, and New York City was an ideal central location.

The strength of the sugar industry in New York therefore owes everything to the city's role as a shipping hub connecting Caribbean ports both with the American hinterland and with European final consumers. The scale economies in sugar refining are strong enough that it makes sense to centralize, and centralized production is most efficient if it occurs in the port through which the sugar is passing anyway. The growth of sugar manufacturing shows a basic pattern for the growth of

New York as a manufacturing center. Trade brought raw commodities through the city. In cases where manufacturing in the initial agricultural area was inefficient, but where it made sense to manufacture in a single place, this gateway city was the natural site to create finished products.

While the sugar refining industry produced a great deal of value, it generally only included a modest number of New Yorkers. For example, in 1860, the economic census of manufacturers reported 1,494 employees in sugar refining in New York City making more than $19,000,000 of products. By contrast, the garment industry employed 26,857 workers in that same year and produced $22,320,769 of goods. From the mid-nineteenth century through 1970, the garment trade remained New York City's dominant manufacturing industry, at least in terms of total employment. In 1860, almost 30 percent of New York City manufacturing employment was in the garment industry. In 1900, 19 percent of New York's manufacturing employment was in that sector. In 1940 and 1967, 27 percent of manufacturing employment was in garments.

New York was generally a diversified economy, but to the extent that one industry dominated the city for a century, it was the garment trade. The basic economics of the nineteenth-century New York garment industry are not so different than the economics of the sugar refining industry. The essence of this industry is turning cloth into clothing. Cloth was generally produced in textile mills, either in England or later in the textile mills of New England. As was the case with sugar, cloth and silk came through Manhattan. Similarly, there was a strong economic rationale to have manufacturing centered at the port of entry.

The starting point for the textile trade was England's commercial dominance as an exporter of wool and cotton cloth. This dominance was historical, but at the end of the eighteenth century, early industrialization gave English manufacturers a huge advantage in the production of textiles. This advantage, and the general importance of clothing in budgets, meant that in the first half of the nineteenth century, "textiles amounted to nearly 60 percent of England's domestic exports and about one-third of the imports of the United States" (Albion 1970, p. 58). This trade increasingly came through New York with the city's dominance of trans-Atlantic shipping. In 1860, more than 80 percent of the nation's textiles entered through New York. In the same year, wool, cotton, and silk goods accounted for 37 percent of the imports coming into the harbor.

England was the only producer sending textiles into America through New York harbor. The city was also the entryway for silks from France and even China. As New England mills began production and competed with English producers, even they found themselves shipping cloth to Manhattan to take advantage of this central market. The vast flow of cloth into Manhattan was the natural result of New York's dominance as a port and textile's dominance as an item of trade.

In the early part of the nineteenth century, this trade did not create a garment industry. In the 1810 economic census, New York City had significant tanneries and hatteries, but not a significant garment trade. Fifty years later, the garment industry had become the city's largest industry. The big change occurred because of the rise of the ready-to-wear industry. In 1810, cloth was turned into clothing by tailors, seamstresses, and by the end users themselves. There were no factories for the production of clothes. When clothes were made-to-measure, there was no place for centralized production of garments. At the start of the nineteenth century, therefore, New York's garment industry consisted mainly of tailors catering to the local population.

Over the nineteenth century, there were changes both in demand and production technology that turned New York into a center of ready-to-wear clothes. On the demand side, the rising slave population of the South had a demand for extremely cheap, ready-to-wear clothing. George Opdyke began the manufacture of ready-to-wear clothing in New York in 1831, catering to the market in New Orleans. The changes in production technology included the development of the factory system, and even more important, Elias Howe's invention of the sewing machine in 1846. Mechanization greatly decreased the costs of mass production relative to custom tailoring and furthered the rise of the ready-to-wear garment industry.

Once such an industry existed, and given that there were substantial scale economies in the production of clothes due to machinery and specialized human capital, it is hardly surprising that this industry centered in New York City. Given that the cloth came into that city, there was no reason to wait until the cloth reached its final destination before transforming it into shirts and pants. There would be few advantages to making ready-to-make clothes in disparate locations rather than in one centralized locale.

As with sugar, we must ask why manufacturing did not occur in the place where the raw material was first produced, which in this case was England. First, while England had a long history of cloth production, it had no history of producing ready-to-make clothes. No place did in 1830. As a result, England had no natural advantage in this form of manufacturing. New York manufacturers had the advantage of better knowledge of local demand, and could therefore cater to local tastes. They had access to relatively inexpensive labor from the increasing immigrant populations. In short, there

were probably only mild advantages to centralizing ready-to-make clothing in New York rather than in London, but these small advantages were enough for this industry to be located on the American side of the Atlantic.

Another important point about the garment trade, which helps explain its 100-year dominance in New York, is that among manufacturing industries, its need for physical space and power was quite mild. Textile mills themselves were more efficient on a grand scale, and in the first part of the nineteenth century, the mills needed water power. As a result, they were generally located away from urban areas along the banks of rivers like the Merrimack. By contrast, the garment trade involved human beings and relatively small sewing machines. In many cases, working women could contract work to be done in their own apartments. This was the ideal industry for a city where land was expensive.

Over the decades, New York developed an increasing human and physical infrastructure that supported the continuing presence of the garment trade even after the port's primacy had passed. Factories were built to cater to this trade. Singer came to New York to popularize his adaptation of the Howe sewing machine. An entire section of the city (the Garment District) became oriented toward clothing production, and a network of spatially proximate suppliers catered to this industry. Perhaps even more important, the city's industry attracted skilled workers who created a powerful agglomerating force that trained new workers and attracted entrepreneurs. There was an initial comparative advantage in manufacturing garments that came from New York's port, but this advantage produced an agglomeration that kept the industry in the city.

The third-largest manufacturing industry in the city in 1860 was printing and publishing. As late as the 1960s, publishing would be a distant second to garment manufacturing in its share of New York employment. Only in the past thirty years has publishing passed garment manufacturing to become New York's largest manufacturing industry. Still, value added per worker was generally much higher in this industry than in the garment trade. Moreover, the rise of New York publishing suggests the increasing role of New York as a city centered around the transfer of ideas.

Somewhat surprisingly, the early development of New York's publishing trade was also linked to the city's role as a port connecting America with the Old World. In the early nineteenth century "the big money, however, came from pirated copies of English authors (who didn't yet have to be paid royalties because the United States government refused to as yet to recognize foreign copyrights)" (Burrows and Wallace 1999, p. 441). As such, there was a huge advantage in this industry to being the first printer with a copy of the latest London sensation and "printers and book dealers in New York and Philadelphia competed furiously to bring out the first American editions of new English novels" (Burrows and Wallace, p. 441).

In this competitive atmosphere, being at the center of the trans-Atlantic trade offered a crucial advantage. New York printers would have been capable of receiving new novels from England more quickly and regularly than their Philadelphia competitors because of the more frequent sea traffic between New York and Liverpool. The closer connections between New York and England also ensured a steadier infusion of information about the latest books. New York's production advantages were complemented by the advantages in distributing to western consumers via the Erie Canal.

As in the case of the garment trade, this initial advantage stuck because of specialized human capital and the advantages that came from local agglomeration economies. New York attracted networks of suppliers and tradesmen who catered to the book producers. Book sellers from around the country would come to New York for book fairs to get access to the latest novels. Eventually, the combination of high costs of land and low transport costs would push the printing presses themselves off of Manhattan, but to this day, there is a strong community of publishing houses in Manhattan connecting with authors and potential customers.

While publishing English novels was one part of the early success of Manhattan publishing, news was the other cornerstone of this industry. Information was extremely valuable to the growing mercantile economy, and most of the early papers focused on providing this information. Scale economies in this industry also meant that New York had a disproportionate number of newspapers. As the news became entertainment, and even entertainment for the masses, scale economies and New York's large population ensured that the city would remain a center for newspaper production.

The central lesson of the rise of New York in the early nineteenth century is that manufacturing congregated around a port. Changes in transportation technologies turned New York into the preeminent port of the United States. This meant that raw inputs, including sugar, cloth, and even English novels, came into the city first. The first manufacturing industries were based on these raw inputs. As scale economies rose with industrialization, production was increasingly centralized in the one place that welcomed the nation's imports of these inputs.

4. The Immigrant City: 1860-1920

While New York City was the largest city in the country in 1860, it would continue to grow significantly over the next ninety years. Over this period, the population of the city increased from 813,000 to 7.9 million. Much of this increase reflected the incorporation of the outer boroughs into New York City, but even Manhattan's population continued to grow until 1920. As shown in Chart 2, New York reached its peak relative to the U.S. population as a whole in 1940, when 5.6 percent of the U.S. population lived in the city. Manhattan was at its largest relative to the nation in 1910, when almost 3 percent of the U.S. population lived on the island.

During this amazing period, the basic structure of the New York economy was remarkably static. The city remained primarily manufacturing-oriented. In 1910, there were 873,497 employees in manufacturing, 40 percent of New York's total. Trade and transportation had slightly more than 500,000 employees and domestic service included more than 330,000 workers. The primary export industries were manufactured goods and the transportation sector. New York's port remained the biggest in the nation during this era.

Even more remarkable, the composition of manufacturing employment remained constant across industries. The garment trade declined somewhat as a share of overall employment, but it remained New York's dominant industry. Sugar refining, printing, tobacco, and bread all remained big products. In the first half of the nineteenth century, New York's population explosion was connected with a radical restructuring of the city economy and the rise of manufacturing. In the second half of the nineteenth century, New York's population increases continued despite the fact that the basic structure of production remained remarkably constant.

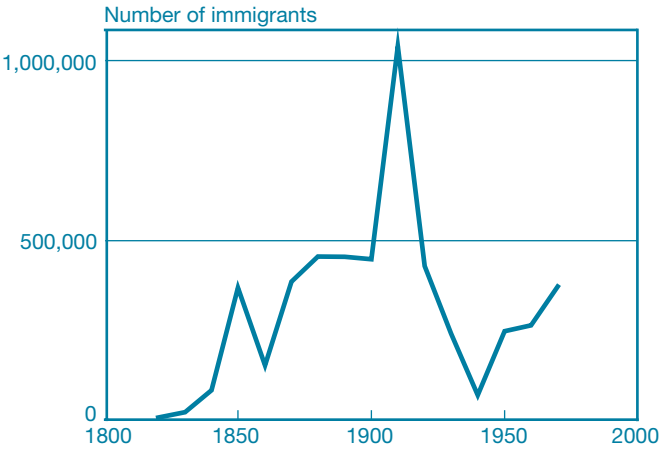
Still, there were trends that supported the growth of New York's industries, particularly the garment trade, during this period. Demand for finished clothing increased steadily as populations and incomes rose in the country as a whole. Input prices dropped significantly over the 1870-90 period. For example, the Warren and Pearson index of the wholesale cost of textiles shows a 20 percent decline relative to the Bureau of Labor Statistics' consumer price index during these years. As the South recovered from the Civil War, cotton in particular became less expensive: the cost per pound of raw cotton fell from 29 cents in 1869 to 11 cents in 1890. Wool dropped from 90 cents per pound in 1870 to less than 40 cents in the mid-1890s.

Despite the continuing strengths of New York City's industries, it would be a mistake to ignore the explosion of immigration to America from Europe. Chart 6 shows the levels of immigration into the United States by decadal frequencies between 1820 and 1970. Prior to 1841, annual immigration had always been below 90,000. Except for the five years between 1849 and 1854, immigration never passed 250,000 per year until 1865.

After the Civil War, as the chart shows, immigration began to soar. There were almost 400,000 immigrants in 1870. There were 450,000 immigrants in 1880, 1890, and 1900; between 1903 and 1914, there were almost 12 million immigrants. The overwhelming share of these immigrants entered the United States through the port of New York City. Again, New York's dominance as a port meant that it was the center for the import of America's most significant economic input: its labor force.

The rise in immigration is probably best seen as the result of declining transportation costs in trans-Atlantic passenger travel. Just as improvements in shipping ensured that New York captured a larger share of the goods shipped into the United States in the early nineteenth century, continuing improvements in sea travel meant that New York was able to retain an increasingly large group of immigrants. These reductions in travel costs were accompanied by political problems in European countries like Russia that terrorized their Jewish citizens with pogroms and by a continuing gap between high American wages and worse economic prospects in the poorer European countries. Accompanying these factors was the phenomenon of chain migration, in which an initial group of immigrants made it more socially comfortable for later immigrants to follow.

Chart 6
Immigration to the United States



Source: Historical Statistics of the United States.

The reason for the vast number of immigrants who stayed in New York, and who continued to settle (at least temporarily) in the city, can be understood as the result of four factors. First, transportation costs for internal transport within the United States were still high enough to make it cheaper to just stay in New York. This factor would have been particularly important for immigrants from poorer countries such as Italy, Austria-Hungary, and Russia, who were frequently stretched to their financial limits by the trans-Atlantic journey itself. After making the long and costly trip across the ocean, many immigrants simply did not want to spend the time and money to travel further.

Second, New York's economy may have kept its basic structure over this period, but it still showed a remarkable ability to increase its scale with the influx of new labor. The rising American population meant that demand for garments continued to rise, and there was nothing intrinsic to the production process that limited even more production within the city. The garment industry was also special in the sense that it relied on skills that were more prevalent among immigrants than the skills required in more advanced industries.

Third, improvements in transportation technologies for within-city transport increasingly made development out of the boroughs feasible. New York began its omnibus routes in the 1820s. Streetcars and the subway line soon followed. The introduction of the automobile was soon accompanied by that of the bus. Public transportation made it possible for new immigrants to occupy the outlying boroughs and commute into the city.

Fourth, and perhaps most significantly, the city itself acquired considerable immigrant-specific social and political infrastructure that made, and continues to make, New York a magnet for immigration. The most important form of this infrastructure may be large communities of immigrants from specific countries. These communities allowed new immigrants to come to New York while continuing to speak their own language. In these areas, suppliers provided commodities that were closer to those that the immigrants had consumed in their home countries. It was certainly easier for a Jewish Orthodox immigrant to keep kosher in the Lower East Side of Manhattan than in rural Minnesota.

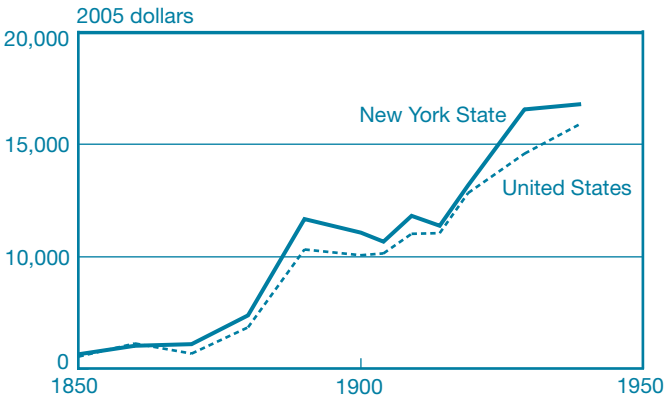
Immigrants provided the voting base for Tammany Hall during this period, and city services as a result were oriented toward immigrant needs. This meant that judges were quick to approve naturalization and that the city machine stood ready to provide patronage and emergency supplies to new arrivals. Churches and synagogues were built to cater to the growing immigrant population. Indeed, New York had been an immigrant town well before the Civil War, so there was a long tradition of providing economic services and employment to new arrivals.

Did the flow of immigrants in the late nineteenth century mean that New York City's labor supply was outstripping labor demand? Long time series on wages for the city are not available, but we can show the time path of average wages (in 2005 dollars) for production workers in manufacturing for New York State and the nation as a whole (Chart 7). If New York's growth primarily reflects labor supply, we would expect wages in the city to fall relative to wages in the nation as a whole. If New York's growth reflects labor demand, we would expect wages in the city to increase.

Chart 7 shows that from 1870 to 1890, manufacturing wages were rising in the United States as a whole, and the New York State wage premium increased from 7 percent to 13 percent. Labor supply may have been increasing during this period, but labor demand in both New York and the nation was increasing even faster. From 1890 to 1914, real manufacturing wages in New York State declined and the New York State wage premium fell back to only 3 percent. This period of declining real wages in the state corresponds with the period when immigration truly exploded. These figures suggest that during the twenty-five years after the Civil War, labor demand increases outpaced labor supply, especially in New York, perhaps as a result of declining costs of inputs and rising demand in the country as a whole. Changes in transportation technology made it increasingly possible for manufacturers to locate in the city and sell their wares throughout the world. New industrial technologies and products also strengthened the local economy. New York remained innovative, and this

Chart 7

Average Manufacturing Wages in New York State and the United States



Source: U.S. Census Bureau, U.S. Census of Population.

characteristic helped to ensure that rising population levels did not push wages down precipitously.

However, between 1890 and 1914, the growth of the city had more to do with the immigrant shock to labor supply than with increases in labor demand. Nonetheless, the driving force behind the rise of New York City's population and the continuing growth of the city's economy was the steady influx of immigrants between 1890 and 1920. The immigrants came to America because of higher wages, better safety, and cheaper ocean travel. They stayed in New York for the same reasons that cotton and sugar were processed in the city: because of lower transportation costs and because New York specialized in imports.

5. The Rise of the Information City: 1920-2000

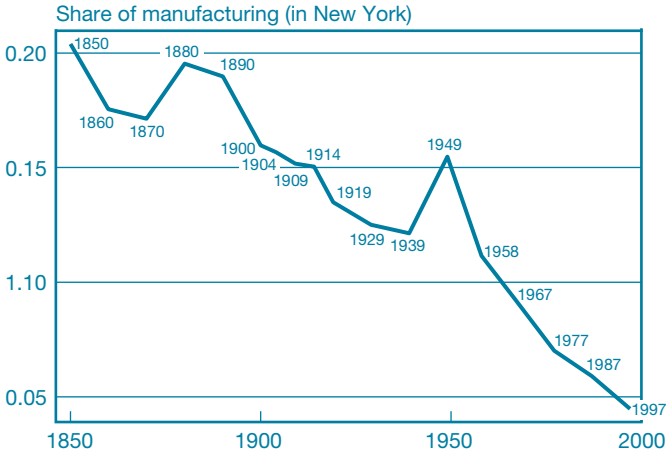
New York's immigrant boom ended with the national restriction on immigration in 1921. The quota law drove immigration down significantly and ended the prewar explosion of immigration to the island of Manhattan. For the first time in decades, the foreign born would represent a declining share of New York's population.

This negative shock was accompanied by a pair of technological shocks that would hurt almost all of America's larger cities. First, the rise of the automobile made cities such as New York, which had been built around older transportation technologies, somewhat obsolete. Automobiles, at least in low-density, car-oriented areas, are much faster means of travel than public transportation. The average commute by car in the United States is twenty-three minutes, compared with forty-seven minutes for public transportation. New York and other cities are built at higher densities to take advantage of public transportation and to allow travelers to walk from public transport stops to their final destination. Car-based communities are built at much lower densities to allow automobiles to drive without congestion and to allow the consumption of more land.

Second, the rise of the truck led to a spectacular decline in transportation costs and a decrease in the need for high-density work environments. Glaeser and Kohlhase (2004) estimate that the real cost of transportation declined by 95 percent over the twentieth century. As such, cities like New York that were built to take advantage of transportation technologies lost this comparative advantage. Moreover, the truck does not require the same centralized infrastructure as the older form of shipping technology does. This meant that manufacturing no longer needed to cluster around a port or a train station. Over the twentieth century, manufacturing left large cities and is now generally located in medium-density countries (Glaeser 2005). Chart 8 presents a long time series of the share of national manufacturing employment that was located in New York State; Chart 9 shows the decline in manufacturing both in New York City as a whole and in Manhattan after 1949.

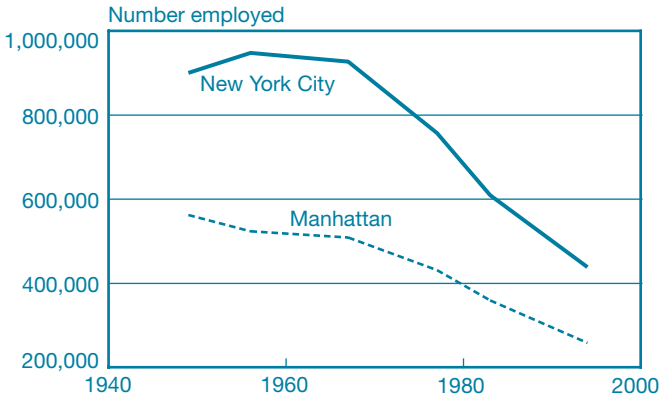
These shocks impacted New York City just as they did all of America's major cities. Table 1 shows the time path of population levels (after 1950) for the ten largest cities in the

Chart 8
Manufacturing Employment in New York State Relative to the United States



Source: U.S. Census Bureau, U.S. Census of Population and U.S. Manufacturing Census.

Chart 9
Manufacturing Employment over Time in New York City and Manhattan



Source: U.S. Census Bureau, Statistical Abstract of the United States (1946, 1956, 1967, 1977, 1983, 1994, 2000).

United States in 1930. Every city but Los Angeles lost population in the 1950s and the 1970s. Every city but New York and Los Angeles lost population in the 1960s. Every city but New York, Boston, and Los Angeles lost population in the 1980s. In the 1990s, New York, Chicago, Boston, and Los Angeles all managed to lose population. The figures in the table show the generally declining period experienced after World War II by all major cities as transportation technologies made high-density living in traditional manufacturing towns relatively much less attractive.

Table 1 makes it clear that the remarkable thing about New York City is not its postwar decline, but rather its success relative to other older cities. Only in the 1970s did New York lose more than 1 percent of its population. Even in that decade, it lost the least amount of population of any of these cities (again, except for Los Angeles). New York–oriented writers often emphasize the city's big problems during the 1970s, but such a focus ignores the fact that almost every other traditional city fared far worse during this period. The era of Lindsay and Beame may have had its problems, but New York was in much better shape than either Detroit or Philadelphia during the same period.

After World War II, New York had many of the same problems that plagued other large cities. Crime skyrocketed between 1960 and 1975, and the increase in crime made wider social problems more visible. Bad urban governance, which in most cases had been going on for decades, became more obvious during a period of urban decline when steadily increasing tax receipts could not hide waste and mismanagement. Furthermore, decaying infrastructure made the city seem grungy.

However, New York survived these problems better than its peers did mainly because its economy remained more robust. While the economies of Philadelphia, Detroit, and Pittsburgh never truly survived the collapse of local manufacturing, New York (like Boston) has reinvented itself over the past eighty years as a service city increasingly oriented around finance and corporate management. New York continues to boom to this day primarily because of finance and business services.

Table 2 shows the 2002 distribution of employment in Manhattan. Twenty-eight percent of the city's payroll is in a single three-digit industry: security, commodity contracts, and like activity. This level of concentration is even higher than the commitment of the city to the garment trade during the height of that industry. Another 28.5 percent of total payroll is in three other industries: business, scientific, and services (mostly lawyers and accountants); credit intermediation; and company management. Together, the four industries account for 56.6 percent of total payroll in Manhattan. When Chinitz (1961) compared agglomeration in New York and Pittsburgh, he emphasized the remarkably diverse nature of the New York economy. This is no longer the case. Manhattan employment is remarkably dependent on finance, business management, and business services.

This is not true in the city's outlying boroughs, which employ primarily in nontraded service sectors. Tables 3 and 4 show the importance of health care, for example, in the economies of Brooklyn and Queens. Both boroughs also have

Table 2

Employment in Manhattan, 2002

Three-Digit Industry Name	Employment	Share of Total (1.99 Million)	Payroll (Thousands of Dollars)	Share of Total (150 Billion)	Payroll/Worker
Professional, scientific, and technical services (541)	261,157	0.131	21,389,318	0.143	81,902
Security, commodity contracts, and like activity (523)	210,960	0.106	42,107,893	0.281	199,601
Administrative and support services (561)	142,796	0.072	5,521,745	0.037	38,669
Food services and drinking places (722)	107,778	0.054	2,208,254	0.015	20,489
Educational services (611)	94,945	0.048	3,764,351	0.025	39,648
Credit intermediation and related activities (522)	90,105	0.045	11,191,706	0.075	124,207
Management of companies and enterprises (551)	84,821	0.043	10,059,521	0.067	118,597
Hospitals (622)	73,230	0.037	4,320,883	0.029	59,004
Religious, grantmaking, civil, professional, and like activity (813)	67,823	0.034	2,955,000	0.020	43,569
Ambulatory health care services (621)	67,399	0.034	2,660,933	0.018	39,480

Source: U.S. Census Bureau, 2002 County Business Patterns for New York, New York (<http://www.census.gov/epcd/cbp/map/02data/36/061.txt>).

Table 3
Employment in Brooklyn, 2002

Three-Digit Industry Name	Employment	Share of Total (435,948)	Payroll (Thousands of Dollars)	Share of Total (13.9 Billion)	Payroll/Worker
Ambulatory and health care services (621)	54,537	0.125	1,682,173	0.121	30,845
Hospitals (622)	45,098	0.103	2,315,354	0.166	51,341
Social assistance (624)	21,891	0.050	498,796	0.036	22,785
Educational services (611)	21,145	0.049	500,278	0.036	23,659
Food services and drinking places (722)	18,395	0.042	261,438	0.019	14,212
Administrative and support services (561)	17,997	0.041	434,805	0.031	24,160
Nursing and residential care facilities (623)	16,849	0.038	542,854	0.039	32,219
Special trade contractors (235)	14,976	0.034	613,787	0.044	40,985
Wholesale trade, nondurable goods (422)	14,852	0.034	492,365	0.035	33,151
Professional, scientific, and technical services (541)	14,474	0.033	497,593	0.036	34,378

Source: U.S. Census Bureau, 2002 County Business Patterns for Kings, New York (<http://www.census.gov/epcd/cbp/map/02data/36/047.txt>).

Table 4
Employment in Queens, 2002

Three-Digit Industry Name	Employment	Share of Total (468,585)	Payroll (Thousands of Dollars)	Share of Total (16.8 Billion)	Payroll/Worker
Ambulatory and health care services (621)	37,272	0.080	1,146,772	0.068332	30,768
Special trade contractors (235)	29,330	0.063	1,541,310	0.091841	52,551
Air transportation (481)	27,502	0.059	1,448,255	0.086296	52,660
Food services and drinking places (722)	26,680	0.057	401,915	0.023949	15,064
Hospitals (622)	24,729	0.053	1,288,459	0.076774	52,103
Administrative and support services (561)	21,818	0.047	506,225	0.030164	23,202
Nursing and residential care facilities (623)	16,215	0.035	537,169	0.032008	33,128
Professional, scientific, and technical services (541)	14,329	0.031	477,570	0.028457	33,329
Wholesale trade, durable goods (421)	13,661	0.029	601,030	0.035813	43,996
Educational services (611)	13,513	0.029	389,995	0.023238	28,861

Source: U.S. Census Bureau, 2002 County Business Patterns for Queens, New York (<http://www.census.gov/epcd/cbp/map/02data/36/081.txt>).

export sectors, such as Queens' airport industry, but these are much smaller economic areas and are much more oriented toward providing services to the residents of the greater New York area.

New York's move into finance and management is not really paralleled by any of the other older cities. Perhaps the closest parallel to New York is Chicago, which, during the past decade, has somewhat remade itself around business services. Boston's post-1980 renaissance is completely different and should be seen as the result of small-scale entrepreneurship in a number of disparate, high-human-capital sectors. The other large cities are still in decline and cannot be said to have found any meaningful replacement for the manufacturing firms that once employed thousands of their citizens.

The success of New York as a financial city suggests three questions. How did New York become the financial capital of the world? Why has New York's dominance managed to expand in the modern era? Will New York manage to continue to survive on the basis of its financial industries?

Unsurprisingly, the origins of New York's financial community lie in its role as a port. The financial sector on Wall Street has its origins as an organization designed around sharing risk on sea voyages. This financial community branched into government securities in the 1790s. In the early

nineteenth century, New York was a close rival to Philadelphia as a center for trading stocks and bonds.

Eventually, New York replaced Philadelphia for at least three reasons. New York's greater connection to England became increasingly important in the late nineteenth century as English capital financed American development. New York's greater size meant that there were more companies in New York, which had a direct, local market for financing. Finally, the great incentive to agglomerate in finance comes from the desire for the latest information. In no other industry are the returns to knowing the latest fact greater; this meant that once New York had a slight edge, the edge turned into a complete preponderance as the financial community came to the city to obtain access to the latest information.

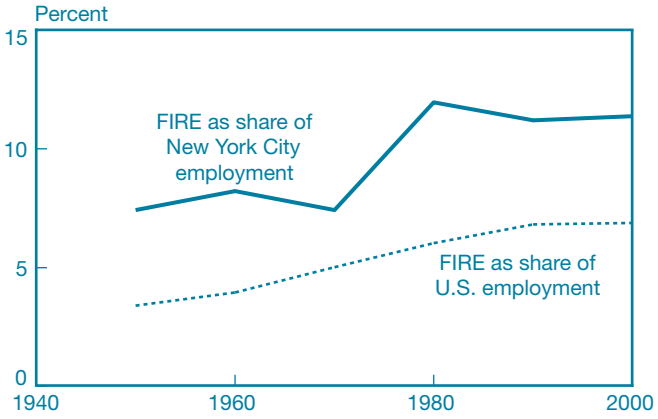
The rise to world dominance by New York's financial community was a twentieth-century phenomenon that followed the decline of New York as a port. Instead, there are two major agglomeration economies at work. The first is the role of the dense city as a center for idea flows. The high value of knowledge meant that being in the city was particularly valuable. New York's high density levels, which ended up being unattractive for most manufacturing firms, may have even helped New York finance continue to thrive because those high density levels are particularly conducive to chance meetings, regular exchanges of new ideas, and the general flow of information.

Chart 10 depicts the rising share of U.S. and New York City employment in finance, insurance, and real estate. The concentration of New York City in this sector is much lower than the concentration of Manhattan in this sector, and the concentration of employment is much lower than the concentration of payroll. Nonetheless, the city has much more of its employment in this area than does the United States as a whole. Furthermore, both city and national data show that this sector is increasing employment. Somewhat surprisingly, the decade in which the share of New York City employment in this sector increased the most was the 1970s. In 1970, 7.4 percent of the city's employment was in this sector; by 1980, 12 percent was in the sector. This change reflected both the increase of finance and the decline of other industries, such as manufacturing. As such, it may make sense to date New York's dependence on this sector to 1980.

New York's high density levels and massive scale drove its success as a center of business services. The cost of delivering manufactured goods depends only on transportation technology, but the cost of delivering services depends both on technology and on the value of the time involved by the participants in the transaction. Because services are by definition face-to-face, during an era of rising wages there is an increased incentive to agglomerate these activities. This simple

Chart 10

Share of Finance, Insurance, and Real Estate (FIRE) Employment in New York City and the United States



Source: U.S. Census Bureau, U.S. Census of Population.

argument can explain why New York was able to thrive at the same time that its manufacturing base was fleeing. Services replaced manufacturing because of the transportation cost advantages of locating in a large, dense city.

The flow of information and the ability to buy and sell business services are the reasons why Manhattan has survived as the center of world finance. But if finance had remained at its 1940 level, it would have had no effect on the long-run fortunes of New York. The city's great fortune was that at the same time that it was suffering from an exodus of the garment trade, the international financial sector boomed. Individuals saved and invested more. Improvements in communication technology and changes in regulation made it increasingly attractive for people to become involved in New York's formal economic markets. Firms had an ongoing demand for financing. The industry soared and New York was its center.

However, it is less obvious that this trend will continue. New York City is still the epicenter for the transmission of new ideas in finance, but the past fifteen years have seen a remarkable growth of cutting-edge financial institutions in the car-oriented edge cities surrounding the metropolis. Some of the more famous and infamous financial market participants have been located far from Manhattan (Warren Buffett in Omaha, Peter Lynch in Boston, Michael Milken in Los Angeles). As important as face-to-face contact appears to be, information technologies have made major inroads, and the continuing economic vitality of New York City is less obvious than it was fifteen years ago.

A final point on the future of New York worth emphasizing is that the city recently has made remarkable progress in changing itself from a relatively unattractive to a relatively

attractive place to live. In 1970, real wages in New York were quite high, which was necessary to compensate workers for crime and other problems associated with the city. In 2000, real wages were much lower. Nominal wages have risen, reflecting in part the continuing vitality of the financial sector, but prices have risen even more. This rise in real wages relates to the increasing demand for New York as a consumer city. If the city is able to continue to attract financial professionals who want the excitement of New York, then it can thrive from the labor supply just as it did during the period of immigration of the late nineteenth century.

6. Conclusion

In Glaeser (2005), we argue that the long-term success of Boston reflects a process of ongoing reinvention, whereby smart entrepreneurs react to a continuing set of crises by discovering new ways to turn a profit and still live in that city. New York's history is far more continuous, more stable, and more triumphant. The city's rise to dominance occurs during the early nineteenth century and is driven primarily by New York's advantages as a port. Manufacturing, immigration, and even finance followed from this maritime supremacy. The ultimate success of New York comes from its role as the center of the global trading network.

There are several lessons for urban and regional economics from the economic history of New York City. First, there is something to be said for geographic determinism. New York City should have had the biggest harbor and it did. However, we cannot appreciate the full extent of the city's dominance without understanding that agglomeration economies and New York's rise to dominance as a port are associated with the increasing scale of ships and the benefits of specialization.

A second lesson from New York is that transportation costs really matter. The city's port status obviously came about in large part because of these advantages, but its role as a center for immigration and as a sugar refinery also came about largely because of cost savings that resulted from reduced transportation costs. This point may be less relevant today in the manufacturing sector, but the ongoing importance of transportation costs in business services helps explain New York's continuing strength in that area.

A third lesson is the obvious importance of what Henderson (1977) calls localization economies. Generally speaking, every industry has some form of very specific industry-related needs that were met by agglomeration in New York. Indeed, even the concentration of immigrants tends to suggest a benefit from very particular groups of immigrants locating near one another. These agglomeration economies helped ensure that initial transportation-cost-based agglomerations did not disappear as transportation costs fell.

A fourth and final lesson is that New York's success for centuries has been connected to its edge as an idea city. Publishing centered in New York because people there could read the latest books from England more quickly. Sugar refining and the garment trade were located in New York, as opposed to places that made primary products, in part because of the information gains offered by the city. Finally, and most spectacularly, for almost 200 years, the success of New York's financial sector owes a great deal to the city's role as a place where the latest news can be picked up quickly.

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J. Vernon Henderson

Commentary

The paper by Edward L. Glaeser offers an insightful and entertaining overview of almost four centuries of the economic growth of New York City. First, I will address some of the themes I took away from the history sections of the paper. Then I will turn to the modern era and comment on a basic point I think the paper misses in the description of both the historical record and the modern era: the role of New York's vibrant neighborhoods.

The author's first theme is New York City's four-centuries-plus record of sustained economic and population growth. During this period, New York has outperformed Boston (and Philadelphia) to become the nation's leading city and metropolitan area. Geography has played a key role. New York has a great natural harbor connected to a long navigable river, the Hudson, something that Boston lacks. In addition, New York's central location on the east coast offered advantages over Boston's periphery location to the north. At the dawn of major industrialization, New York was the hub of what emerged as a hub-and-spoke transport system stretching up and down the coast and inland. Moreover, given New York's initial transport cost advantages at the time and its slightly larger population, the city benefited from a noticeable "home-market effect," as described in the recent economic-geography literature. For industries exhibiting scale economies, a larger home market becomes a source of local demand that helps escalate local production scale.

Glaeser describes how these advantages helped New York become America's center for manufacturing in the sugar, garment, and publishing industries well into the twentieth century. Even today, New York's presence in two of these industries continues, evidenced by a high concentration of firms engaged in the haute-couture fashion and upscale magazine publishing industries. For publishing, New York's initial advantage was its high-volume port connections with England, allowing the city to receive most first copies of new books published there. New York publishers could then pirate versions of these books for sale in the city's local market and the rest of the country. As for pirating, it had none of those Puritan scruples slowing down commerce.

The author also describes the waves of immigration from Europe to New York, which swelled the city's population and helped meet the demand for workers in the factories and centers of commerce. The reason why so many immigrants chose to stay in New York, however, is not fully explained; Glaeser contends that they "did not want to spend the time and money to travel further." While it is plausible to believe that an immigrant who had traveled for months would be tempted to stop where the boat dropped him off, one could argue that he would only stay for an extended time if New York's advantages made doing so attractive. Besides a strong labor market demand, New York City offered immigrants ethnic neighborhoods. Each neighborhood had a network of contacts to aid in finding housing and jobs. These rich and colorful neighborhoods and networks are well described in historical accounts as well as in the literature set in New York. The

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richness of the city's dense neighborhoods is a theme that continues into the modern era.

Glaeser's discussion of the modern era focuses on New York City as a financial capital where face-to-face contact and immediacy of information are critical. The point he misses is that this immediacy of information and ability to make face-to-face contact exist in other industries as well, especially those where the creative side is critical. The table shows some of the major industries in New York. For each industry, the location quotient is given—the ratio of New York's (Manhattan County's) share of national employment to its share of total national private employment. For example, for headquarters, the location quotient is 1.6, that is, New York's 3 percent share of headquarters employment divided by its 1.83 percent share of all national employment.

The table reveals that with the exception of FIRE (finance, insurance, and real estate), New York is not really a headquarters capital—its share of national headquarters employment (and its share of headquarters establishments) is only modestly above its share of general employment. The literature asserting that the city's economic base is driven by headquarters is misguided. What New York does have is finance, as emphasized by Glaeser, and services, such as advertising. New York is by far the nation's leading advertising agency city, with an even greater concentration of sales than employment. New York City is also a center for the arts. These activities have two key features: first, they are New York's leading exports; second, the creative activities such as advertising, theater, and fashion are located in dense neighborhoods, where people in these businesses interact at the neighborhood level. New York's success today is based in large part on its dense commercial neighborhoods, where face-to-face meetings and the exchange of information are essential.

Consider advertising. New York has more than 1,000 advertising agencies. These agencies are clustered throughout southern Manhattan, although some clusters remain on or near Madison Avenue. For these agencies, networking with others in the creative design of ad campaigns is critical. Networking can be formal, such as asking another agency to contribute work for a campaign, or informal, such as exchanging ideas over coffee or lunch.

The key questions are why advertisers are so concentrated in New York and what role New York's neighborhoods play. We do not know all the answers, but several things are apparent. One attraction of New York is its "buzz"—a great labor market of young, creative, and ambitious people. For advertisers, the people they sell to—broadcasters—are there as well. But what New York also offers is an array of dense advertising agency neighborhoods from which to choose. Arzaghi and Henderson (2005) uncover two fascinating aspects of these neighborhoods. The implied benefits of having more neighbors nearby dissipate over space incredibly quickly. The authors find strong positive effects of having more neighbors within 500 meters, some between 500 and 750 meters, but none beyond 750 meters. Clusters of advertising agencies on one side of Manhattan do not network with agencies on the other side. What are firms willing to pay to be at the center of the action of a large cluster of agencies rather than isolated on the fringes? In 1992, the average monthly rent for Class A office space in southern Manhattan was $28 per square foot. The typical advertising agency was willing to pay $10 more per square foot per month for an increase of up to 50 neighbors nearby, which is close to the maximum number of neighbors in any one census tract. But then who pays the higher rent and locates in the dense clusters, and who operates more in isolation?

Arzaghi and Henderson find spatial separation in the local market. The highest-quality firms are the ones willing to pay the most to be at the center of big clusters, while lower quality firms operate on the fringes. Agencies in New York move within the city, with new firms spinning off from old ones, on an ongoing basis. For example, a new agency can set up on the fringes of Manhattan, develop its talent and potential, and move to the center of a large cluster where it pays higher rent. Some employees will then spin off their own firm and move to another cluster, and so on.

Location Quotients of Selected Major Industries in New York

Industry	1997 Quotient
Headquarters	1.6
FIRE headquarters	5.5
Financial services	6.4
Securities brokers	13.4
Business services	4.1
Advertising	8.0
Arts	3.8+

Source: Aarland et al. (2005).

Notes: The location quotient is defined as New York's (Manhattan County's) share of national employment in industry *x* divided by its share of total national employment. The numerator of the arts quotient excludes arts employment in the twelfth and fifteenth congressional districts. FIRE is finance, insurance, and real estate. The arts category includes performing arts, publishing, museums, and broadcasting.

Part of the lifeblood of New York City is its vibrant neighborhoods and dense centers of activity. A century or two ago, part of this vitality was manifested by waves of immigrants who clustered in the networks of their own ethnic neighborhoods. Today, some of the city's vitality is manifested by the different clusters of advertising agencies, fashion designers, and artists scattered throughout New York. As long as those individuals engaged in certain creative commercial activities require face-to-face networking, New York will offer the dense, vibrant neighborhoods that can help them to succeed.

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Stuart S. Rosenthal and William C. Strange

The Geography of Entrepreneurship in the New York Metropolitan Area

1. Introduction

New York will be a great place when they finish it.
- Popular saying

New York City is often used as a paradigm for all that is urban. For instance, the analysis of New York in Jacobs (1969) is explicitly presented as bearing on fundamental aspects of urbanization in general, not just on New York. This approach is easy to understand. Cities are defined by their scale and density, and among the cities in the United States, New York has the most: the most employment, the most population, the most density. Almost any urban phenomenon that one might want to study is present in New York, and New York's size means that the phenomenon in question is magnified and thus easier to understand. This magnification makes the study of New York an essential part of the study of cities in general, and it is why the particular discussions of New York in Hoover and Vernon (1959), Vernon (1960), and Chinitz (1961) have had such long-lasting general impact on urban economics.

This paper also looks at New York as an urban paradigm. Our focus is on New York's constant change, as captured in the famous unattributed quote above. The central aspect of New York's dynamism that we consider is entrepreneurship. Specifically, we focus on the geography of entrepreneurship, examining how the levels and character of nearby economic activity influence the births of new establishments and the scale at which they operate.

This paper builds primarily on research on agglomeration economies. Much of the empirical work on agglomeration has sought to estimate the effect on productivity of an establishment's local environment. The estimation has sometimes involved direct estimates of productivity (Henderson 2003) and has sometimes involved estimating correlates of productivity, including wages (Glaeser and Mare 2001) and growth (Henderson, Kuncoro, and Turner 1995).[1] Our paper is concerned with two productivity correlates: establishment births and new-establishment employment. Prior work on agglomeration and births has established the importance of the metropolitan environment (Carlton 1983). Rosenthal and Strange (2003) show that agglomeration effects attenuate geographically for six standard industrial classification (SIC) industries—software (SIC 7371-73, 75), food products (SIC 20), apparel (SIC 23), printing and publishing (SIC 27), fabricated metal (SIC 34), and machinery (SIC 35)—that serve national and international markets. For these industries, it appears that an establishment's local environment matters most.[2]

This paper employs geographically refined data from Dun & Bradstreet together with geographic information systems (GIS) software to study the spatial pattern of entrepreneurship in New York City for a broad set of industry groups. The key aspects of our analysis involve regressions of the number of

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births and the amount of new-establishment employment in a census tract on variables that describe the tract's local environment. Two sets of such variables are constructed. The first characterizes the total employment across all industries within one mile, between one and five miles, and between five and ten miles of the tract. These measure the degree of urbanization of the tract, which Jacobs (1969) and others argue is associated with productivity. The second set of variables characterizes the employment in individual two-digit SIC industries. These allow the identification of localization effects, where the proximity to own-industry activity adds to productivity (Marshall 1920).

We take a within-city approach to agglomeration, with the identification of the determinants of the spatial pattern of births and new-establishment employment coming from variation in the data within the New York consolidated metropolitan statistical area (CMSA). Although such an approach is rare in the literature—Anderson, Quigley, and Wilhelmson (2004) and Arzaghi and Henderson (2005) are exceptions—theoretical work on agglomeration argues forcefully that the effect should be modeled as decaying with distance rather than being bounded by political borders.[3]

In addition to being closer to theories of agglomeration, our within-city geographic approach has an important econometric advantage: any effects that are fixed at the city level are captured by the constant term. One such effect is regional natural advantage. Recognition of the importance of this effect goes back to Marshall (1920) at least. More recently, Glaeser, Kolko, and Saiz (2001) show climate to be a strong predictor of urban growth. To the extent that this sort of natural advantage influences entrepreneurship at the regional level, we control for it, and also for any other regionwide natural advantage that might exist. Although we cannot fully rule out the possibility that within-city variation in natural advantages drives some of our results, we believe that most natural advantages are regional. If so, then spatial variation in activity within the New York CMSA will be driven primarily by agglomeration economies and the spatial differences in productivity they create. This seems to be especially likely when analyzing the location of information-oriented industries that are less sensitive to shipping costs.

Separate regressions are carried out for four one-digit industry groups: manufacturing (SIC 21-39), wholesale trade (SIC 50-51), services (SIC 70-89), and finance, insurance, and real estate (FIRE, SIC 60-67). We also estimate models with employment from all industries in the economy aggregated together (eighty-two two-digit industries in all). In all of these models, we include two-digit SIC-fixed effects to control for characteristics common to enterprises throughout a given two-digit category. We also estimate one additional model for just business services (SIC 73). This industry is considered separately because of its importance in the local economy. In all the models, we consider whether urbanization and localization economies are present. More important, our geographically refined data also allow us to consider whether these effects attenuate geographically.

Our results are as follows. First, we document the extensive variation within the New York CMSA in the types of business activity that take place, including entrepreneurship. Second, in our analysis of the sources of entrepreneurship, the density of local employment (urbanization) and the amount of local employment in an entrepreneur's own industry (localization) are both shown to affect entrepreneurship. The influence of localization is always positive, while the effect of urbanization is much smaller in magnitude at the margin. For some industries, it is negative. Third, all of these agglomeration economies are shown to attenuate with distance. Typically, the effects of the environment beyond one mile are an order of magnitude smaller than the effects of the more immediate environment.

In the next section, we present evidence on the location of economic activity within New York. Section 3 offers a simple model of new-establishment formation and discusses the agglomeration variables used in our estimation. The estimation results are presented in Section 4.

2. Metropolis 2001: Location Patterns in the New York Region

2.1 Overview

Nearly fifty years ago, the Graduate School of Public Administration at Harvard University was asked to carry out a comprehensive study of the New York region. This mammoth effort resulted in nine monographs and a summary volume (Vernon 1960). The New York Metropolitan Region Project covered nearly every aspect of New York's economy, including its labor markets, housing markets, and industrial organization. Geography was central to all of this analysis. What goods and services were produced in New York and not in other places because of New York's preeminent and peculiar place in the system of cities? Within New York, where were

different goods produced? Although the study of agglomeration economies was far from mature during the project, the idea of external increasing returns played a central role in the answers offered to these questions.

Our goals in this paper are obviously much more modest, but they are related. We are interested in characterizing where various activities take place within New York and how agglomeration economies impact New York's perpetual reinvention of itself. This section concerns the first of these goals. As will become apparent, our analysis departs from the New York Metropolitan Region Project in at least one important way: we analyze at a much more refined level of geography.

2.2 Data

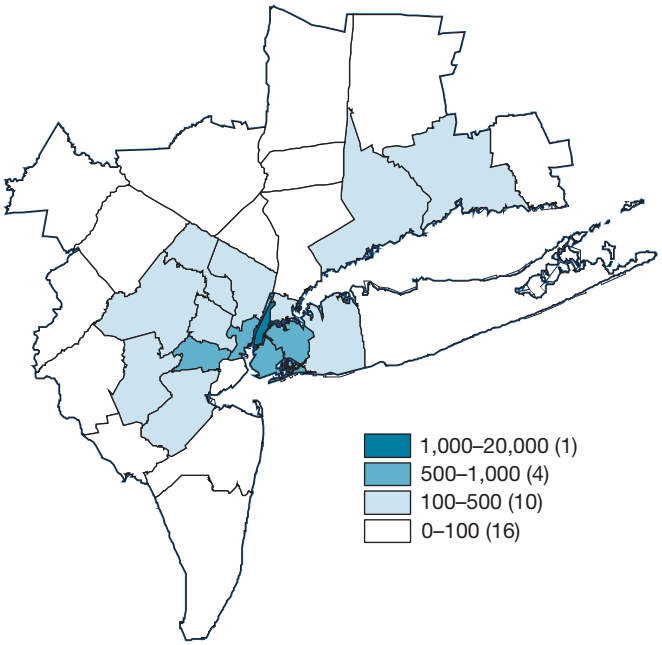
We are able to conduct our analysis at a more refined level of geography by employing data from Dun & Bradstreet Marketplace. This database provides a wealth of information on establishments throughout the New York CMSA. We employ data from 2001:2 to describe New York's economic environment. The data characterize an establishment's activity (using the primary standard industrial classification), its employment, and its U.S. postal ZIP code location. We then match ZIP codes to the census ZIP code tabulation area (ZCTA) geography, as well as to the year 2000 census-tract geography. This procedure enables us to convert all of the employment data to census-tract geography, which we use as our standard geographic unit of analysis.[4] In future work, the procedure will facilitate analysis of the relationship between local employment and residential patterns. However, as noted earlier, our focus in this paper is on employment and entrepreneurial activity in manufacturing, wholesale trade, FIRE, and services. We will address how the data are employed in our estimation later in the discussion.

2.3 County-Level Patterns

Before turning to our more geographically refined characterization of economic activity in New York, we will begin by painting a larger but somewhat less detailed picture at the county level. The New York CMSA is made up of thirty-one counties. They differ substantially. New York County, which is essentially equivalent to Manhattan, is extremely dense, with 66,940 people per square mile (<http://www.factfinder.census.gov>). Dutchess County is sixty-four miles from the center of Manhattan, and is considerably less dense, with 350 people per square mile. Across the rest of the New York CMSA, population density varies between these two extremes. This intracity variation is one of the main reasons why our study looks at agglomeration and entrepreneurship using within-city variation.

The maps in Charts 1-4 depict employment densities (employment per square mile) at the county level across the metropolitan area. Right away, it is clear that with regard to employment as well, Manhattan is different. Despite the well-known problems of central cities in general and of New York in particular, and despite the tendencies of industries and households to decentralize, the high density of activity in Manhattan remains unique in the New York metropolitan area. This pattern holds for manufacturing (SIC 20-39, Chart 1), wholesale trade (SIC 50-51, Chart 2), services (SIC 70-89, Chart 3), and FIRE (SIC 60-67, Chart 4). This result is somewhat surprising. Much popular urbanism (such as Garreau [1991]) argues that the really important parts of America's cities are their peripheries. It is certainly true that the changes taking place at the urban fringe are significant. However, it is also true that their

CHART 1
Manufacturing Employment Density (Workers per Square Mile)
County Level, 2001:2

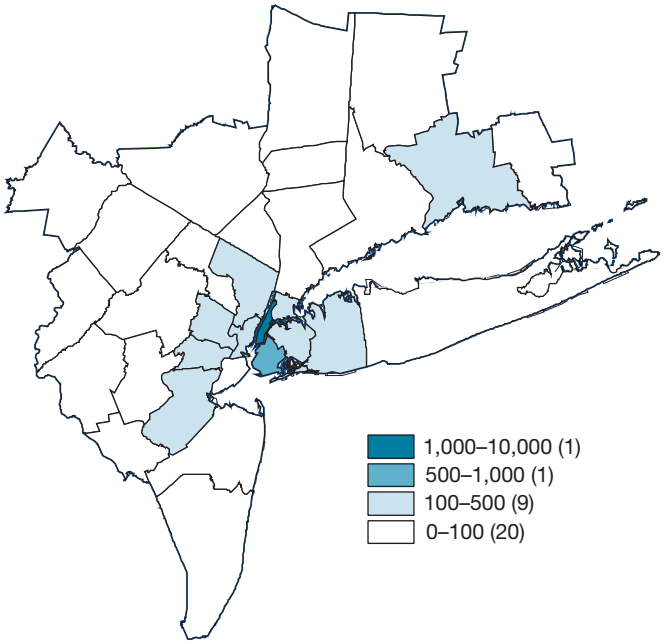


Source: Dun & Bradstreet, Inc., Second Quarter 2001 MarketPlace files.
Note: Figures in parentheses are the number of counties in each category.

Chart 2

Wholesale Trade Employment Density (Workers per Square Mile)

County Level, 2001:2



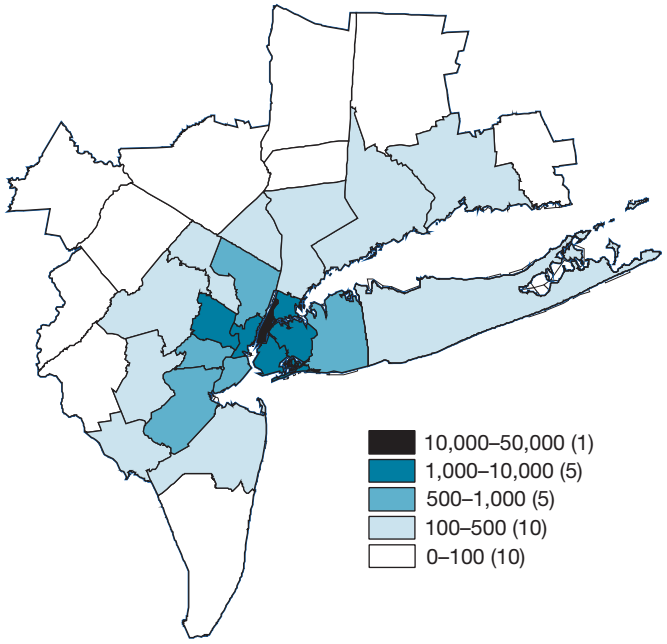
Source: Dun & Bradstreet, Inc., Second Quarter 2001 MarketPlace files.

Note: Figures in parentheses are the number of counties in each category.

Chart 3

Services Employment Density (Workers per Square Mile)

County Level, 2001:2



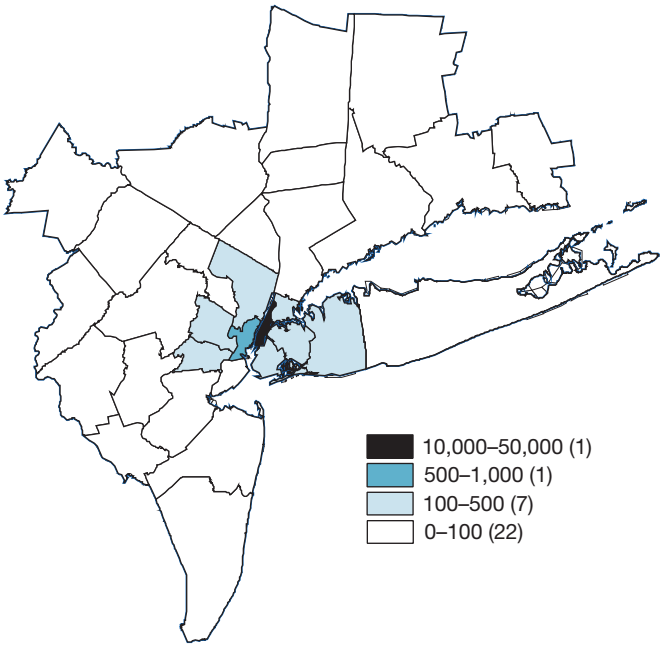
Source: Dun & Bradstreet, Inc., Second Quarter 2001 MarketPlace files.

Note: Figures in parentheses are the number of counties in each category.

Chart 4

FIRE Employment Density (Workers per Square Mile)

County Level, 2001:2



Source: Dun & Bradstreet, Inc., Second Quarter 2001 MarketPlace files.

Notes: Figures in parentheses are the number of counties in each category. FIRE is finance, insurance, and real estate.

status as a fringe implies the existence of a center, and the center still matters, at least for some cities. Of course, as we observed, New York is unusually dense. Thus, the picture from this analysis of New York may not apply to more sparsely developed cities like Houston.

Not surprisingly, the industries differ in their patterns of centralization. Comparing Charts 1 and 2 shows that manufacturing and wholesale trade follow roughly similar patterns, with the latter being more centralized. Given the importance of services to all twenty-first-century cities, it is not surprising that Chart 3 shows service sector employment exceeding 100 workers per mile in more than half of New York City's counties. It is also not surprising that employment in the FIRE industries is highly concentrated in and near Manhattan. These are known to be highly agglomerated industries.

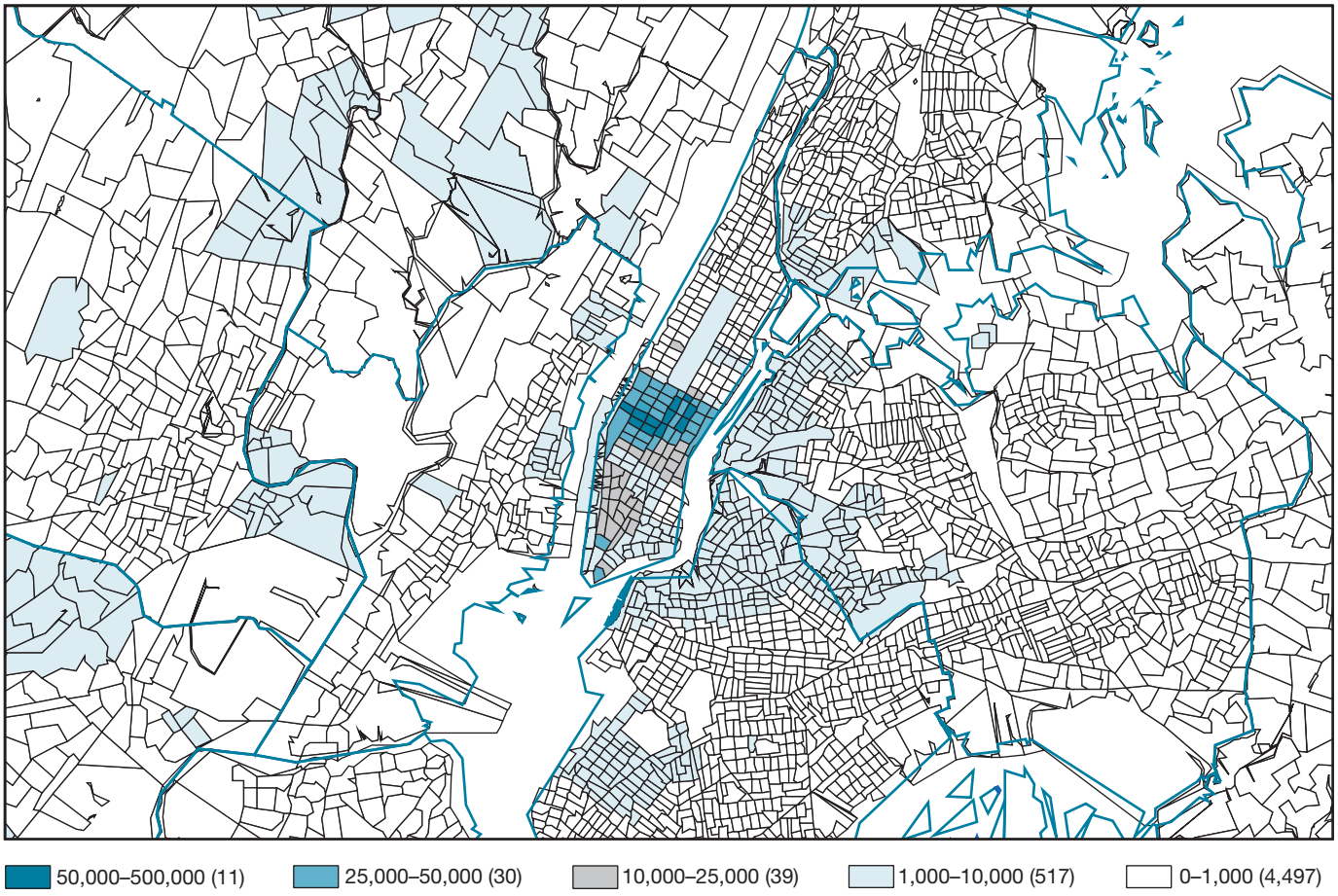
2.4 Tract-Level Patterns

One might believe that the centralization of the New York CMSA is adequately depicted in the county maps (Charts 1-4). However, the maps in Charts 5-8 reveal that this is not true. They present employment densities at the census-tract level. Charts 5-8 show, as the county-level maps do, that Manhattan

is overwhelmingly the center of the city's employment. In fact, for each of the four industry groups, the center of employment is not just Manhattan, but Lower Manhattan, defined as beginning at the southern end of Central Park. Even within Lower Manhattan, there are places with greater and smaller densities for each of the four industry groups. Thus, taken as a whole, the charts clearly establish that there is micro-level geographic concentration within the New York metropolitan area.

We begin with Chart 5, which indicates that manufacturing is concentrated in Midtown, specifically in the Fashion District (formerly the more modestly named Garment District). There exist smaller concentrations in the closest areas of Brooklyn, Queens, the Bronx, and in New Jersey. Despite the de-urbanization of manufacturing activity that took place in the last half of the twentieth century, the manufacturing sector remains important for New York City. In light of our earlier claim that New York has been treated as an urban paradigm, it is important to note that the persistence of manufacturing activity is probably greater in New York than in other cities. Chart 6 depicts wholesale trade employment density. As the earlier county-level map revealed, the pattern for wholesale

Chart 5
Manufacturing Employment Density (Workers per Square Mile)
Census-Tract Level, 2001:2



Source: Dun & Bradstreet, Inc., Second Quarter 2001 MarketPlace files.

Note: Figures in parentheses are the number of tracts in each category for the entire New York consolidated metropolitan statistical area.

trade is very similar to the pattern for manufacturing. Both industry groups reach their highest employment densities in Midtown.

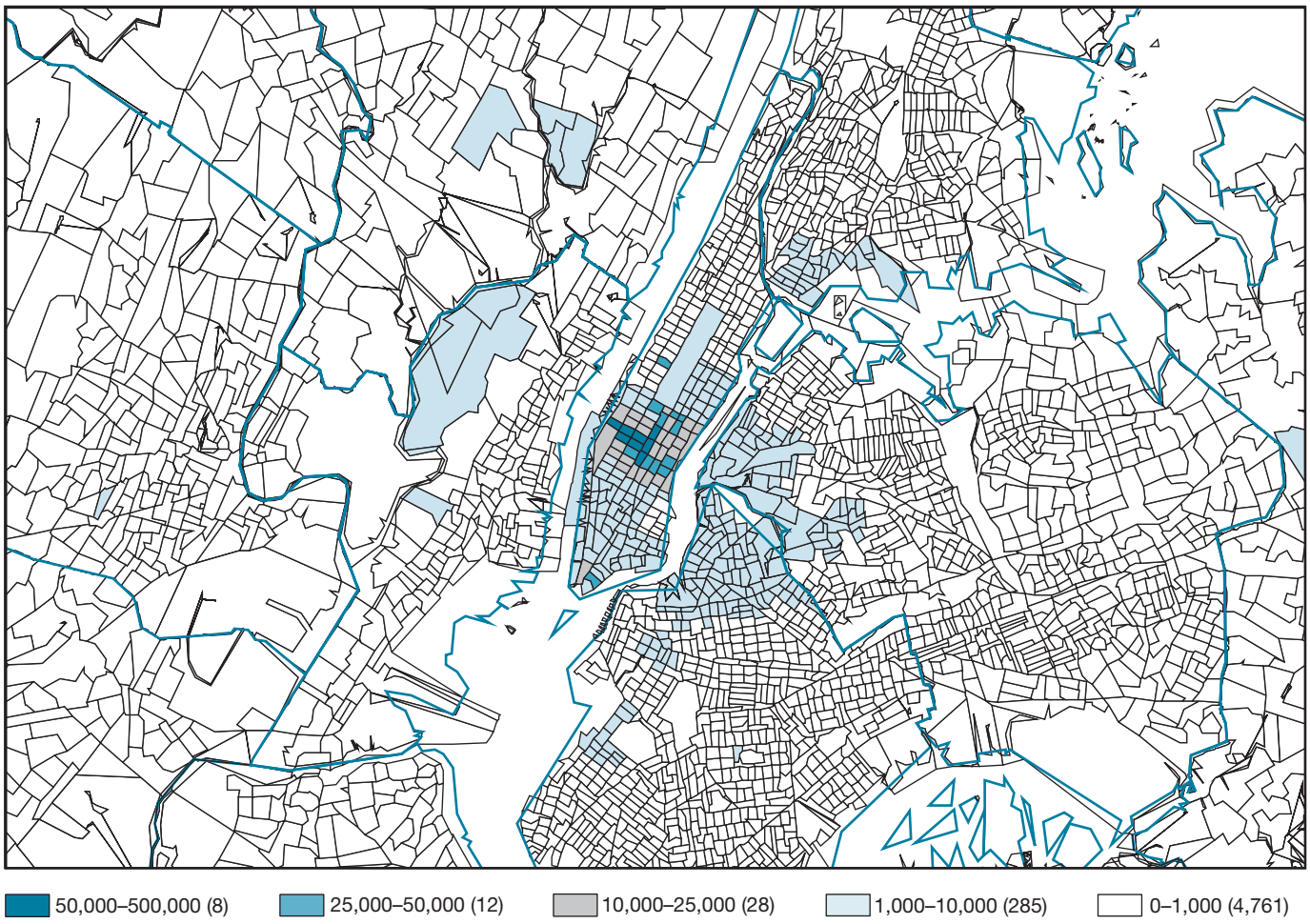
Chart 7 shows starkly just how much New York has become a "service city." For manufacturing, there are only eleven tracts where employment density is greater than 50,000 workers per square mile. For services, there are ninety-four tracts that reach an employment density of at least 50,000. There are smaller concentrations of manufacturing in the outer boroughs. The parallel for services is that most of Brooklyn, Queens, and the Bronx reach at least moderately concentrated levels of service employment density. It is worth reiterating that although service sector employment is present everywhere, it is especially present in Lower Manhattan.

Chart 8 illustrates employment density for the FIRE industry group. The chart reveals a somewhat different pattern. Employment continues to reach its greatest densities in Lower Manhattan, as with the other industries. Unlike the other

Chart 6

Wholesale Trade Employment Density (Workers per Square Mile)

Census-Tract Level, 2001:2



Source: Dun & Bradstreet, Inc., Second Quarter 2001 MarketPlace files.

Note: Figures in parentheses are the number of tracts in each category for the entire New York consolidated metropolitan statistical area.

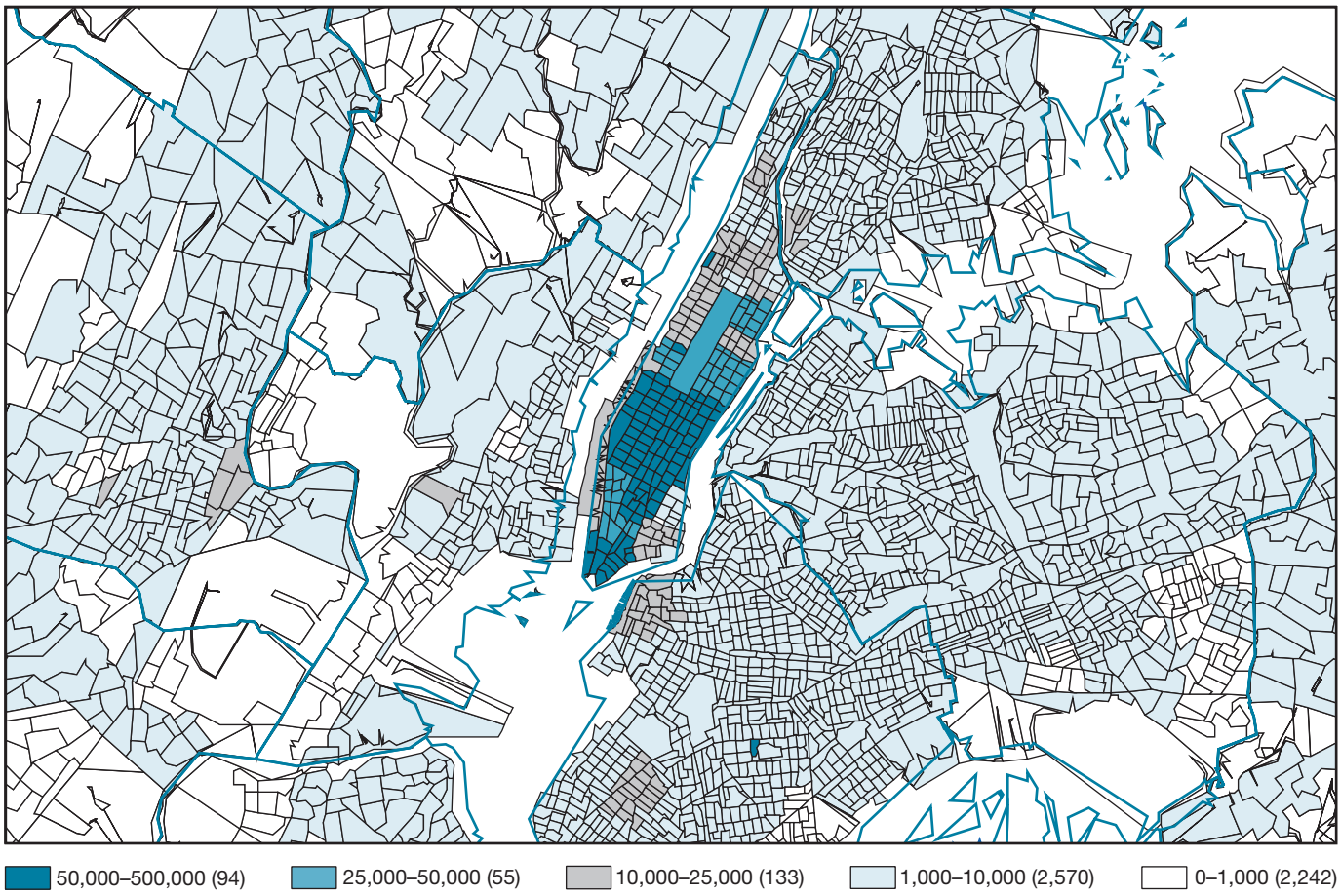
industries, though, for FIRE there are two centers. They are located Downtown (at the lower tip of Manhattan) and in Midtown. Also, relative to the other industry groups, there is really very little high-density employment in FIRE outside (both upper and lower) Manhattan.

Taken together, the maps in Charts 1-4 and 5-8 paint a picture of a centralized city, both at the macro (county) and micro (census-tract) levels. The pattern varies by industry, with service employment reaching high densities across much of Manhattan and at least moderate densities in the adjacent areas. Other industries are concentrated more narrowly.

Manufacturing and wholesale trade are still important for New York City; they are concentrated in Midtown. FIRE is also concentrated there, but another concentration also exists Downtown.

These maps describe the local business environment that confronts an entrepreneur making the decisions of whether to start up a new establishment, where to put it, and at what scale to operate it. These will essentially be the regressors in our models. The dependent variables are births of new establishments and new-establishment employment.

Chart 7
Services Employment Density (Workers per Square Mile)
Census-Tract Level, 2001:2



Source: Dun & Bradstreet, Inc., Second Quarter 2001 MarketPlace files.

Note: Figures in parentheses are the number of tracts in each category for the entire New York consolidated metropolitan statistical area.

Chart 8
FIRE Employment Density (Workers per Square Mile)
Census-Tract Level, 2001:2

Source: Dun & Bradstreet, Inc., Second Quarter 2001 MarketPlace files.

Notes: Figures in parentheses are the number of tracts in each category for the entire New York consolidated metropolitan statistical area. FIRE is finance, insurance, and real estate.

2.5 Entrepreneurial Density

The maps in Charts 9-12 illustrate the density of new-establishment employment at the tract level. Specifically, they describe geographic patterns of employment of establishments in 2004:2 that are less than three years old. It is well-known that many establishments have very short life spans (see the references in Caves [1998]). Our births variable thus understates the true amount of new-establishment creation that took place over the period because we do not take into account those companies that were created after 2001:2 but closed before 2004:2. Having said that, it is not obvious that using a shorter horizon would have been preferable. In this case, our initial period was chosen to characterize New York City before the destruction and disruptions associated with September 11. We chose to look at births over a longer horizon in part to allow some of the effects of September 11 to work through

the system. Of course, adjustment remains incomplete as of this writing, but some terminal date needed to be set.

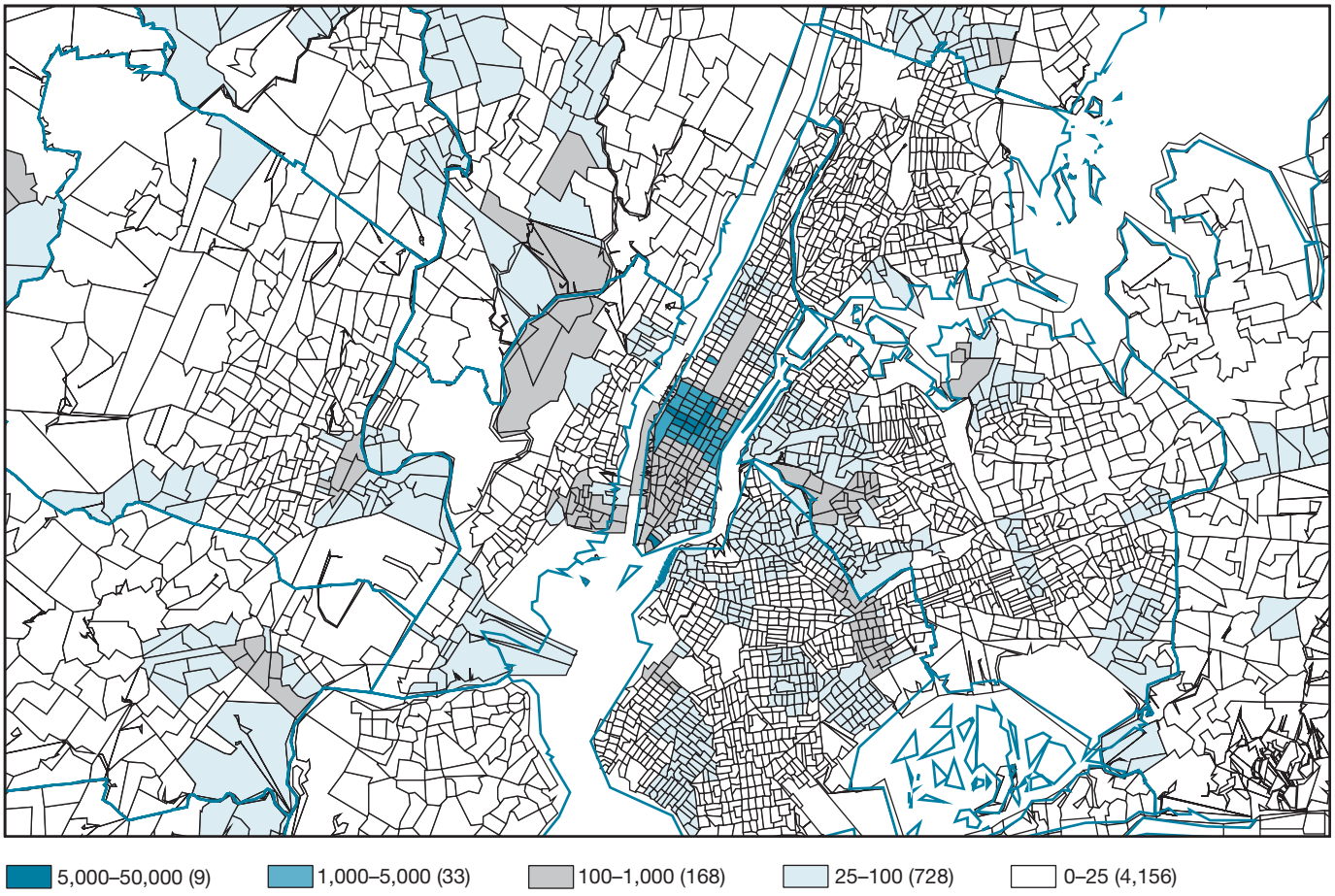
It is immediately clear from Charts 9-12 that entrepreneurial activity is highly concentrated. Furthermore, new-establishment employment is greatest near the locations identified in Charts 5-8 as having the most employment in the various industry groups. These maps suggest the presence of geographically attenuating agglomeration economies in entrepreneurship where the effect is at least partly associated with own-sector activity (localization).

In sum, the maps in this section paint a picture of the New York CMSA as remarkably centralized, both at the macro

Chart 9

Manufacturing Employment Density (Workers per Square Mile) at Establishments Three Years of Age or Less

Census-Tract Level, 2004:2



Source: Dun & Bradstreet, Inc., Second Quarter 2004 MarketPlace files.

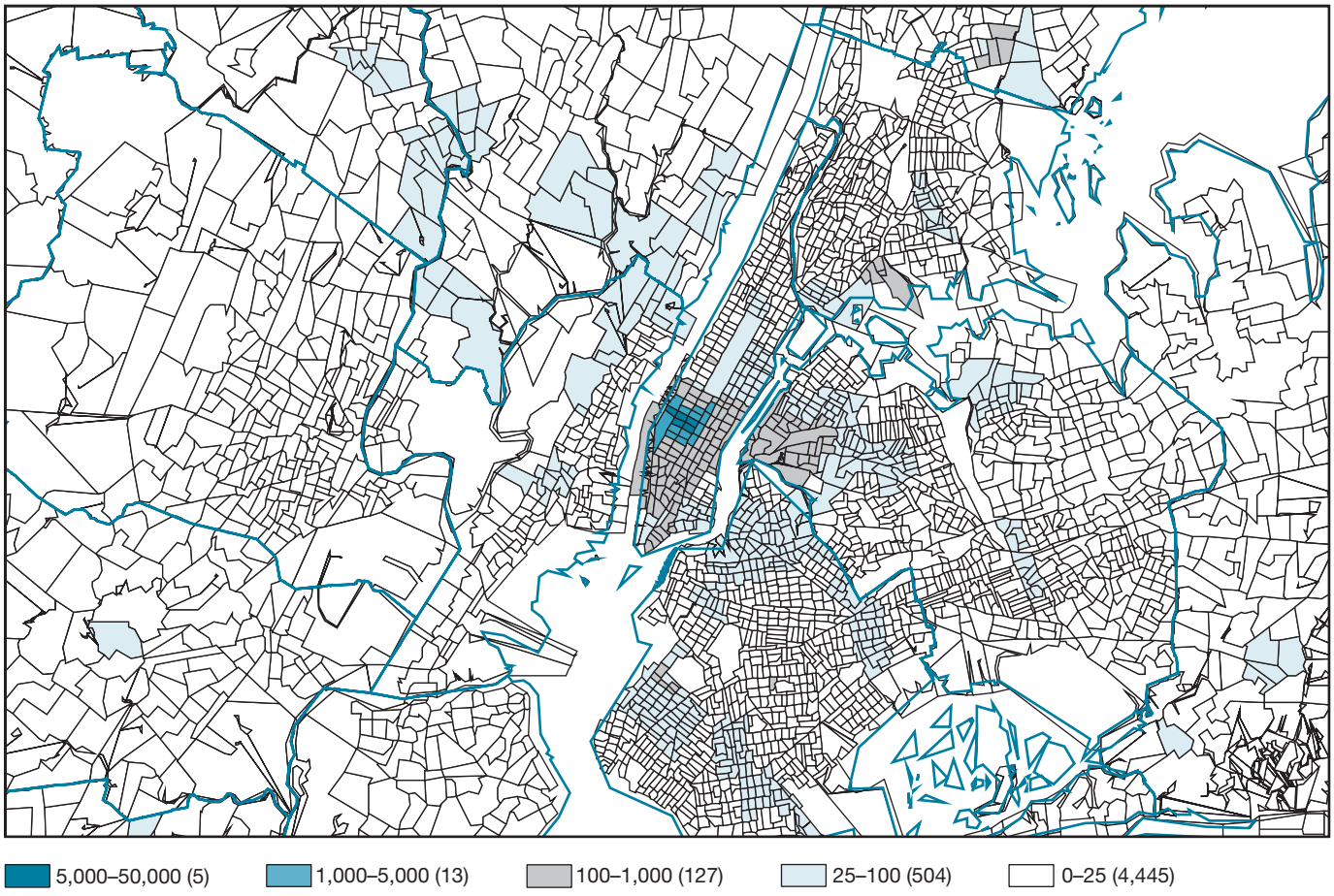
Note: Figures in parentheses are the number of tracts in each category for the entire New York consolidated metropolitan statistical area.

and micro levels. Both the number of new establishments and the employment they bring are also centralized. Entrepreneurial activity appears to be attracted to locations with large amounts of activity in the same sector. This is as far as simple descriptive devices like maps can take us. The next section sets out a model that forms the basis for our estimation of the relationship between the spatial allocation of business activities and entrepreneurship.

Chart 10

Wholesale Trade Employment Density (Workers per Square Mile) at Establishments Three Years of Age or Less

Census-Tract Level, 2004:2



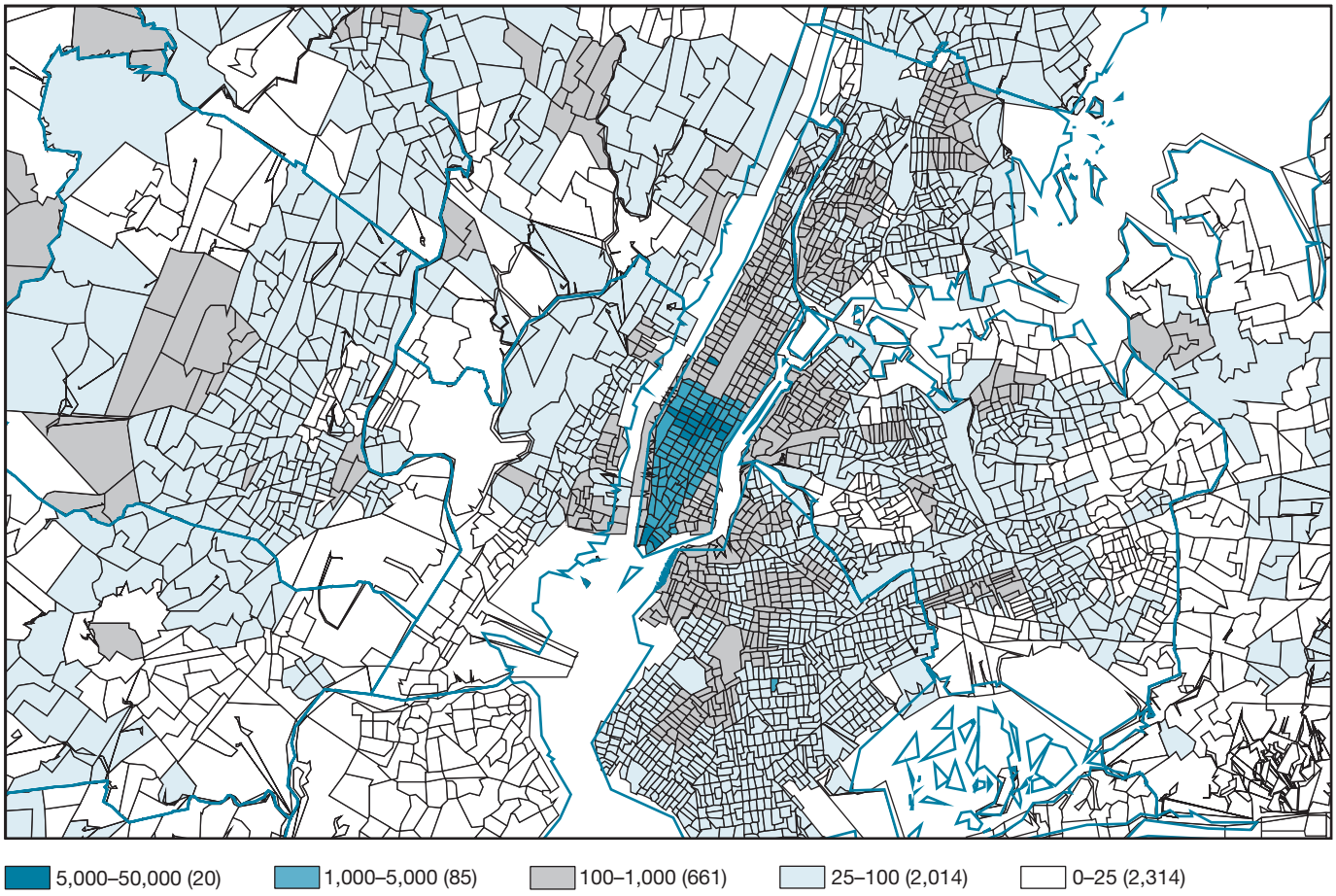
Source: Dun & Bradstreet, Inc., Second Quarter 2004 MarketPlace files.

Note: Figures in parentheses are the number of tracts in each category for the entire New York consolidated metropolitan statistical area.

Chart 11

Services Employment Density (Workers per Square Mile) at Establishments Three Years of Age or Less

Census-Tract Level, 2004:2



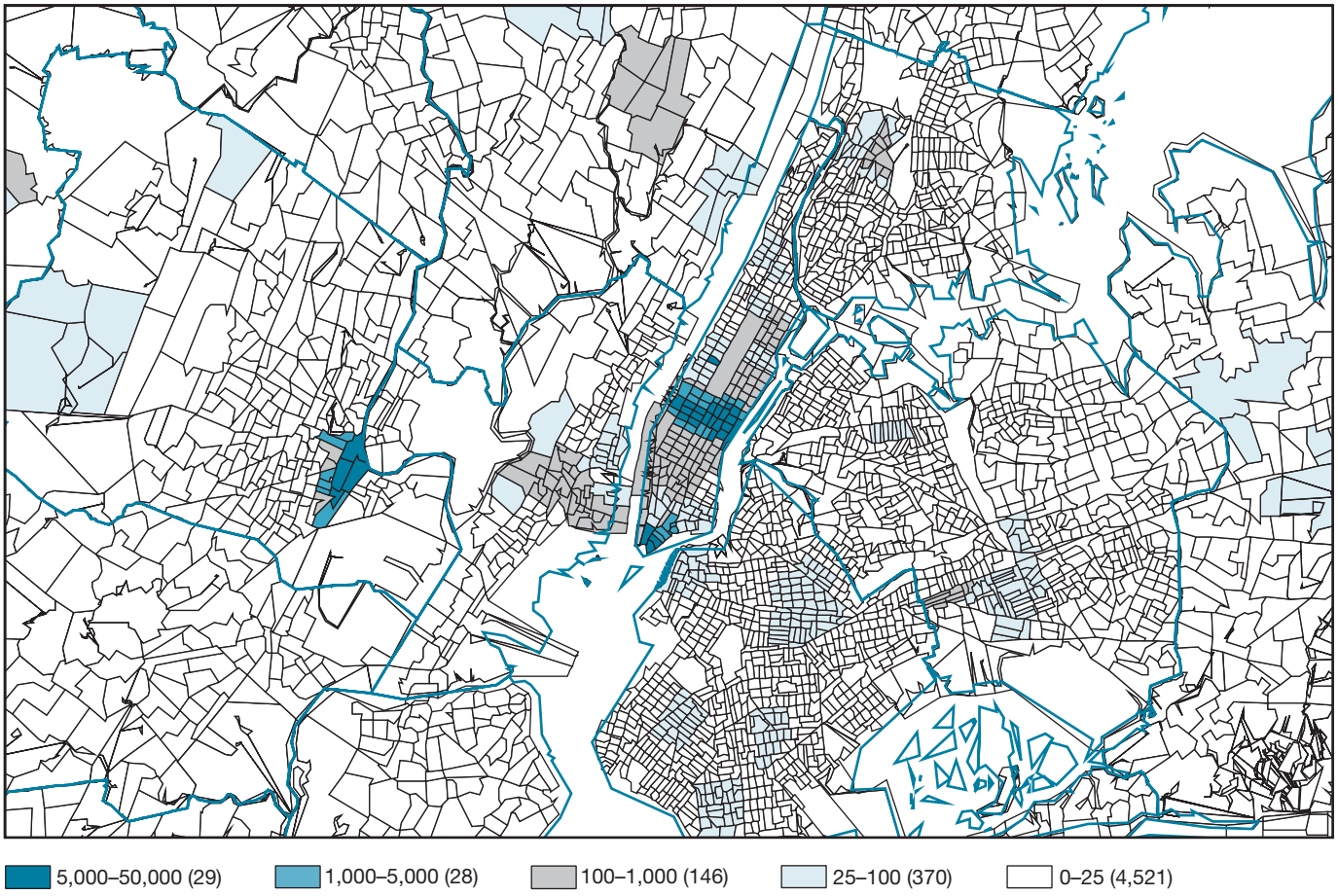
Source: Dun & Bradstreet, Inc., Second Quarter 2004 MarketPlace files.

Note: Figures in parentheses are the number of tracts in each category for the entire New York consolidated metropolitan statistical area.

Chart 12

FIRE Employment Density (Workers per Square Mile) at Establishments Three Years of Age or Less

Census-Tract Level, 2004:2



Source: Dun & Bradstreet, Inc., Second Quarter 2004 MarketPlace files.

Notes: Figures in parentheses are the number of tracts in each category for the entire New York consolidated metropolitan statistical area. FIRE is finance, insurance, and real estate.

3. Model and Estimation Strategy

3.1 Model

The heart of the model is agglomeration economies. If agglomeration economies exist, then productivity will vary spatially. This, in turn, implies that births of new establishments will take place near existing concentrations of employment, all else equal. However, all else may not be equal. If there were a local source of natural advantage, firms would agglomerate even though they had no external effect on each other. For example, as discussed in Rosenthal and Strange (forthcoming), the wine industry is concentrated in California because of favorable climate and other natural features that facilitate the growing of grapes. As we observed earlier, our within-city approach controls for natural advantages that operate at a regional level. To take that idea a step further, we also include two-digit SIC-fixed effects in all of the models. This allows the influence of regionwide natural advantages to differ across two-digit industry subgroups by stripping away all factors common to enterprises belonging to a given subgroup. Even with these fixed effects, we cannot rule out the possibility that local variation in natural advantages may still account for a portion of the estimated attraction of new economic activity to existing concentrations of employment. However, for two reasons, which we elaborate on later, we believe that our results largely reflect the influence of external economies of scale rather than natural advantages. To anticipate, the first reason is that some of our industry groups seem to be quite footloose, such as services and FIRE. In addition, the attenuation patterns we document implicitly suggest the presence of factors whose influence dissipates rapidly, a feature that seems to better fit local variation in agglomeration than natural advantages.

We begin with a model adapted from Rosenthal and Strange (2003). Suppose that the price of output is normalized to 1. In this case, an establishment generates profit equal to $\pi(y) = a(y)f(x) - c(x)$, where $a(y)$ shifts the production function $f(x)$, y is a vector of local characteristics (the components of which will be clarified below), and x is a vector of factor inputs that cost $c(x)$. Input quantities will be chosen to maximize profits by satisfying the usual first-order conditions. Employment (n), for example, is chosen such that $a(y)\partial f(x)/\partial n - \partial c(x)/\partial n = 0$.

Establishment births occur if a firm can earn positive profits, with all inputs chosen at their profit-maximizing levels. Establishments are heterogeneous in their potential profitability. This feature is captured by rewriting the profit function as $\pi(y,\varepsilon) = max_x a(y)f(x)(1+\varepsilon) - c(x)$. We suppose that ε is independent and identically distributed across establishments according to the cumulative distribution function $\Phi(\varepsilon)$. For any y, there is a critical level $\varepsilon^*(y)$ such that $\pi(y,\varepsilon^*(y)) = 0$ and $\pi(y,\varepsilon) > (<)\ 0$ as $\varepsilon > (<)\ \varepsilon^*(y)$. In this case, the probability that an establishment is created is $\Phi(\varepsilon^*(y))$.

We assume that new establishments are opened at locations chosen from among all of the census tracts in the New York CMSA, $j = 1, \ldots, J$. We also assume that location and employment decisions are made taking the prior economic environment (2001:2) as given. Let the vector y_j describe the local characteristics of each tract. Aggregating over establishments in a given tract gives the number of births (B) and total new-establishment employment (N) in industry i and tract j. We express these as follows:

$$B_{ij} = by_{ij} + b_m + b_i + \varepsilon_{b,ij}, \tag{1}$$

$$N_{ij} = ny_{ij} + n_m + n_i + \varepsilon_{n,ij}, \tag{2}$$

where ε_b and ε_n are error terms, b and n are vectors of coefficients, b_m and n_m are metrowide constant terms, and b_i and n_i are industry-fixed effects. The b_m and n_m terms capture any characteristics that impact entrepreneurship that are common across all industries in the New York metropolitan area. The industry-specific fixed effects capture any attributes that are common to entrepreneurship throughout that industry in the New York area. Together, the metrowide constant and the industry-fixed effects control for a range of natural advantages, as we observed earlier.

In addition, these terms are also likely to capture a number of other unobserved determinants of entrepreneurship that might vary geographically.[5] For example, Blanchflower, Oswald, and Stutzer (2001) report that "latent entrepreneurship," the unfulfilled desire for self-employment, varies substantially across countries. It is reasonable to suspect that it might also vary between cities. Black, de Meza, and Jeffries (1996) show the availability of collateral to be an important determinant of new-enterprise creation in the United Kingdom. The entrepreneur's own housing is shown to be the single most important source of such collateral. Since housing markets in larger cities are different than in smaller cities, this may be another metrowide effect captured in the model-fixed effects. Furthermore, there is a well-documented correlation between entry and failure. See Caves (1998) for a review of this literature. This correlation implies that resources that can be used by new establishments may be more plentiful where there has previously been activity of a similar sort. Carlton (1983)

includes this in his concept of the "birth potential" of an area. This is clearly an important issue in estimation where identification is based on intercity variation in the data. In our case, however, the identification comes from intracity variation. As long as firms that fail are free to choose any location within the CMSA, this effect will be captured by the fixed effects.

As discussed above, local variation in agglomeration that influences productivity will affect births and employment at the new establishments. Thus, the vector y_{ij} will characterize the spatial distribution of employment as perceived by industry i in tract j. Specifically, y_{ij} includes the level of employment within and outside industry i (for $i = 1, \ldots, I$) within various distances of the geographic centroid of tract j. These variables define the level of agglomeration associated with a given tract and can be measured with our data. We now explain how.

3.2 Concentric Ring Variables

As discussed above, we employ data from Dun & Bradstreet in our analysis. Our goal is to assess the relationship between a census tract's local business environment and establishment births and birth employment. To do this, we characterize the environment of each tract in our sample according to the 2001:2 level of employment. The first step is to compute for each tract both the total level of employment and the level of employment in each two-digit industry. It is worth emphasizing that in our estimation, our employment variables will then measure activity at the two-digit industry level, and not at the more general one-digit-level industry group.

The next step is to create a set of concentric ring variables for both own-industry and aggregate employment. These variables will allow the measurement of the geographic extent of agglomerative externalities. They are calculated as follows. First, employment in a given tract is treated as being uniformly distributed throughout the tract. Then, using mapping software, we draw circles of radius r_i, $i = 1$, 5, and 10 miles around the geographic centroid of each census tract in the New York CMSA. The level of own-industry employment contained within a given circle is then calculated by constructing a proportional (weighted) summation of the own-industry employment for those portions of the tracts intersected by the circle. For example, if a circle includes all of tract 1 and 10 percent of the area of tract 2, then employment in the circle is set equal to the employment in tract 1 plus 10 percent of the employment in tract 2. The same procedure is used to calculate the level of other-industry employment within each circle. Differencing employment levels for adjacent circles (by employment type) yields estimates of the levels of own- and other-industry employment within a given concentric ring. Thus, the 5-mile ring (r_5) reflects employment between the 1- and 5-mile circles, and so on out to 100 miles. Table 1 describes our data, including the rings.[6]

3.3 Tobit Estimation

We estimate (1) and (2) using a Tobit specification to account for the censoring of both kinds of entrepreneurial activity at zero. An alternative would have been to estimate the number of new establishments in a count model, while estimating new-establishment employment by Tobit. We chose to estimate both by Tobit in order to treat both aspects of entrepreneurship symmetrically. This raises an econometric issue because noisy estimates of the fixed effects in nonlinear models typically lead to inconsistent estimates of the slope coefficients (see, for example, Chamberlain [1980, 1984] and Hsiao [1986]). Also, Tobit models are known to be more sensitive to distributional assumptions than are linear regressions. Our primary response to this issue is that bias resulting from noisy estimates of fixed effects in nonlinear models tends to go toward zero as the number of observations per fixed effect becomes arbitrarily large. Since our sample has 5,211 tracts per fixed effect (the number of tracts in the New York CMSA), inconsistency arising from noisy estimates of the fixed effects is hoped to be small.[7]

4. The Geography of Entrepreneurship

4.1 Births

This section presents estimates of models relating entrepreneurship to the local business environment as defined by the concentric ring variables described above. We begin with estimates of (1), the new-establishment births model. All estimation is carried out at the census-tract level.

Table 2 presents two models: Model 1 deals only with urbanization, the scale of aggregate activity; Model 2 adds variables capturing localization, the scale of activity in an establishment's own industry. In all models, we include variables capturing activity in an establishment's immediate vicinity (within one mile), nearby (between one and five miles), and further away (within ten miles).

Table 1

Variable Means per Two-Digit Industry and Census Tract by County: All Industries

State	County	County FIPS Code	New Census-Tract Own-Industry Establishments	New Census-Tract Own-Industry Establishment Employment	Existing Own-Industry Employment			Existing All-Industry Employment		
					Within One Mile	Within One to Five Miles	Within Five to Ten Miles	Within One Mile	Within One to Five Miles	Within Five to Ten Miles
CT	Fairfield	9001	0.21	1.25	72	976	1,806	5,807	79,052	146,311
CT	Litchfield	9005	0.14	0.64	7	157	439	564	12,709	35,570
CT	Middlesex	9007	0.16	0.66	17	314	962	1,344	25,469	77,939
CT	New Haven	9009	0.13	0.80	61	889	1,748	4,959	71,989	141,613
NJ	Bergen	34003	0.29	1.57	128	3,949	18,220	10,334	319,865	1,475,853
NJ	Essex	34013	0.14	2.39	200	3,590	14,174	16,240	290,762	1,148,106
NJ	Hudson	34017	0.12	0.82	277	22,067	26,047	22,428	1,787,452	2,109,836
NJ	Hunterdon	34019	0.24	1.65	9	182	689	708	14,771	55,775
NJ	Mercer	34021	0.18	1.68	167	1,454	2,081	13,521	117,810	168,560
NJ	Middlesex	34023	0.19	1.04	75	1,547	4,004	6,081	125,333	324,359
NJ	Monmouth	34025	0.20	1.13	33	605	1,453	2,662	49,032	117,726
NJ	Morris	34027	0.25	2.43	46	1,085	3,073	3,717	87,850	248,917
NJ	Ocean	34029	0.19	0.58	18	356	795	1,471	28,865	64,362
NJ	Passaic	34031	0.24	1.28	153	2,638	7,713	12,410	213,670	624,716
NJ	Somerset	34035	0.25	2.45	40	933	3,017	3,264	75,579	244,397
NJ	Sussex	34037	0.14	0.48	5	122	438	442	9,856	35,474
NJ	Union	34039	0.19	0.99	114	2,610	7,319	9,223	211,406	592,868
NJ	Warren	34041	0.16	0.52	7	158	464	581	12,825	37,622
NY	Bronx	36005	0.05	0.23	255	5,454	27,965	20,622	441,752	2,265,155
NY	Dutchess	36027	0.11	0.51	17	250	478	1,350	20,259	38,752
NY	Kings	36047	0.06	0.25	327	11,182	28,917	26,514	905,770	2,342,297
NY	Nassau	36059	0.15	0.91	108	2,313	5,898	8,736	187,393	477,736
NY	New York	36061	0.36	4.21	3,460	25,347	21,184	280,283	2,053,141	1,715,933
NY	Orange	36071	0.17	0.81	10	199	490	811	16,148	39,704
NY	Putnam	36079	0.16	0.47	5	162	666	394	13,153	53,913
NY	Queens	36081	0.05	0.25	247	8,984	25,563	19,979	727,692	2,070,562
NY	Richmond	36085	0.07	0.24	70	1,684	13,967	5,669	136,435	1,131,321
NY	Rockland	36087	0.16	0.63	37	870	2,533	3,032	70,450	205,175
NY	Suffolk	36103	0.14	0.74	41	926	2,349	3,341	75,021	190,269
NY	Westchester	36119	0.13	0.79	93	1,694	4,923	7,551	137,237	398,743
PA	Pike	42103	0.15	0.58	1	23	83	72	1,843	6,713
Total			0.14	0.98	348	6,193	14,429	28,151	501,593	1,168,765

Source: Dun & Bradstreet, Inc., Second Quarter 2001 and Second Quarter 2004 MarketPlace files.

Notes: Eighty-two industries are represented (standard industrial classifications codes 1-97). "New" refers to establishments three years of age or less. New-establishment and new-employment counts are from 2004:2; existing employment counts are from 2001:2. FIPS is federal information processing standards.

Table 2

Number of Establishments Three Years of Age or Less in 2004:2

	All Industries	Manufacturing	Wholesale Trade	FIRE	Services	Business Services
Model 1						
All workers (1,000)						
Zero to one mile	1.56E-03	6.70E-04	5.67E-03	1.79E-03	2.73E-03	1.44E-02
	(101.60)	(45.40)	(45.70)	(54.66)	(62.50)	(37.64)
One to five miles	2.36E-06	2.37E-05	-1.10E-04	-3.08E-05	3.53E-06	-1.59E-04
	(1.71)	(9.96)	(-6.42)	(-6.15)	(0.56)	(-3.03)
Five to ten miles	-9.64E-05	-5.22E-05	-5.58E-05	-7.11E-05	-1.34E-04	-5.69E-04
	(-66.74)	(-33.31)	(-5.49)	(-23.55)	(-35.53)	(-18.43)
Memo:						
SIC-fixed effects	82	20	2	7	15	–
Censored observations	235,198	76,421	830	16,793	20,092	22
Uncensored observations	186,893	27,799	9,592	19,684	58,073	5,189
Log-likelihood	-275,426.87	-34,760.02	-14808.08	-22,357.75	-92536.19	-11,720.36
Pseudo R^2	0.27	0.21	0.07	0.20	0.14	0.07
Model 2						
Own SIC workers (1,000)						
Zero to one mile	8.32E-02	5.52E-02	2.81E-01	3.85E-02	9.78E-02	2.86E-01
	(137.09)	(50.78)	(40.72)	(37.00)	(89.26)	(15.55)
One to five miles	-6.17E-04	1.19E-04	3.84E-03	-2.20E-04	-7.50E-04	6.46E-02
	(-7.04)	(0.61)	(2.31)	(-1.22)	(-4.35)	(12.85)
Five to ten miles	-2.39E-03	1.13E-03	4.35E-03	-1.65E-04	-3.66E-03	2.04E-02
	(-36.96)	(8.30)	(3.84)	(-1.30)	(-34.61)	(8.18)
All workers (1,000)						
Zero to one mile	2.79E-04	3.21E-04	-3.86E-03	6.04E-04	1.30E-07	-1.89E-02
	(11.69)	(20.08)	(-14.83)	(13.54)	(-1.35)	(-8.43)
One to five miles	5.82E-06	2.24E-05	-1.66E-04	-1.70E-05	1.64E-05	-6.74E-03
	(2.94)	(8.49)	(-3.04)	(-2.41)	(2.10)	(-12.11)
Five to ten miles	-5.27E-05	-5.68E-05	-1.80E-04	-6.31E-05	-2.68E-05	-2.00E-03
	(-30.56)	(-31.96)	(-5.13)	(-14.40)	(-4.26)	(-7.67)
Memo:						
SIC-fixed effects	82	20	2	7	15	–
Censored observations	235,198	76,421	830	16,793	20,092	22
Uncensored observations	186,893	27,799	9,592	19,684	58,073	5,189
Log-likelihood	-263,299.55	-33,372.00	-14035.75	-21,624.79	-87,534.67	-11,523.95
Pseudo R^2	0.31	0.24	0.12	0.23	0.19	0.08

Source: Dun & Bradstreet, Inc., Second Quarter 2001 and Second Quarter 2004 MarketPlace files.

Notes: *t*-ratios are in parentheses. SIC is standard industrial classification (code); FIRE is finance, insurance, and real estate.

The first result to notice from Model 1 is that the urbanization of the immediate environment has a positive effect on births for all four industry groups. Overall, the effect is that adding 1,000 workers is associated with .0016 new-establishment births. For manufacturing, adding an additional 1,000 workers within one mile adds .0006 births. For wholesale trade, the marginal effect of 1,000 workers within one mile is .0057 births. For services, the effect is .0027 births. For FIRE, it is .0018 births. For business services, the effect is the largest, .0144. The effect is significant for all four industry groups.

The effects are also economically meaningful. As we noted earlier, the mean population density is much greater in Manhattan than in Dutchess County at the edge of the city (66,940 per square mile compared with 350 per square mile). Commuting patterns within the metropolitan area cause differences in employment density to be even greater: for the one-mile ring, the mean level of employment is 280,283 in Manhattan and 3,717 in Dutchess County (Table 1). Changing only the one-mile employment level in Dutchess County to the Manhattan level would result in .43 additional new establishments per tract. By comparison, the mean number of new establishments in a tract in Dutchess County is .25.

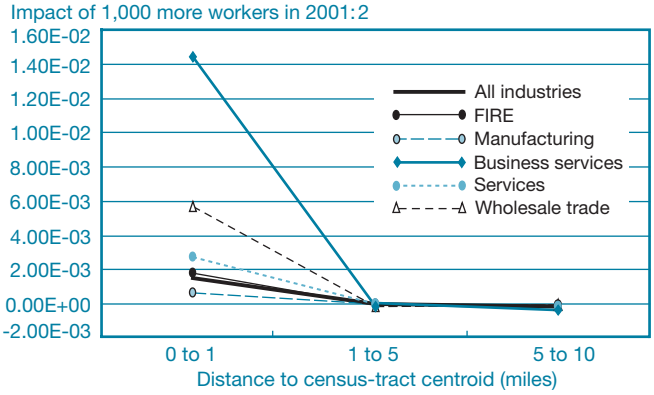
The next result to notice in Table 2 is that the effect attenuates fairly rapidly. For each industry group, the coefficient for employment in the one-to-five-mile ring is at least an order of magnitude smaller than the coefficient in the one-mile ring. This attenuation is very clear in Chart 13. The decay is especially pronounced in business services. The attenuation of the effect of the local business environment is a result that persists through nearly every specification in this paper. The result suggests that urban interactions are highly local in nature. In other words, a business's neighborhood matters.

Model 2 considers urbanization and localization together. It is immediately apparent that controlling for activity in a firm's own industry impacts the estimates of the effect of employment in all industries. For wholesale trade, services, and business services, the effect of additional total employment within one mile is either no longer significant or is negative. It is significant for all industries, FIRE, and manufacturing, but the effect is reduced by an order of magnitude in the first two cases by half for the last.

In contrast, the effects of localization are positive and significant in every case. For all industries, adding 1,000 workers in a firm's own industry (two-digit SIC) within one mile is associated with .0832 additional new-establishment births. For manufacturing, an increase of 1,000 of own-industry employment within one mile produces an additional .0552 births. It is important to reiterate: this is the effect of 1,000 additional workers in the establishment's own two-digit SIC code. It is not the effect of 1,000 additional workers in the entire manufacturing industry group. For wholesale trade, the effect is even larger, at .2810 births; in services, the effect is .0978 births. In FIRE and business services, respectively, the effects are .0385 and .2860. These effects are all significant. To sum up, it appears that some of the urbanization effects present in Model 1 are instead really localization effects.

One result that Model 2 shares with Model 1 is that if agglomeration effects exist, they attenuate. The top panel of Chart 14 presents the urbanization coefficients. As we discussed, many are negative or are insignificant. The rest are small. Nevertheless, these coefficients attenuate. The picture in the bottom panel of Chart 14 is much clearer. Localization coefficients attenuate in much the same way that urbanization coefficients do in the urbanization-only Model 1. In this case, attenuation is most sharp for business services and wholesale trade.

Chart 13
Model 1: Urbanization Effects
Dependent Variable: Number of Establishments Three Years of Age or Less in 2004:2

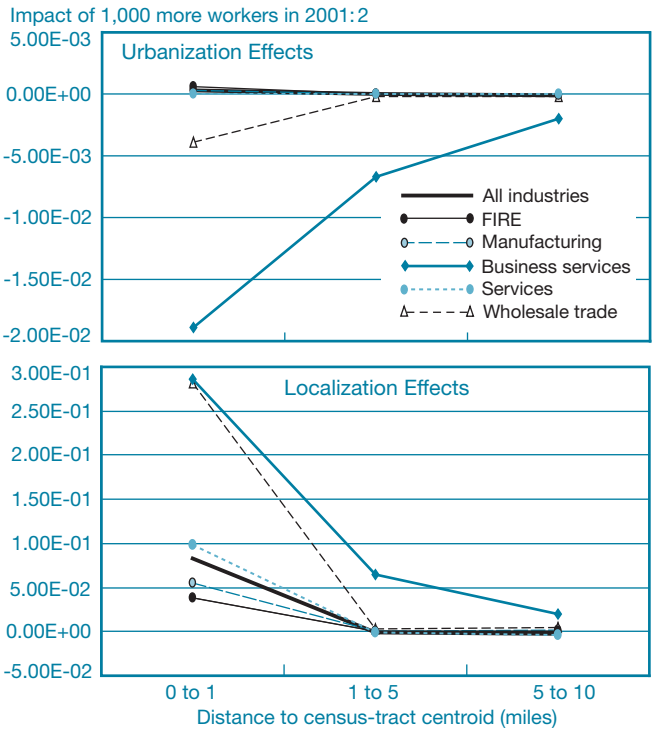


Source: Dun & Bradstreet, Inc., Second Quarter 2001 and Second Quarter 2004 MarketPlace files.

Note: FIRE is finance, insurance, and real estate.

Chart 14

Model 2: Urbanization and Localization Effects
Dependent Variable: Number of Establishments
Three Years of Age or Less in 2004:2



Source: Dun & Bradstreet, Inc., Second Quarter 2001 and Second Quarter 2004 MarketPlace files.

Note: FIRE is finance, insurance, and real estate.

The discussion thus far has focused on the number of new-establishment births taking place in a census tract. This is one natural measure of the amount of entrepreneurial activity taking place there. Yet it misses one particularly important aspect of entrepreneurship: the scale of entry. We now estimate a model that addresses this aspect.

4.2 Birth Employment

The results reported in Table 3 are estimates of (2), the model of employment at new establishments. As we observed, these are firms created between 2001:3 and 2004:4. As before, we begin with a model including only urbanization coefficients, Model 1. The evidence of urbanization effects here is similar to the evidence in Table 2 (Model 1). For all industries, the presence of an additional 1,000 workers within one mile is associated with .0375 more workers at new establishments. For all industry groups, total employment within one mile also has a significant effect on birth employment. The presence of 1,000 additional employees within one mile of a census tract increases new-establishment employment by .0368 in manufacturing, by .0510 in wholesale trade, by .1270 in FIRE, by .0296 in services, and by .1420 in business services. All are highly significant.

As with the new-establishment births model in Table 2, the attenuation of the urbanization effects is striking. Chart 15 depicts these effects. For all employment and for each of the individual industry groups, the effect attenuates by an order of magnitude between the one- and five-mile rings. As with the urbanization effects in the births model (Chart 13), business services exhibits the largest one-mile ring coefficient and the sharpest attenuation.

Table 3 also presents a model that includes both localization and urbanization variables in a regression of new-establishment employment. As in Table 2's births model, including localization variables impacts the estimates of urbanization effects. In this case, wholesale trade takes on a negative sign for the one-mile ring (see the top panel of Chart 16), as do all of the ring coefficients for business services. The other three industry groups and all employment have positive and significant coefficients. Although these coefficients are smaller than they are in Model 1, they are not as reduced in size as they are when moving between the urbanization-only and urbanization-and-localization models for births.

Table 3

Employment at Establishments Three Years of Age or Less in 2004:2

	All Industries	Manufacturing	Wholesale Trade	FIRE	Services	Business Services
Model 1						
All workers (1,000)						
Zero to one mile	3.75E-02	3.68E-02	5.10E-02	1.27E-01	2.96E-02	1.42E-01
	(49.08)	(25.91)	(36.41)	(19.88)	(49.57)	(30.87)
One to five miles	4.56E-04	2.35E-03	-8.89E-04	-2.71E-03	-2.37E-05	-1.40E-03
	(4.71)	(10.45)	(-4.60)	(-2.76)	(-0.28)	(-2.21)
Five to ten miles	-1.90E-03	-3.63E-03	-5.64E-04	-3.31E-03	-1.01E-03	-3.39E-03
	(-27.66)	(-24.51)	(-4.91)	(-5.64)	(-19.67)	(-9.10)
Memo:						
SIC-fixed effects	82	20	2	7	15	–
Censored observations	235,198	76,421	830	16,793	20,092	22
Uncensored observations	186,893	27,799	9,592	19,684	58,073	5,189
Log-likelihood	-973,247.04	-152914.36	-38023.11	-123836.86	-241323.35	-24641.01
Pseudo R^2	0.05	0.04	0.02	0.01	0.03	0.02
Model 2						
Own SIC workers (1,000)						
Zero to one mile	1.37E+00	3.31E+00	2.30E+00	2.72E+00	8.87E-01	2.20E+00
	(41.68)	(31.47)	(28.28)	(12.98)	(55.40)	(9.66)
One to five miles	-3.86E-02	-2.32E-02	2.08E-02	4.89E-02	-1.27E-02	4.56E-01
	(-7.88)	(-1.23)	(1.07)	(1.34)	(-5.09)	(7.32)
Five to ten miles	9.88E-03	1.58E-01	3.01E-02	-4.86E-03	-2.57E-02	1.18E-01
	(4.64)	(11.87)	(2.25)	(-0.19)	(-16.67)	(3.82)
All workers (1,000)						
Zero to one mile	1.57E-02	1.44E-02	-2.68E-02	4.38E-02	4.77E-03	-1.15E-01
	(17.39)	(9.01)	(-8.77)	(4.86)	(6.67)	(-4.13)
One to five miles	1.05E-03	2.64E-03	-1.01E-03	-3.51E-03	2.68E-04	-4.82E-02
	(8.02)	(10.21)	(-1.58)	(-2.46)	(2.25)	(-6.99)
Five to ten miles	-2.06E-03	-4.61E-03	-1.42E-03	-2.81E-03	-2.67E-04	-1.07E-02
	(-24.99)	(-26.35)	(-3.44)	(-3.20)	(-3.45)	(-3.32)
Memo:						
SIC-fixed effects	82	20	2	7	15	–
Censored observations	235,198	76,421	830	16,793	20,092	22
Uncensored observations	186,893	27,799	9,592	19,684	58,073	5,189
Log-likelihood	-972,094.22	-152333.34	-37636.15	-123735.40	-239348.99	-24571.90
Pseudo R^2	0.05	0.04	0.03	0.01	0.04	0.02

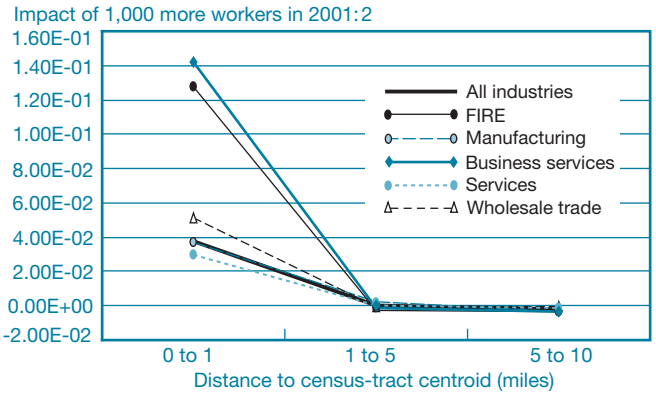
Source: Dun & Bradstreet, Inc., Second Quarter 2001 and Second Quarter 2004 MarketPlace files.

Notes: *t*-ratios are in parentheses. SIC is standard industrial classification (code); FIRE is finance, insurance, and real estate.

Chart 15

Model 1: Urbanization Effects

Dependent Variable: Employment at Establishments Three Years of Age or Less in 2004:2



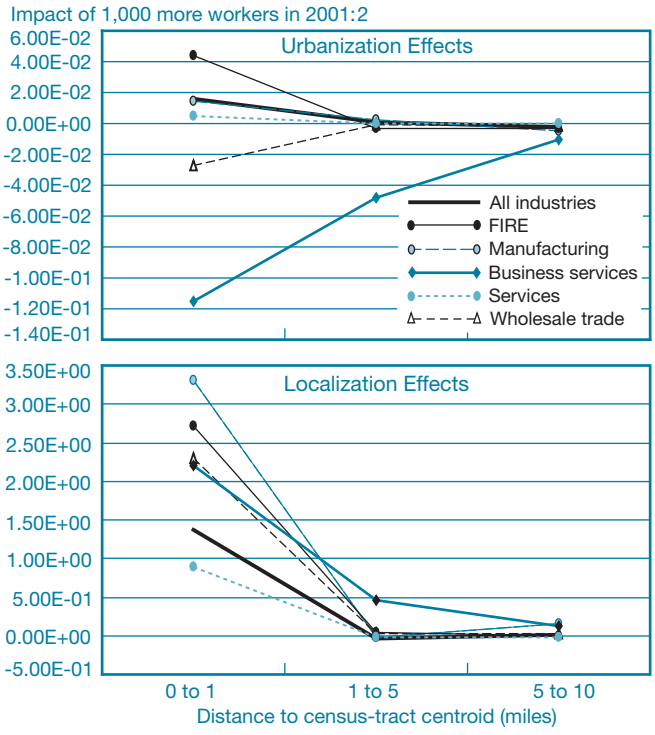
Source: Dun & Bradstreet, Inc., Second Quarter 2001 and Second Quarter 2004 MarketPlace files.

Note: FIRE is finance, insurance, and real estate.

Chart 16

Model 2: Urbanization and Localization Effects

Dependent Variable: Employment at Establishments Three Years of Age or Less in 2004:2



Source: Dun & Bradstreet, Inc., Second Quarter 2001 and Second Quarter 2004 MarketPlace files.

Note: FIRE is finance, insurance, and real estate.

Table 3 and the bottom panel of Chart 16 clearly show that localization has a positive and significant effect on new-establishment employment for all industries and for the various individual industry groups. The one-mile coefficient is greatest for manufacturing. It implies that an increase in the number of own-industry workers within one mile is associated with an increase in new-establishment employment of 3.3100 workers. The effects are of the same order of magnitude for (in order of size) FIRE, wholesale trade, and business services. They are positive and significant, if somewhat smaller, for all industries and services. Once again, for each industry regression, the effects attenuate sharply with distance.

4.3 The Sources of Agglomeration Economies

We have thus far shown that both urbanization and localization are related to two aspects of entrepreneurial activity: the births of new establishments and the total employment of new establishments. These results relate most closely to the findings of Rosenthal and Strange (2003), who also estimate models of births and birth employment. One very important difference is that the authors look at six select manufacturing industries (including a computer software aggregate), chosen in part because each receives large numbers of births and each exports nationally and internationally. A large number of births reduces the number of censored observations in the Tobit models, while marketing abroad likely increases the degree to which a company's location is influenced by local variation in agglomeration economies as opposed to within-city variation in natural advantages. This paper extends Rosenthal and Strange (2003) by focusing on broad one-digit industry groups, using fixed effects to control for two-digit industry subgroups. This procedure restricts the slope coefficients to being alike across industry subgroups, but grouping industries at the one-digit level reduces the number of censored observations. Despite the difference in specification, the results in this paper are consistent with those in Rosenthal and Strange (2003) in terms of showing that rapid attenuation is the norm.

The result that attenuation is rapid is also consistent with the finding in the few other studies that consider the decay of agglomeration economies. Anderson, Quigley, and Wilhelmson (2004) consider the local impacts of a shift in the organization of higher education in Sweden. The policy change—a significant decentralization—is a kind of natural experiment. The key finding is that the effects are highly localized. Arzaghi and Henderson (2005) show that external economies in advertising are also highly localized.[8]

An important issue touched on earlier is the ability of the estimation to separate agglomeration effects from natural advantages or other potential reasons why entrepreneurs should be attracted to locations with high levels of existing activity. This would not be a problem for any natural advantage that affected the entire metropolitan area. There are, however, natural advantages that are more local. For instance, a port location may be more productive for a firm engaged in wholesale trade. In this situation, natural advantages will lead to high levels of employment, so the coefficients on employment levels may reflect both natural advantages and agglomeration effects. Our results show that the effect of existing activity attenuates rapidly. For this to be explained by a natural advantage, it would have to be one that attenuated rapidly as well. This does not seem to describe a port, since shipping costs are relatively low, especially for information-oriented industries such as FIRE and services.

If the influence of within-city variation in natural advantages is at most weak, this naturally leads to the question of what agglomeration economies might be present locally that are so much weaker at larger distances. This is a particular aspect of the more general question of what the sources of agglomeration economies might be. This larger question has proven very difficult to address. Many plausible sources of agglomeration economies have been proposed. Marshall's (1920) list involves labor market pooling, input sharing, and knowledge spillovers. Other explanations involve the availability of consumption externalities (Glaeser, Kolko, and Saiz 2001) and the management of uncertainty (Strange, Hejazi, and Tang 2004). There are many other possibilities, as set out in the survey by Duranton and Puga (2004). Unfortunately, in many respects, the implications for births, wages, and productivity of these possible sources are fairly similar. This makes it difficult to identify particular forces that give rise to agglomeration economies.

This paper's key result regarding microfoundations is that agglomeration economies attenuate rapidly. This does seem to favor some sources of agglomeration economies over others. In a sense, agglomeration economies are a transportation cost issue. Glaeser (1998) suggests the following way to think about this issue: There are costs of moving goods, costs of moving people, and costs of moving ideas. The first set of costs is not especially important for the modern business because the costs of moving goods have shrunk dramatically over the past 100 years. People are more costly to move, with urban commuting being a particularly salient example. Although information can easily be transported electronically, ideas and knowledge are almost certainly costly to transport. The type of unexpected synergies that Jacobs (1969) sees as being responsible for the creation of new work depend on random interactions. These are much more likely to occur if the interacting parties are quite close to each other.

All of this suggests that our attenuation result is more consistent with the high costs of moving ideas than with the other sources of an agglomeration economy. To the extent that this interpretation is correct, the ideas being transported must be Marshallian knowledge spillovers or some other type of social interaction. In either case, high transportation costs would be associated with rapid decay. Of course, it is important to recognize that this interpretation of the observed patterns has been quite casual. Future research is required to disentangle more precisely the many agglomerative forces at work.

5. Conclusion

This paper analyzes the spatial pattern of entrepreneurial activity in the New York consolidated metropolitan statistical area. Since entrepreneurship takes place against a backdrop of current activity, we begin by looking at the geography of activity in four industry groups: manufacturing, wholesale trade, services, and FIRE. All are shown to be centralized around Manhattan and the nearer boroughs, with FIRE being the most centralized. Entrepreneurial activity is also centralized, with the pattern being quite similar to the pattern for levels of activity. This suggests that some force is leading entrepreneurs to agglomerate. There are many candidates that are consistent with the data, including natural advantages and Marshallian external economies.

In order to understand the relationship better, we estimate models of new-establishment births and new-establishment employment as functions of the local business environment. In a model that includes only one agglomeration variable—urbanization, total nearby employment—urbanization is shown to be positively related to both births and birth employment. If instead an additional agglomeration variable is also included—localization, employment in an establishment's own industry—then the results change. For all of the industry groups, localization is shown to be positively associated with both measures of entrepreneurship. For most of the industry groups, the influence of urbanization is greatly reduced, sometimes negative, and no longer significant after controlling for localization.

In our analysis of entrepreneurship, we take a geographic approach to agglomeration rather than a political one. Specifically, we estimate the effects of activity taking place very close to a census tract (within one mile), fairly close (between

one and five miles), and further away (between five and ten miles). For nearly all of our many models, the effects of a tract's business environment are shown to attenuate sharply. The effect at five miles is typically at least one order of magnitude smaller than the effect within one mile. This result speaks to the question, what is a city? The answer seems to be that many of the spatial interactions that are central to cities are quite local. When entrepreneurs must decide on the best location to open an establishment, they choose one that is close to existing activity, especially in their own industry. It should be recognized, however, that by estimating these effects within one city, we hold constant those factors that are common to businesses throughout the New York CMSA. Thus, the fact that we identify a local effect does not preclude the existence of other effects that operate across cities and regions.

There are many forces that can explain our paper's agglomeration results. Unfortunately, the estimation does not enable us to identify specific agglomerative forces that are at work. Whatever the forces may be, however, they appear to operate at a narrow level of geography. If there are Marshallian agglomeration economies, then the economies must attenuate rapidly. This observation suggests—but of course does not prove—that the effect might be some type of social spillover, since ideas and learning are costly to transport and allegiances are costly to maintain over a great distance. If there are also, or are instead, natural advantages that favor particular locations, then these too must attenuate rapidly. This could reflect access to particular neighborhood amenities, for example. In either case, the important result is rapid attenuation.

Endnotes

1. See Rosenthal and Strange (2004) for a more complete survey.

2. Aharonson, Baum, and Feldman (2004) show the importance of the local environment for biotechnology.

3. For example, see O'Hara (1977), Ogawa and Fujita (1980), Imai (1982), Helsley (1990), or Krugman (1993).

4. U.S. Postal Service ZIP code boundaries are established "at the convenience of the U.S. Postal Service" (<http://www.census.gov/epcd/www/zipstats.html>). They are based on postal logistics rather than on a geographic or socioeconomic concept of a neighborhood, in contrast to census-block or -tract geography. In response, the U.S. Census Bureau has created a boundary file that approximates the geographic region associated with each U.S. postal ZIP code based on the associated year 2000 census blocks found in that ZIP code. The resulting geographic polygons correspond to an agglomeration of block-level geography and provide a close approximation of the U.S. postal ZIP code boundaries. The resulting boundary file is referred to as the ZCTA file on the Census Bureau's website and is available for download. Using that file, we matched the ZIP code IDs from Dun & Bradstreet to geocode the data. This procedure worked for the great majority but not all of the ZIP codes in the New York CMSA (and the United States overall). To identify further the location of the remaining postal ZIP codes, we augmented the ZCTA file with a 1999 file available on the Census Bureau's website that reports the latitude and longitude of the U.S. postal ZIP codes in the United States in 1999. After merging those coordinates into the year 2000 ZCTA file, we were able to geocode all but a very small number of the year 2001 ZIP codes obtained from Dun & Bradstreet. Using that augmented ZCTA boundary file and the year 2000 census-tract boundary file (also available from the Census Bureau's website), we calculated the correspondence between ZCTA geographic units and census tracts. Those correspondence weights were used to calculate the number of establishments and employees present in each census tract given the original U.S. postal ZIP-code-level data from Dun & Bradstreet.

5. See the review by Shane and Venkataraman (2000).

6. See the Syracuse University Economics Department working paper version of this paper for a more extensive set of descriptive statistics (<http://www.maxwell.syr.edu/econ/>).

7. Although for most of the industry regressions to follow there are a large number of tracts with zero arrivals of new enterprises (and their associated employment), it should also be noted that for each industry regression, a large fraction of tracts do receive arrivals. This is clear in Tables 2 and 3.

8. It is important to emphasize that the attenuation of agglomeration economies does not mean that separate parts of a city are completely unrelated. See Haughwout and Inman (2002) for a full study of this issue.

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Robert Inman

Commentary

There is no economic issue more likely to make or break the political career of a large-city mayor than the city's job growth or decline. Understanding why firms locate where they do and why they expand or contract has now become an important part of any mayor's first course in good governance.

The paper by Stuart S. Rosenthal and William C. Strange belongs on the syllabus—it is careful research with an important message. Using a truly extraordinary sample of business locations by census tract for the New York metropolitan area, the paper reaches three conclusions. First, firms are attracted to locations populated by other firms, particularly in their own industry. The authors conjecture that this attraction is caused by a production spillover that economists call agglomeration economies. Second, the observable reach of these agglomeration economies is strongly bounded geographically, probably not much further than one mile from the center of current firm locations. Third, at present levels of employment density—remember, the New York metropolitan area and New York City in particular are already very dense locations—adding a new firm does not appear to have a very strong further effect on local employment; the multiplier effect is modest at best, perhaps no more than 25 to 50 new jobs for every 1,000 additional jobs located at an employment center. These conclusions are valuable, perhaps provocative, and deserve a close look.

I should note at the outset that I am a great admirer of this line of research by Rosenthal and Strange. A companion piece to their study, recently published in the *Review of Economics and Statistics*, was the first to adopt the authors' unique empirical approach to the analysis of business location.[1] In that study, the authors use a national sample of firm locations organized by ZIP code and reach much the same conclusions, but only for six narrow, but still interesting, industry classifications: software, food products, clothing, printing and publishing, fabricated metals, and machinery. This study follows their original methodology, but here the authors examine new firm locations within one metropolitan area, use a finer geographical grid (census tracts are much smaller areas than ZIP codes), and search for effects more broadly: first, for "all industries" and then within the major employment categories of manufacturing; wholesale trade; finance, insurance, and real estate (FIRE); and services. The authors emphasize business services in particular.

The methodology used in both studies is straightforward. New firms will locate in a census tract if they can make a profit, where profits are defined by:

$$(1) \qquad \pi(x,A) = p(A)\cdot Q(x,A) - \sum w(A)\cdot x,$$

where $\pi(x,A)$ are the profits (appropriately discounted) earned by the firm by locating in the census tract with a vector of location attributes A; x is the vector of inputs the firm must buy to produce output Q at that location using a location-specific production function $Q(x,A)$; $p(A)$ is the price the firm can charge for its output Q, where the price also may be

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location-specific; and $w(A)$ is the price the firm must pay for each input, where again, prices may be location-specific. Location attributes A include measures of local demand conditions when the firm produces a locally traded product (for example, restaurants), local supply conditions when the firm hires locally produced inputs (for instance, labor and most importantly land), and finally, any local resources that make the firm more or less productive (such as public infrastructure, harbors, clean rivers).

Also included in A, and central to the Rosenthal-Strange analysis, is the density of other-firm employment at a location. As first stated by Alfred Marshall, having many firms from the same industry close at hand enables each firm to attract and encourage specialty inputs, save on the transit costs of needed natural resources, and perhaps share in the development of industry-specific innovations. As first noted by Jane Jacobs, productive synergies may also exist between proximate firms in different industries. Restaurants thrive near theaters, software firms stimulate innovations by hardware firms, and hospitals encourage medical research and development. The presence of these Marshallian and Jacobian agglomeration economies, proxied here by existing employment in a firm's own and related industries, promises higher total-factor productivity, greater profits, and, all else equal, new firm arrivals at the location. In fact, when deciding where to locate, firms are concerned only with the elements of A. As profit-maximizers, firms adjust their use of inputs to accommodate local prices, local resource availability, and local agglomeration economies. Thus, $x = \chi(A)$; therefore, $\pi(\chi(A), A) = \Pi(A)$. If profits conditional on location attributes are positive, then firms will locate in the census tract; if not, they will stay away. As any New Yorker will say: "It's location, baby!"

Finally, new employment at a location depends upon the number of new firms—"births" (B) in Rosenthal and Strange—and the number of jobs that arrive with these new firms (N). Since new firms only arrive if $\Pi(A) > 0$, predicting B and N entails estimating a pair of regressions of the general form:

$$(2) \qquad B = b(A) \text{ and } N = n(A)$$

across a sample of census tracts, each with different values of A, where B and N represent new establishments and new employment in the tract, respectively. Rosenthal and Strange do so, both here and in their earlier national study, except in this case, the key variables in A are own-industry employment and other-industry employment at the location. In both studies, the authors are careful to allow for the fact that some census tracts—often more than half of those in their sample here—may actually have no new firms or new employment. The authors do not study the effects of location on the loss of firms and jobs, although this too would be a useful exercise.[2]

The "structural" profit relationship in equation 1 helps us understand what might lay beneath Rosenthal and Strange's "reduced form" estimates of equation 2 and in particular the effect of current census-tract employment on the arrival of new establishments and new employment over the next three years. Current employment affects firms' profits in three ways. First, current employment in a census tract might influence the price that new firms charge for their products, $p(A)$. More current employment in an industry means more market competition for locally traded goods and services, causing a fall in product prices and firm profits; this effect discourages new firm entry and new jobs. Second, more current employment in a firm's own industry raises the price of locally supplied specialty inputs (for example, skilled labor), while more current employment in all industries raises the price of local inputs generally (such as unskilled labor and land). Higher factor prices lower firm profits so that again new firm location and employment are discouraged. These two adverse effects of higher current employment are offset by the potential gains in total-factor productivity from Marshallian agglomeration economies with more "own workers" employment and from Jacobian agglomeration economies with more "all workers" employment. Whether the two adverse price effects of more current employment are offset by the positive effects of current employment's agglomeration effects is an empirical issue.[3] Positive coefficients for current employment—the key A variable in this study—in the estimated new establishment and new employment equations suggest that positive agglomeration effects offset adverse price effects; negative coefficients suggest that the negative price effects dominate (Rosenthal and Strange's Tables 2 and 3, respectively).

What do Rosenthal and Strange find? That positive coefficients, and thus agglomeration economies, seem to dominate; and when statistically significant negative coefficients do appear, they usually obtain for "all workers" and not for workers in the firm's narrower own industry. (See the results in the aforementioned Tables 2 and 3 for Model 2). This outcome makes sense. Negative price effects are most likely to arise from high factor prices—most likely the price of land and office space—in this metropolitan area's very dense, high-employment centers. The results for wholesale trade, FIRE, and business services are particularly instructive on the point.

Before we embrace the agglomeration explanation, however, we need to think a bit more critically about exactly what has been estimated in the authors' Tables 2 and 3. The results show a statistically significant positive *correlation*

between old jobs and new jobs in a firm's own industry; but correlations do not signify causation. For example, there may be a very attractive attribute within current (2001) high-employment tracts—for example, a good highway location or harbor, low taxes, or easy public transportation—that leads these tracts to have high new (2002-04) employment as well. If so, we cannot conclude that current employment is *causing* new employment; rather, the *cause* of both is good infrastructure, low taxes, or a natural-resource advantage. If important location attributes are omitted from the Rosenthal-Strange regressions but they cause both old and new employment to be jointly larger (or smaller), then the regression coefficients in Tables 2 and 3 will not be valid measures of causation. The estimated coefficients will be upwardly biased (overly large) estimates of the true causal link from old to new employment. Rosenthal and Strange are aware of this statistical problem. Their solution is to use industry SIC-fixed effects as a proxy variable for omitted location attributes; but unless a firm's SIC code is strongly correlated with omitted attributes, this control will be weak.[4] Still, we cannot rule out a causal connection from existing jobs to new jobs. *When one keeps this qualification in mind, the estimates in Tables 2 and 3 stand as plausible upper bounds for a true causal impact of old jobs on new employment in a tract.*

The study's second conclusion, the one rightly underscored by Rosenthal and Strange, is in many ways the most important one. Whether causation or correlation, the connection between current jobs and new jobs is very local. Almost all of the effect of current jobs on future jobs is exhausted within one mile of the center of the census tract. If the connection is causal and arises from agglomeration economies, then spatially small governments will be sufficient to recognize, and thus fully internalize, all the benefits arising from productive firm-to-firm interdependencies. If the observed connection measures an important omitted public policy—for example, infrastructure, local tax breaks, or better neighborhood services—then again the benefits can easily be internalized by a small local government. Indeed, large but still privately owned and managed industrial parks might be sufficient to do the job. This narrow spatial reach for firm or policy interdependencies means that economic development strategies can be locally designed, and most importantly, *fully* funded from locally raised revenues. Business improvement districts, as small governments designed to internalize firm and policy spatial interdependencies, make good sense in light of the Rosenthal-Strange results. Countywide, citywide, or statewide funding should be limited only to those development policies with significant multicommunity benefits—for example, sharing the fixed costs of large transportation and telecommunication networks. *Beyond that, economic development decision-making and financing should be kept very local.*

Third, and again whether correlation or causation, the second-order—or multiplier—effects estimated here of adding new jobs to any location are very small, perhaps no more than 25 to 50 extra jobs for every 1,000 initial jobs brought into a location.[5] In the New York metropolitan area, retaining or attracting a large employer, such as a financial institution's call center, will add those jobs to the location; but there will be a very modest multiplier effect of at most .05 jobs for every new job created. The reason for this modest effect is surely the current density of employment in the New York area. Most tracts are likely to have sufficient supply capacity to meet the needs of any new employers brought into the tract. More important, if the land area needed to accommodate new employment is scarce, then 1,000 new jobs will simply drive up rents and thereby discourage additional firm location. Remarkably, agglomeration economies seem sufficient to compensate fully for the rent increases imposed by the initial 1,000 jobs—that is, the multiplier is even slightly positive. For economic development proponents and critics too, however, the lesson here is clear: *In the New York metropolitan area, multiplier arguments used to justify economic development policies should be ignored.*[6]

There is a final benefit of Rosenthal and Strange's work for those of us who study urban economies. We have an important new fact against which to calibrate our structural analysis of firm location in dense urban areas. It is impractical to think that we will ever be able to disentangle statistically household utility and firm production functions from the myriad product and factor market interdependencies that define how real urban economies perform. What we can do statistically, however, is identify a set of carefully constructed "reduced form" *facts* that any well-specified structural model of an urban economy must replicate. A failure to "predict" these facts means that the structural model is likely to have been misspecified—that is, something is missing. The authors' work here, and in their companion national study, gives us one such fact—I am willing to elevate it now to the status of a "robust fact"—that our structural models must reproduce. Whatever policy or technology shock that generates firm demand for X new jobs in an urban economy, X, and maybe a bit more of those potential new jobs, must actually locate in the city. In the end, the model's beneficial agglomeration effects must dominate the adverse price effects, but not by too much. Models that cannot match this benchmark are probably not appropriate for the study of economic policies in dense cities. On both the policy and research fronts, the paper by Rosenthal and Strange makes a valuable contribution.

Endnotes

1. Rosenthal and Strange (2003).

2. I cannot resist mentioning my own work with colleagues on the adverse effects of inefficient taxation on job location in four cities, one of which is New York City; see Haughwout et al. (2004).

3. Rosenthal and Strange (2003) provide a cleaner estimate of the effects of agglomeration on firm location. In that study, they attempt through sample design to remove the effects of current employment on $p(A)$ and $w(A)$. First, they examine narrower industry categories producing goods primarily intended for export from the production site to national or world markets; thus, $p(A) = p$, the "world price." Second, they use ZIP code areas as the unit of analysis. Because ZIP code areas are often very large—sometimes as big as a county—it is more likely that there will be an elastic supply of labor and land available to firms. If so, factor prices will be independent of demand shocks from more employment; thus, $w(A) = w$. Assuming that these identification assumptions hold, the only remaining effects of current employment on new firm location are due to positive agglomeration economies.

4. Consider this test: Do all census tracts with many investment bankers have nearly identical public transportation and low income taxes? Do all census tracts with many machine shops have equally easy access to the turnpike? Are all warehousing centers near harbors or centrally located train yards? The answer is surely *no*; thus, omitted attributes will be imperfectly correlated with industry classification. The issue is how imperfectly correlated they will be.

5. This estimate is computed from Rosenthal and Strange's Table 3, Model 2 estimate of the effect of 1(000) additional "all workers" within the one-mile ring of employment in a given SIC code: .0157 new workers in each SIC code in each census tract within one mile of the 1(000) additional workers. There are eighty-one industry SIC codes within the "all industries" category and roughly ten census tracts within a one-mile radius. Thus, the total new jobs will be 12.7 jobs = .0157·(81 SIC industries/tract)·(10 tracts/1-mile radius). In addition to the "all workers" effect, there will be an "own workers" effect. Assume that the 1,000 additional workers are spread evenly across the eighty-one SIC industries—the linearity of the model makes this an inconsequential assumption—and that the "own workers" effect is 1.37 new jobs per 1(000) current SIC jobs, as estimated in Table 3, Model 2 for "all industries." Then the "own workers" effect of the 1(000) current jobs will be an additional 13.7 new jobs within the one-mile radius: 13.7 jobs = 1.37[(1/81)·(1)]·(81 SIC industries/tract)·(10 tracts/1-mile radius). The total new jobs created from 1(000) additional current jobs is therefore 12.7 + 13.7 = 26.4 new jobs. I appreciate the authors' assistance with this calculation. This is only a partial equilibrium effect, however, measuring the impact in the first three years after the "arrival" of 1,000 additional jobs and ignoring any feedback from these 26.4 new jobs back onto the original 2001 economy. I concede the conceptual point but suspect that any additional effects are small. In conversation, the authors are more optimistic; they felt that doubling the 26.4 new jobs to 52.8 new jobs might be a better general equilibrium estimate. Either way, the total effect of adding 1,000 new jobs is modest.

6. For additional evidence that the multiplier effect of new location on own- or other-industry employment may be small, even in less dense counties, see Greenstone and Moretti (2003). The fact that the authors of that study find that land values rise with own-tax-financed subsidies to attract firms suggests that efficiency gains and agglomeration economies are at work. Such a result is consistent with the analysis here, but again it lacks a sizable multiplier.

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Andrew F. Haughwout and Bess Rabin

Exogenous Shocks and the Dynamics of City Growth: Evidence from New York

1. Introduction

The response of cities and regions to shocks plays a central role in our understanding of the spatial organization of firms and households, which has been shown to have important implications for economic outcomes ranging from air pollution to productivity growth. Yet because exogenous, unanticipated shocks are rarely observed, efforts to identify their effects are often hampered.

This paper empirically examines the spatial and temporal responses of the New York City economy to a large, but spatially concentrated, exogenous shock to its capital stock: the terrorist attacks of September 11, 2001. Our focus on the city's response allows us to draw inferences about how city economies work, rather than to explore the effects of terrorism on New York or other cities. We utilize data before and after 9/11 to study the response because we believe that the size, location, and timing of the shock were unanticipated, and because the shock was large enough to create substantial dislocations in the city's economy. While the actual financial losses produced by the attacks were not large relative to the size of the city's economy, a major element of the shock was the perception that the city would be in danger of future attacks.

Our analysis reveals that New York City's economy was surprisingly resilient to the 9/11 attacks and the damage they caused, but the shock was associated with significant changes, particularly in the spatial distribution of activities. Furthermore, the particular character of the city's economy and the shock it sustained played an important role in the pattern of the city's recovery. We argue that several explanations could account for this economic resilience. One is that based on previous events, private actors had already reacted to the threat of terrorism, and that the events of 9/11 were, in a meaningful sense, anticipated. A second possibility is that a repeat of the 9/11 attacks was regarded as very unlikely. A third possibility is that the destruction of the World Trade Center, while unanticipated, came amid a disequilibrium in the city's real estate markets and, by chance, happened to reinforce preexisting trends. Finally, it is possible that public pronouncements, regulation, and planning played a substantial role in the economic recovery. Perhaps most surprising is this fourth possible conclusion—that government could have a positive effect in such a setting. Yet recent work on New York City's real estate markets concludes that regulation plays an important role in economic development more generally (Glaeser, Gyourko, and Saks 2004). Such signals are perhaps particularly effective when an economy is out of equilibrium, as New York City's may have been in early 2001.

2. The Effect of 9/11 on New York City's Economy

In the late 1990s, New York City was experiencing extraordinarily strong growth for such a mature economy.

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Between 1996 and 2000, private sector employment in the city grew at a 2.6 percent annual rate, the strongest four-year run in more than four decades. In each of those years, the rate of city job growth exceeded that of the nation. Private sector wage and salary growth also exceeded the national average over this period, rising 7 percent per year in real terms (Bram 2003). This economic strength was reflected in broader measures of activity as well. In January 2000, the New York City index of coincident economic indicators (CEI), a measure of the short-run dynamics of economic activity, reached its highest level since the series began in 1965.[1] City housing values were also at very high levels in both absolute terms and relative to the nation (Bram, Haughwout, and Orr 2002). Real revenues from the city's four largest taxes reached an all-time high, despite rate reductions, in fiscal year 2000-01 (Edgerton, Haughwout, and Rosen 2004).

In the subsequent two years, the city experienced a sharp economic downturn. Private sector jobs reversed their strong growth and, for the 2001-03 period, fell at a 2.1 percent annual rate. By November 2003, the CEI had retreated nearly 10 percent from its peak value. Revenues from the city's four major taxes declined sharply in real terms during fiscal year 2002, and they had yet to recover their 1999 level by fiscal year 2003.

The sources of this reversal in the city's fortunes are not controversial: the 9/11 attacks on the World Trade Center, the decline in the stock market, and the national recession all clearly played important roles in the slowing of aggregate city economic activity.

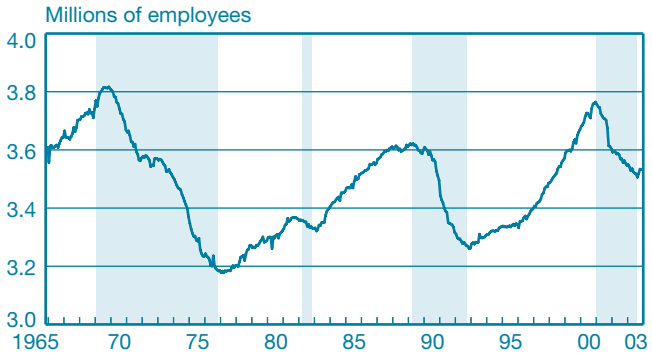
2.1 Isolating the City-Specific Component of the Shock

The destruction of the World Trade Center had several potential effects on the economy of New York. First, and most horrific, the attacks took nearly 2,800 lives. In economic terms, this means that the human capital stock for the entire metropolitan region was reduced, at least in the short run. Despite the tragic consequences for the individuals and their families, the direct impact on the supply of human capital in New York City—an open economy with more than 3.5 million jobs and 8 million residents—was small.

The sixteen acres of the World Trade Center site housed approximately 13.4 million square feet of class A office space, nearly 30 percent of the Downtown total. This complex was destroyed on September 11, and several surrounding buildings were damaged when the towers fell. While some residential space was affected as well, it was reoccupied relatively quickly. As of this writing, the World Trade Center site remains essentially vacant, although the reopened PATH station—the Lower Manhattan terminus of the Port Authority's light-rail system—occupies a small portion of the area. This persistent loss of productive capital and the potential ongoing threat of future loss of life and property caused many commentators to voice concerns about the future of the city as a highly desirable location for businesses and households.

The attacks occurred as a recession was already under way in the nation and the city. Employment in New York peaked in December 2000 and had declined by 60,000 jobs by August. Another 100,000 jobs were lost between August and October 2001 (Chart 1). The New York City CEI began falling as the local recession commenced in January 2001 and declined nearly 0.95 percent in September 2001 alone (Chart 2). This was the fourth-largest monthly decline in the history of the index. While the CEI continued to decline until August 2003, the total peak-to-trough decline totaled 8.9 percent, which was significantly less deep than those registered during the city downturns that began in 1969 and 1989. In addition, the rates of decline before September 2001 and after are approximately the same, suggesting that the ongoing national recession was an important factor in the adverse outcomes experienced by the city economy. For this reason, isolating the effect of the city-specific shock that struck New York on September 11 requires controlling, to the extent possible, for the effects of the ongoing national recession. In the analysis that follows, we accomplish this by normalizing our results by changes in the national economy. We thus seek to isolate differential New York City effects from changes in the national economy as a whole, whether attributable to 9/11 or to other factors.

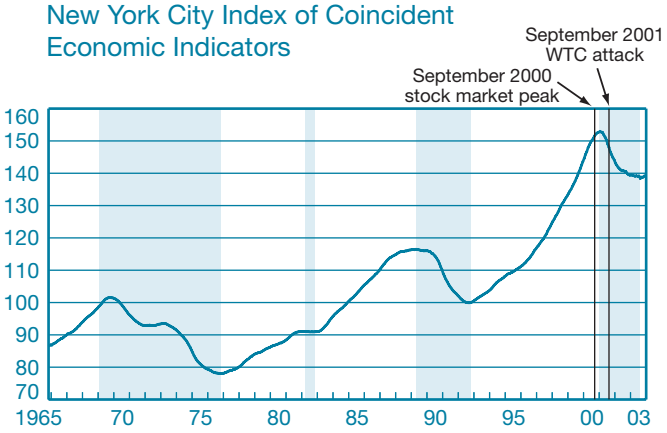
Chart 1
Employment in New York City



Source: U.S. Department of Labor, Bureau of Labor Statistics.
Notes: Data are seasonally adjusted. The bands indicate local recessions.

Chart 2

New York City Index of Coincident Economic Indicators



Source: Federal Reserve Bank of New York.

Note: The bands indicate local recessions.

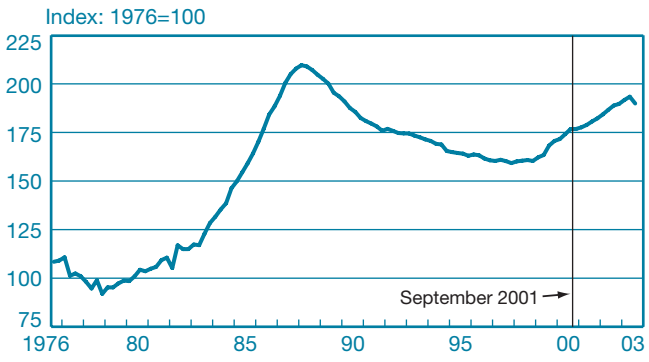
2.2 The City's Real Estate Markets

The series depicted in Chart 3 is the quarterly Office of Federal Housing Enterprise Oversight (OFHEO) single-family home price index for the New York metropolitan area, divided by the national index. Both indexes, and the resulting series, are indexed to 100 in 1976:2, when the New York series began.

There is little evidence here that the September 11 attacks on the World Trade Center reduced the demand for residential locations in the New York metropolitan area. The chart shows the date of the attacks, which occurred during 2001:3. Repeat-sale house prices in the metropolitan area were rising faster than they were in the rest of the nation both before and after the attacks, as depicted by the steady rise in the index on both sides of the September 11 point. That is to say, the New York area's residential housing market gained ground on the rest of the nation immediately after the attacks. (Statistical tests fail to reject the null hypothesis that the trend in the series is the same before and after 2001:3.) Only after two years had passed, in late 2003, was there any sign that housing prices in New York had faltered relative to the nation. Since that period, data not plotted here suggest that the New York metropolitan area housing price premium has resumed its rise. Thus, the relative demand for residential locations in the New York area market has remained strong since the attacks.

Chart 3

New York City Area House Prices Relative to U.S. Average



Sources: Office of Federal Housing Enterprise Oversight; Federal Reserve Bank of New York calculations.

Note: The index is based on the ratio of the repeat-sales price measure for existing single-family homes in the New York City metro area to that of the United States overall.

The OFHEO data cover only single-family homes, which are presumably located primarily in the suburbs. Increased demand for single-family houses may reflect reduced demand for Manhattan locations and a decentralization of population from New York City proper. Such a result, for example, is consistent with the ideas presented in Mills' (2002) early reflections on the implications of urban terrorism. To address this issue of urban form, we turn to a detailed examination of the New York City housing market before and after the attacks.

2.3 Neighborhood-Level Microdata on the City's Real Estate Markets

Our second housing market analysis is more restrictive in the sense that it focuses solely on housing units in the city of New York. However, our data source for this analysis, the New York City Housing and Vacancy Survey (HVS), allows consideration of a much broader range of housing types, from rental apartments to condominiums to single-family homes, with the mix reflecting the actual housing consumption patterns of city households.

The HVS is conducted about every three years (the coverage here is 1991, 1993, 1996, 1999, and 2002). Each survey collects information on the structural and locational characteristics of about 18,000 housing units in the city. The structural characteristics include detailed items such as the number of bedrooms, the presence of complete kitchen facilities, and the condition of exterior walls.[2] For the purposes of the survey, New York is divided into fifty-five sub-boroughs, and the sub-borough location of each unit is identified in the public data.

The HVS data, like the OFHEO data, provide a limited view of changes in housing demand. In particular, the HVS complements the OFHEO index in the sense that it allows for a detailed look at those parts of the city itself expected to have

been affected most by the terrorist attacks and the fear of future attacks.

To discern the effects of September 11 on the demand for housing in New York City, we estimate a set of regression equations of the form $V = V(t, N, H)$, where V is a measure of unit value (expected sales price for owner-occupied units or gross rent for rental apartments), t indexes time, N indexes neighborhood, and H is a vector of housing capital measures.

We interact the fifty-five sub-borough measures with a set of five survey (year) dummies. Our test consists of looking for significant negative effects on the 2002 dummies in the city as a whole or in those sub-boroughs expected to have been affected most by the attacks.[3] Our specification estimates average trait prices and looks for temporal variation in the relative value of particular neighborhoods. If variations in traits whose prices are changing are correlated with neighborhood, then we may obtain biased estimates of neighborhood effects. We leave research on this topic to future work, but note that if components of housing capital that experienced rising prices are concentrated in Lower Manhattan, then we will understate the relative depreciation (or overstate the relative appreciation) of a Lower Manhattan location per se.

We experimented with several specifications of the basic relationships, including estimating the equation in level and semi-log forms, eliminating the top and bottom 5 percent of observations based on value, eliminating top-coded units, and augmenting the equation with information about financial arrangements and move-in or lease dates. Each of these specifications leads to the same qualitative conclusions.

Results

Table 1 reports the results of two sets of regressions designed to identify the effects of the September 11 terrorist attacks on the demand for residential locations in New York City. The figures are the regression coefficients on year 2002 dummies either on their own (column 1) or interacted with dummies for a particular borough (column 2), sub-borough (column 5), or group of sub-boroughs (columns 3 and 4). If the attacks were to have broken the trend of absolute price and rental growth in the city, we would expect negative coefficients to predominate in the table. Analyzing the evidence on the city's appreciation relative to that of the rest of the nation requires another step, described below.

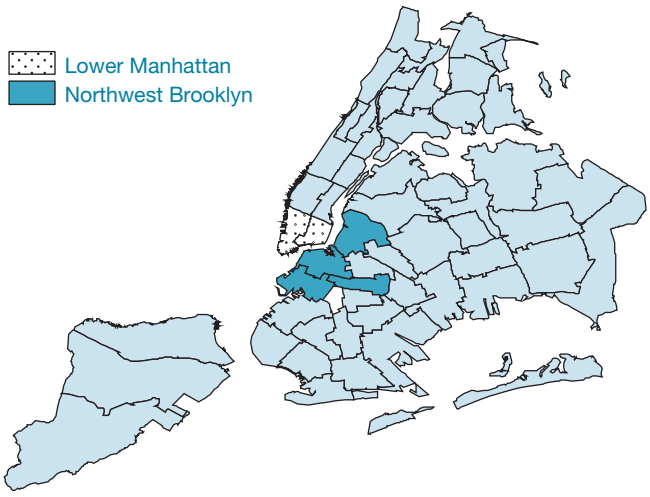
The first column of the table reports the overall citywide trends in prices and rents, controlling (as do all specifications reported here) for the units' structural characteristics. In addition, for owner-occupied units, we control for the year in which the owner acquired the unit or, for rental units, the year the occupant moved in. The requirement that we have information for all of these variables reduces the sample size to the approximately 51,000 reported in the table. We present results from both the level and semi-log specifications.

The results suggest that city residential prices and rents in 2002 were both higher than they were in 1999, the year of the previous survey. But when we subtract the national increase in shelter costs, 11.1 percent, only the price increase is statistically different from zero; rental increases were slightly slower in New York City than they were in the nation as a whole.[4] Note, however, that we can reject the hypotheses that absolute rents and prices in New York fell on average; all four estimates in column 1 are positive and more than twice their standard errors.

The second column of Table 1 reports the price changes in Manhattan in 2002 relative to 1999, controlling for citywide time effects. These results reveal a pattern similar to that in the citywide estimates. Although the point estimate of 12 percent rental appreciation in Manhattan slightly exceeds the national average, the standard error of the estimated coefficient does not allow for rejection of the hypothesis that the New York increase was the same as the nation's. Manhattan prices, meanwhile, grew much more rapidly than did the shelter component of the national CPIU.

Column 3 reports results for the two Lower Manhattan sub-boroughs and three Northwest Brooklyn sub-boroughs (see map). All of these areas benefit from direct accessibility to

Sub-Boroughs of Lower Manhattan and Northwest Brooklyn



Source: U.S. Census Bureau.

the Lower Manhattan central business district, with housing units typically within a thirty-minute commute on public transportation.[5] We might thus expect residential markets in these areas to be negatively affected by the attacks. Again, the data provide little evidence to support this conjecture, although rental increases are statistically indistinguishable from zero for these areas as a whole.

Since the attacks occurred in Lower Manhattan, there is the potential that the area would endure significant reductions in demand. Columns 4 and 5 address this issue, using two definitions. In column 4, we include the area that extends as far north and east as Chinatown, while the column 5 results are limited to the Financial District and Greenwich Village. Once again, the evidence suggests price *increases* relative to the nation in all these areas as well as significant rent increases in the area most proximate to the World Trade Center.

Our tests indicate that demand for rental properties in New York was no stronger than demand in the nation, and in some areas it may have been weaker. Yet in Lower Manhattan, the area most affected by the attacks, rents grew strongly. The apparent divergence between the residential rental market in Lower Manhattan and that in the rest of the city may be partially attributable to incentives for residents to locate Downtown, part of the package of aid that the city received in the wake of the crisis. Under these programs, residents willing to make a two-year residential commitment to areas of Lower Manhattan close to the site of the attacks were eligible to receive up to $12,000 in grants. Our estimated 1999-2002 rental increase in Lower Manhattan (Table 1, column 5) less the increase in the city as a whole is about $325 per month, or approximately $7,800 over a two-year period. Unfortunately, we cannot identify which units receive the subsidy, so a direct

Table 1

2002 Price and Rent Effects in New York and Selected Subcity Areas

	Citywide (1)	Manhattan (2)	Lower Manhattan, Lower East Side, Northwest Brooklyn (3)	Lower Manhattan, Lower East Side (4)	Lower Manhattan (5)	Lower East Side (6)	Northwest Brooklyn (7)
Prices							
Dollars	**68,714**	**151,883**	**102,709**	**57,771**	**113,733**	-940	**130,467**
	(3,732)	**(7,244)**	**(11,153)**	**(16,742)**	**(23,465)**	(23,560)	**(14,585)**
ln	**0.77**	**1.3**	**1.03**	**1.23**	**2.01**	0.38	**0.8**
	(0.03)	**(0.07)**	**(0.1)**	**(0.15)**	**(0.22)**	(0.22)	**(0.13)**
Monthly rents							
Dollars	39.6	169.1	91.1	161	**365.4**	1.85	14.08
	(5.8)	(8)	(12.2)	(16.8)	**(25.3)**	(21.9)	(16.8)
ln	0.05	0.12	0.02	0.12	**0.37**	-0.06	-0.07
	(0.01)	(0.01)	(0.02)	(0.03)	**(0.04)**	(0.04)	(0.02)

Source: Authors' calculations, using data from the New York City Housing and Vacancy Survey.

Notes: The figures in bold represent increases that are significantly greater than national average increases in the shelter component of the CPIU between 1999 and June 2003 (11.1 percent). The total number of observations for prices is 16,672; the total number for monthly rents is 34,586. All regressions include controls for structural traits, survey year, rent control status, whether the unit is a condominium or cooperative (price regressions), whether the owner lives in the building (rent regressions), and year acquired (price regressions) or year the current occupant moved in (rent regressions). Rows labeled "dollars" are estimated in levels; results reported in rows labeled "ln" are from models in which the dependent variable is a natural logarithm.

For column 1, the coefficient and standard error estimates are on a dummy variable for 2002 prices, relative to 1999 prices. For column 2, the coefficient and standard error estimates are on a dummy variable for 2002 Manhattan prices, relative to 1999 Manhattan prices. For column 3, the coefficient and standard error estimates are on a dummy variable for 2002 prices in Lower Manhattan, Chinatown and the Lower East Side, and Northwest Brooklyn, relative to 1999 prices in the same areas. For column 4, the coefficient and standard error estimates are on a dummy variable for 2002 prices in Lower Manhattan and in Chinatown and the Lower East Side, relative to 1999 prices in the same areas. For column 5, the coefficient and standard error estimates are on a dummy variable for 2002 Lower Manhattan prices, relative to 1999 Lower Manhattan prices. For column 6, the coefficient and standard error estimates are on a dummy variable for 2002 Lower East Side and Chinatown prices, relative to 1999 Lower East Side and Chinatown prices. For column 7, the coefficient and standard error estimates are on a dummy variable for 2002 Northwest Brooklyn prices, relative to 1999 Northwest Brooklyn prices.

comparison of rent with the value of the subsidy is not possible. However, since the majority of the units in Lower Manhattan as we define it are eligible for smaller (or no) subsidies, it seems most likely that our estimate of the rental increase in the area incorporates demand effects above and beyond those stimulated by the subsidy.

Of course, the price of any good, including housing, is determined by both supply and demand. One potential explanation for increased rents (prices) in Lower Manhattan is reductions in the current (expected future) supply of units. Evidence of the direct effect of the attacks on the housing supply is hard to uncover. Table 2 displays the number of new housing units added to the Downtown stock from 1995 to 2004. In Downtown Manhattan, with its paucity of vacant land, office building conversions are an important source of new residences, as indicated in the table. Also important is a city tax-incentive program, adopted in 1995, that offers property tax abatements for residential conversions Downtown.

The data are difficult to interpret, as the peak year for new units was 2001—the year of the 9/11 attacks. Since the process of adding units to the stock takes time, it is reasonable to suppose that the vast majority of the 2,578 units that came on line in 2001 were planned before the attacks. Nonetheless, despite the national recession, the 2002-04 total of 4,167 units slightly exceeds the 1999-2001 total of 4,098, indicating little effect on the trajectory of the housing supply after 9/11. In addition, the 2004 total is the second highest of any year since 1995. The data, then, do not suggest a significant effect on the supply of Downtown residential units. Given that the supply of Downtown housing appears to have been changed little by the attacks, we interpret our results as strong evidence that the demand for residential locations in Lower Manhattan remained very robust in the wake of 9/11.

For the other areas potentially affected by the attacks, the signals are less clear. Rents in Northwest Brooklyn were essentially flat in nominal terms, and thus lagged the national average in the immediate aftermath of the attacks. Prices, however, remained strong, growing at a pace significantly faster than the national average. Meanwhile, on the Lower East Side, both prices and rents fell relative to the national average. This last finding complements earlier evidence that businesses in Chinatown, which is in the Lower East Side neighborhood, were affected negatively by 9/11-related disturbances in transportation and telecommunications infrastructure (Asian American Federation of New York 2002). Yet given that these were expected to be temporary phenomena—and indeed have largely been rectified in the years since 2001—the residential price effects we observe are a puzzle. Of course, long-run divergences between rents and prices may signal differences in current conditions and expectations of future conditions. The 2005 HVS, which will be released in 2006, may help answer some of these questions.

Table 2
Downtown Residential Development, 1995-2004

Date Open	Conversions	New Developments	Total by Year
1995	8	0	8
1996	0	0	0
1997	46	0	46
1998	1,454	152	1,606
1999	102	398	500
2000	811	209	1,020
2001	2,139	439	2,578
2002	1,366	25	1,391
2003	545	449	994
2004	867	915	1,782
Totals	7,338	2,587	9,925

Sources: Alliance for Downtown New York; New York City Department of Housing Preservation and Development.

Some Caveats

We begin by noting that our analysis of the 2002 data is based on a comparison with 1999, the previous survey year. Because the 2002 survey was based on results from the 2000 decennial census, while the 1999 survey relied on the 1990 census, variations in the under- or overcount of housing units in the census could affect the results. This will only lead to biased estimates of the neighborhood effects if changes in the housing characteristics of miscounted units are correlated with neighborhood. Such a bias would likely appear as a significant change in results when sampling weights, which adjusts the sample data to match the census population characteristics. The results we describe above obtain whether the regression is estimated with or without the sampling weights, ameliorating this concern to some extent.

It is also possible that the prices and rents we observe in 2002, while higher than those in 1999, are lower than they were immediately before the attacks, a period for which less data are available. Analysis of actual transactions for which we have prices provides modest support for the contention that real prices in Manhattan were stronger in 2002 than in 2001, but the number of units in the HVS sample that sold in those two years is too small to allow any strong conclusions to be drawn from the data. We take some comfort from the fact that the analysis

of annual metropolitan statistical area trends produced conclusions broadly consistent with those advanced here.

Finally, the 2002 survey was conducted during the first half of the year, or immediately in the aftermath of the terrorist attacks of late 2001. Since very little time elapsed between the attacks and the beginning of the survey, there is potential bias in the survey responses. This bias could be in either direction: respondents might not have had time to internalize fully the negative effect of the attacks on their property values, and thus might have provided an overly optimistic view of value. However, Lower Manhattan in the first six months of 2002 was still very much in the throes of the turmoil created by the destruction of the World Trade Center and a substantial amount of city infrastructure (such as roads and subways). Indeed, the fires ignited by the attacks were extinguished only in late December 2001, and the cleanup of the site continued until late May 2002. In these circumstances, the idea that property owners would be overly optimistic about the value of their homes seems unlikely. Nonetheless, it is impossible to know for certain. Again, we take comfort from the fact that the results here are consistent with the analysis of the OFHEO price index.

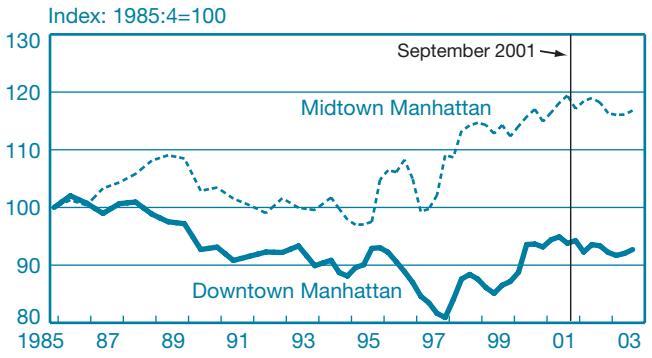
2.4 Office Markets

We now examine trends in the market for office space in New York's two central business districts—Downtown and Midtown—using data from the National Real Estate Index.[6] These data are collected for class A office space in sixty markets across the nation. We focus on the two New York markets and, to control for prevailing national conditions, calculate indexes measuring appreciation in these markets relative to the nation. These indexes, which are based in 1985:4, are shown in Charts 4 and 5.

Note in these charts the trend deterioration of Downtown office prices and rents relative to Midtown. In rents, this pattern is evident immediately following the commencement of the data (Chart 4), although it is most pronounced in the price data after 1993 (Chart 5). This reduction in the relative premium for Downtown office locations is part of the long-term trend described by Glaeser and Shapiro (2002).

The September 11 attacks destroyed or rendered temporarily or permanently unusable nearly 28 million square feet of class A office space, 13.4 million of which was in the World Trade Center complex itself. If the demand for Lower Manhattan locations remained stable, we might expect to see a strong increase in office rents for the remaining Downtown office space. There is little evidence of this in Chart 4. Indeed, nominal class A office rents declined nearly 9 percent between 2001:3 and 2002:3, suggesting that demand fell at the same time as supply. A decline in demand is consistent with Glaeser and Shapiro's view that the attacks hastened the decline of Lower Manhattan as a principal site for New York City office locations. Yet this decline was matched by an 8.5 percent decline in class A rents nationwide, with the result being that both the Downtown and Midtown indexes depicted in Chart 4 remained essentially flat, with perhaps a modest downward trend.

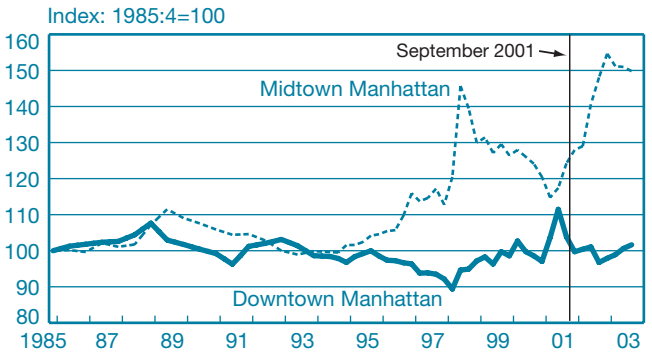
Chart 4
Office Rent Indexes
Class A Space, Manhattan Markets Relative to National Average



Sources: Global Real Analytics, National Real Estate Index; Federal Reserve Bank of New York calculations.

Note: The indexes are based on the ratio of office rents in Manhattan to that of the United States.

Chart 5
Office Price Indexes
Class A Space, Manhattan Markets Relative to National Average



Sources: Global Real Analytics, National Real Estate Index; Federal Reserve Bank of New York calculations.

Note: The indexes are based on the ratio of office prices in Manhattan to that of the United States.

Prices reveal an interesting pattern both before and after September 11, 2001 (Chart 5). Between 1985:4 and 2003:3, Downtown office building prices essentially held steady relative to the nation, while they fell relative to Midtown. Note, however, that Downtown prices reached a trough in 1998:1 (at which point, Downtown had fallen more than 10 percent relative to the nation since the end of 1985). From 1998:2 to 2001:2, the Downtown market rallied, and the relative price index stood at 111.5 on the eve of September 2001. By the close of 2001, the Downtown market had given back all its gains relative to the nation, and the index reached a low of 96.8 in 2002:3. There is modest evidence here of a rally in the Downtown market since that point, as the index rose back above the break-even point (101.6) by 2003:3.

The fact that the relative Downtown office prices remain below the peak they reached immediately prior to the September 11 attacks might be taken as evidence that the attacks themselves had a very substantial effect on office prices. There are several points to make here. First, the 2001:2 peak of the office index (111.5) was anomalous in the sense that it represented a sharply higher level than it did in the previous quarter (103.7). Second, the pre-9/11 rise in the index as we measure it was the result of a modest decline in the national index and a sharp uptick in the Downtown index.[7] That is, the chart shows a sharp increase in part because of the national office market downturn. Third, the fact that the Downtown office market stabilized in the subsequent two years provides some indication that demanders continue to find locations there attractive. By the end of the period, the relative Downtown price index was about 3 percent higher than it had been three years earlier. However, there is some evidence, as suggested by Glaeser and Shapiro (2002), of a post-attack shift in demand to Midtown, where prices have rallied strongly relative both to the nation and to Downtown since mid-2001. Statistical tests indicate that both the level and the growth rate of the ratio of Midtown to Downtown prices per square foot of office space increased significantly after 2001:3.

Overall, the evidence from the office market suggests a post-attack weakening of demand in Lower Manhattan relative to the rest of the nation, especially in light of the decline in the supply of space that accompanied the destruction of the World Trade Center. The most dramatic effects are seen in prices (Chart 5), although an unusual spike just prior to the attacks makes the data difficult to interpret. Nonetheless, it is clear that the dramatic increase in prices that occurred in Midtown has not been experienced Downtown. In rental markets, there is some sign of weakening in both Downtown and Midtown, although there was modest evidence of stabilization in both areas by the end of 2003.

These data are consistent with a fairly benign view of the attacks' effect on the demand for New York locations. As suggested by Glaeser and Shapiro (2002), it would appear that Downtown's appeal to businesses has declined relative to that of Midtown. However, Downtown demand has held up reasonably well relative to demand in the nation, especially given the temporary dislocations associated with the cleanup and redesign of the World Trade Center and surrounding areas.

We can calculate the weighted average price increase for all of Manhattan by applying the Downtown and Midtown shares of class A space as weights to the relevant price increases. That calculation yields a 12.6 percent increase in office prices across Manhattan between 2001 and 2003.

2.5 Summary

Our evidence suggests several interesting features of the 9/11 shock on the New York City economy:

- It destroyed a very significant share of the Downtown class A office stock.
- The shock exacerbated the effects of the ongoing recession, and almost certainly contributed to a sharp loss of city jobs in late 2001.
- Long-run demand for city locations relative to the rest of the nation appears to have been affected very little; modest evidence from aggregate real estate prices suggests that it may have continued to strengthen.
- Long-run demand for residential space in Lower Manhattan strengthened significantly, but demand in the short run was weaker.
- Both long- and short-run demand for office space in Lower Manhattan weakened relative to the rest of the nation, while demand for Midtown offices rose sharply.

3. Interpreting the Data

What can economic models tell us about what happens to cities over time when they experience significant shocks? Previous work on the dynamics of city economies in light of factor mobility is surprisingly limited. Wildasin (2003) describes a model in which at least one factor of production is imperfectly mobile in the short run, and explores the dynamic implications for tax competition. A key conclusion is that the effect of shocks depends on whether agents are surprised by them;

anticipated shocks have little or no effects. Glaeser and Gyourko (forthcoming) examine the implications of capital durability for paths of urban growth and decline. Both papers indicate that dynamics are very important to the behavior of actors and to the interpretation of empirical results.

A few papers provide models that explicitly incorporate shocks of the sort we examine here. Harrigan and Martin (2002) study simple equilibrium theoretical models of urban growth in the face of terrorism. In both models presented, a large shock is sufficient to reduce the long-run equilibrium size of the city, but the authors argue that large shocks of this type are unlikely to occur as a result of terrorism. They conclude that the transport cost and labor pooling advantages of urban density are likely to be broad and durable enough to absorb plausible terrorism shocks in the long run. The models that these authors adopt are not designed to examine intracity spatial or temporal dynamics, but their results are broadly consistent with the evidence from New York.

In a noneconomic approach to the effects of 9/11, Beunza and Stark (2003) report the results of an ethnographic study of a financial services firm before and after the 2001 attacks. They conclude that the organization's ability to recreate itself was the result of a complex interaction of human and technological capital. One theme that clearly emerges is the primacy of networks across firms and information sharing within the firm. These findings suggest that spatial concentration of activities is an enduring feature of advanced service economies, even in light of sophisticated technologies for transferring and storing information. These conclusions support those of Harrigan and Martin while adding some empirical detail to the advantages conferred by density. One relevant feature of Beunza and Stark's study is that it does not presume that the spatial organization of activity on September 10, 2001, was an equilibrium allocation, which implies that the dynamics of recovery will depend on the expected future configuration as well as the particular character of the shock.

The aggregate effect of shocks on the New York City economy has been empirically documented by several authors. Two kinds of shocks have drawn special attention: the 9/11 terrorism shock (Haughwout 2005) and changes in city fiscal policies (Haughwout et al. 2004). One remarkable feature of these studies is the very different responses that the city economy exhibits in response to these different kinds of shocks. Haughwout et al. find that small changes in tax rates have substantial effects on city tax bases, which are themselves determined by city economic activity, including employment. However, as we indicate, the arguably very large shock caused by the attacks of September 11 resulted in very little aggregate effect on the city economy, but it seems to have been associated with changes in the equilibrium distribution of activities over space.

Rossi-Hansberg (2004) provides a dynamic general equilibrium analysis of the effect of a terrorist attack on a city economy. The paper reaches several conclusions. First, the long-run effect of a terrorist attack on the overall size of a city is expected to be substantial, with a benchmark simulation suggesting that a modestly sized attack would produce city output declines of between 12 and 21 percent, depending on commuting costs. Second, the new equilibrium spatial configuration features no uniform effects on business land rents, but uniformly *higher* residential land rents.

In Rossi-Hansberg's model, the long-run effect of a terrorist attack is determined by what the attack implies about ongoing risks of future destruction and the distribution of that threat over areas of the city, or what the author refers to as the "terrorism tax." Policy interventions such as subsidies to development in areas that are (incorrectly) perceived to be at elevated risk of future attacks will improve welfare only to the extent that the public sector has special (correct) information about the probability of future attacks that it cannot credibly convey to private actors.

Glaeser, Gyourko, and Saks (2004) emphasize the importance of land use regulations in influencing the level and distribution of economic activity in New York. Government's role in providing information that affects development may have been an important factor in the case of New York as well, although in a different way than those highlighted by Rossi-Hansberg and Glaeser, Gyourko, and Saks. Because government plays an important role in determining the equilibrium spatial configuration of activity in New York City, clear pronouncements about the future equilibrium configuration provided market players with information in the face of uncertainty. This information appears to have been valuable enough to more than offset the terrorism tax that 9/11 imposed on the city, allowing a relatively smooth transition toward the new equilibrium.

3.1 Understanding New York's Response to 9/11

New York's relatively rapid recovery after 9/11 is a puzzle. How could such a large shock result in so little aggregate change in the economy after just two years? One possible explanation is that while the general public did not anticipate a terrorist attack of such magnitude, relevant market actors like property developers and their insurers understood that it was a real possibility. An example of evidence supporting this argument

is that this was not the first terrorist attack on the World Trade Center, which had survived an attempt to topple the towers in 1993. Another possibility is that relevant market actors expected that the shock would never be repeated, or that the ongoing terrorism tax was very low. Yet neither notion is supported by evidence from insurance markets. In the immediate aftermath of the attacks, property insurance prices soared (Lakdawalla and Zanjani 2005), suggesting that the shock was unanticipated and that the perceived probability of further attacks had risen.

As we observe, Lower Manhattan on the eve of the 9/11 terrorist shock was already changing from a primary location of the financial services and banking industries, centered on Wall Street. As indicated in Charts 4 and 5, Manhattan office rents and prices had lagged those in Midtown for at least fifteen years. Indeed, public construction of the World Trade Center itself in the 1960s was an effort to resuscitate a lagging Downtown office market (Glaeser and Shapiro 2002). Meanwhile, throughout the 1990s, demand for Manhattan residential locations, including Downtown, was strong.

Prior to 9/11, the movement of office employment to Midtown was gradual, in part because of a shortage of accessible, developable land in Midtown; existing stocks of office capital Downtown; and heavy government regulation in both markets. Given that only the last of these can be altered in the short run, it is useful to think about the spatial allocation of activities in Manhattan prior to 9/11 as a disequilibrium.

A critical feature of this disequilibrium is the central role played by government in affecting the distribution of activities in New York. Industries and occupations that place high value on spatially defined networks dominated employment in pre-9/11 Lower Manhattan. For these firms, the geographic characteristics of places are less important than their economic and social characteristics. That is, the agglomeration of financial services firms that exists in Lower Manhattan could potentially be located anywhere within the greater New York commuting area, as long as the relevant actors are located together. As a preexisting agglomeration begins to come apart, firms lack a means of coordinating their new locations so as to remain near each other. When the public sector has important effects on location patterns, government regulators have the tools at their disposal to serve this coordination function.

In this context, the behavior of public officials in the wake of the 9/11 terrorist attacks had the potential to be a crucial determinant of the future level and distribution of activity. How did officials respond? The federal government immediately pledged $20 billion in aid to reconstruct the city, signaling that it was committed to maintaining New York as the nation's primary center of economic activity. City officials responded in several ways. In addition to proposing detailed plans for the use of the federal money, they made strong and repeated announcements about the future of Downtown Manhattan as a 24/7 mixed-use community. In addition, city officials sought to divert some of the federal resources intended for Downtown businesses to businesses located elsewhere in the city.[8] Finally, Mayor Michael Bloomberg's administration accelerated the process of developing the far West Side of Manhattan, adjacent to Midtown, as a new premium office location complete with a new football stadium.

All of these actions served to signal that the city intended to accommodate the transformation of Downtown into a residential location. This transformation included the relocation of financial services jobs from Downtown to Midtown. All of these actions, whether intentionally or not, provided valuable information to market participants in the wake of 9/11. The change from Downtown as a business location to Downtown as a residential location proceeded slowly, in part because of the existence of large amounts of sector-specific capital. The 9/11 attacks destroyed a large portion of this durable capital in a short period of time. In the market uncertainty that followed, consistent government behavior was interpreted as a clear signal that the future location for business was Midtown.

This view of the evidence is, we believe, consistent with much of the previous literature on city economies. It places appropriate weight on the importance of networks and spillovers, as emphasized by Beunza and Stark (2003). It also stresses the importance of government activities in general (Rossi-Hansberg 2004) and in New York (Glaeser, Gyourko, and Saks 2004). Finally, it provides a potential explanation for the difference between the findings in Haughwout et al. (2004) on tax shocks and the relatively small effect of the terrorism tax. What distinguishes the two is that in the latter case, government is attempting to offset an exogenous shock, while in the former, government itself is generating a "surprise," to use Wildasin's (2003) language. Combined, these results suggest that the actions of New York City government are perceived to be highly credible, both when they signal preferred patterns of land use and when they signal a redistribution of resources.

4. Conclusion

The resilience of cities to powerful shocks has been documented by many authors. In this paper, we present and interpret data on the effects of the September 11 attacks on New York City. The New York experience is consistent with a significant role for government in resolving uncertainty in the immediate aftermath of the attacks. Our results suggest that

cities' responses will depend on the size of the original shock and its expected ongoing cost (in this case, the terrorism tax), whether the preshock spatial configuration was an equilibrium, and the importance and effectiveness of public sector actors as coordinating agents.

If this conjecture is valid, then a negative shock to capital stocks in a city that is in a stable equilibrium will likely reduce activity in the short run, but absent a long-run cost, long-run levels and the spatial distribution of activity will return to the previous equilibrium. But when a city's spatial configuration is far from equilibrium, the shock will potentially exert a stronger effect on the spatial distribution of activity in the long run. In the case of New York, the fact that the city was not in equilibrium, as evidenced by the long-term trends away from Downtown as a business location, and that a very influential local government provided clear information led to marked increases in the Midtown premium for business locations and the Downtown residential premium.

In addition to emphasizing the importance of government behavior, these results suggest that analysts who study the effect of shocks on urban economies take into account the potential effects of disequilibrium on the shock's effects. The results also suggest the usefulness of modeling both the temporal and the spatial dimensions of the shock.

Endnotes

1. The New York City CEI is a broad-based, dynamic single-factor measure of economic activity, constructed according to the methodology of Stock and Watson (1989). The index is calculated from the common movements in four indicators tied to the city's labor market: payroll employment, the unemployment rate, average weekly hours worked in manufacturing, and real earnings. The CEI is described more fully in Orr, Rich, and Rosen (1999).

2. A complete description of the survey is available at <http://www.census.gov/hhes/www/housing/nychvs/2002/nychvs02.html>.

3. Because of high correlations among the measures of unit quality, the specifications reported in Table 1 exclude some variables. These exclusions have no effect on the coefficients of interest. R^2 values for the regressions range from 0.72 for the price equations to 0.85 for the rent equations. Detailed results are available upon request.

4. All prices and rents are measured in nominal terms. The shelter component of the national CPIU increased 11.1 percent between 1999 and June 2002 (Council of Economic Advisers 2005, Table B-61). Since the rental and owner's equivalent rent components grew at similar rates (12.3 percent and 11.1 percent, respectively), we use the total as our benchmark; disaggregating would not affect our conclusions. Overall CPIU inflation over this time period was 8.0 percent.

5. Average commutes in New York City outside of Manhattan average more than forty minutes, placing the four "outer boroughs" sixth, seventh, eighth, and ninth in the national ranking of longest commuting times.

6. Global Real Analytics, which produces the index, collects quarterly information on recently closed office building sales and average rents for class A office space.

7. The price for a square foot of class A office space in Lower Manhattan rose from $307 in 2001:1 to an all-time high of $328 in 2001:3, while the national average fell from $215 to $213. Comparing fourth-quarter prices, we note that Downtown prices were 4.8 percent higher in 2001 than they were in 2002.

8. See <http://www.lowermanhattan.info/construction/looking_ahead/residential_growth.asp>.

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Stephen L. Ross

Commentary

1. Introduction

Andrew F. Haughwout and Bess Rabin examine trends in New York City's economy and real estate markets prior to and following the 9/11 terrorist attacks. They analyze trends both in New York City employment and in an index of coincident economic indicators (CEI) specific to the city. On the real estate side, the authors focus on trends in the Office of Federal Housing Enterprise Oversight's index of metropolitan house prices, the New York City Housing and Vacancy Survey, and the national real estate index (NREI) of class A office space in Manhattan.

Haughwout and Rabin do not identify any persistent, negative effects of 9/11 on New York City's economy or real estate markets. Employment in the city had already entered a steep decline prior to 9/11 because of the continuing national recession, and that decline continued at a comparable pace in the months that followed. The CEI exhibits a very steady decline immediately before and after the attacks, and the rate of decline slows dramatically during the year following 9/11. Both the index of metropolitan house prices and the Housing and Vacancy Survey suggest that residential values rose following 9/11, and the NREI office rent data are fairly flat relative to the national average during the periods before and after the attacks. The one exception to this pattern of stability is a dramatic increase in the NREI of office building prices in Midtown Manhattan and an associated decline in the index for Downtown.

Haughwout and Rabin argue that the general stability of the city's economy and the surge in Midtown values are attributable in part to the actions of public officials in the wake of 9/11. Specifically, New York City officials made strong, repeated announcements that Downtown Manhattan would be a mixed-use community while simultaneously accelerating commercial development in and near Midtown. In this way, the administration removed uncertainty and facilitated the private sector response to the dislocations arising from 9/11, which in turn increased economic stability and raised the long-run value of commercial space in Midtown. In contrast, the authors cite earlier work by Haughwout et al. (2004) on a fiscal shock to New York City, which found that small increases in tax rates led to large, permanent declines in the city's tax base.

2. Housing Markets, Government Action, and Price Changes

The value of urban land rises in large part because of some form of agglomeration economies. If these agglomeration economies are driven by the efficiencies arising from a large, diverse labor market, the destruction of commercial office space during the 9/11 terrorist attacks might have been expected to increase property values because it created a shortage of physical capital while leaving the human capital stock in the

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New York metropolitan area broadly intact. However, if agglomeration economies arise primarily because of economic spillovers, the destruction of commercial office space should have lowered the value of economic spillovers, leading to lower property values in Downtown and potentially affecting the entire New York City economy (see Rosenthal and Strange [2005] for evidence of economic spillovers in the city).

Haughwout and Rabin suggest that the negative effects of lost economic spillovers were mitigated by government action. In the wake of any dislocation, firms face uncertainty as to where private sector activity will locate, and property values are likely to suffer based on this uncertainty. The authors suggest that New York City officials solved this coordination problem through the signals sent in public announcements and actions. As a result, firms could base location and investment decisions on accurate expectations concerning the spatial pattern of economic activity within the city. According to this logic, these government actions stabilized the city's economy in general and led to dramatic increases in the value of Midtown office buildings based on the expectation of increased economic efficiencies as the Midtown commercial district continues to grow.

The explanation provided by Haughwout and Rabin seems reasonable, but I would like to offer an alternative explanation that appears equally consistent with the data. While the commercial office space destroyed in the 9/11 attacks represented 30 percent of the stock of Downtown class A space, this loss represents a substantially smaller portion of the class A stock in New York City and an even smaller portion of space across the entire New York consolidated metropolitan statistical area (CMSA). Therefore, the effect of 9/11 is that the shock was relatively small when compared with the economic size of the entire CMSA. The lost commercial office space may have been replaced by marginal adjustments across the larger economy with higher end activities moving to Midtown and lower end activities moving to space outside Manhattan, which in turn pushed other activities to office space in the broader CMSA. Given that a large fraction of workers commute into Manhattan, such adjustments might only have had a relatively small effect on the overall labor market.

In this context, the key question is how quickly the real estate market can adjust to such a large spatial shock to the relative location of office space supply. Clapp and Ross (2004) examine the adjustment of the market for owner-occupied housing in Connecticut in response to economic and demographic changes. While they find that the relative demographic composition of towns is affected by such shocks, they find no evidence of systematic changes in relative town prices over a two-year time frame. They conclude that sufficient mobility exists within the owner-occupied housing markets such that the increased demand in a few towns arising from migration is spread across the entire metropolitan housing market. In a related analysis, Clapp et al. (2005) examine both the short-run effect (yearly changes) of town demographic changes on prices and the long-run effect (four-year change). They obtain very similar results in the two analyses, suggesting that prices adjust quite rapidly across housing submarkets. One might expect the market for commercial office space to adjust relatively quickly when compared with the market for owner-occupied housing.

Only Haughwout and Rabin's finding of declining Downtown and rapidly increasing Midtown office building values cannot be explained by a simple view that the real estate market is characterized by the actions of efficient and flexible actors. These results, however, must be put into context. The office building price indexes exhibit a high degree of variability, with a spike in Midtown prices occurring during the fourth quarter of 1997 that was just as sharp and large as the spike following the 9/11 attacks. The Midtown and Downtown series also appear to be negatively correlated for most of the 1990s—not just the period following 9/11. Finally, office prices in both Downtown and Midtown began moving off their extremes by the second quarter following 9/11, and while they have not returned to their previous levels, the indexes appear to have returned to levels that are consistent with the trends established after 1995.

3. Conclusion

Haughwout and Rabin provide a very detailed picture of New York City's economy and real estate markets leading up to and following the 9/11 terrorist attacks. Their view that 9/11 had a relatively minor effect on the city's economy is quite convincing. However, the underlying reason behind this benign effect is unknown. The authors suggest that government action allowed private commercial activity to coordinate in Midtown Manhattan, which mitigated the negative effects of the dislocations caused by 9/11.

In this commentary, I offer a different view—that the shock was actually quite small relative to the total stock of commercial office space in the region, and that over a short amount of time marginal adjustments by individual firms absorbed the large shock to class A space in Downtown Manhattan with only relatively minor effects on prices. Unlike Haughwout and Rabin, I view their post–9/11 findings as consistent with earlier work suggesting a large impact from a fiscal shock. In their study, the focus was on a large supply response, which was probably necessary to keep the after-tax price of commercial and residential property relatively unchanged following the shock.

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Keynote Address

Kenneth T. Jackson

Kenneth T. Jackson

The Promised City: Openness and Immigration in the Making of a World Metropolis

1. Introduction

At least since the Great Depression, urban specialists have spent much of their time searching for patterns common to all cities, thinking about the similarities among crowded human settlements, and devising new terms—such as central business district, strip mall, gentrification, and edge city—to describe phenomena that occur in most metropolitan regions. All cities, for example, must somehow deal with water supply, sewage and garbage disposal, fire prevention, criminal justice, public health, affordable housing, and adequate open space, and all have to establish governmental structures to cope with those issues.

Indeed, the Chicago School of Sociology, founded in the 1930s by Ernest W. Burgess, Louis Wirth, and Robert E. Park, became famous for developing a model of the spatial structure of the modern industrial metropolis. Using the Windy City itself as the prototype, the Chicago School shaped the dominant theoretical and methodological assumptions about urban development for more than half a century. Even after the Chicago School came under attack from scholars like Milton Gordon, Nathan Glazer, Daniel Patrick Moynihan, Nancy Foner, Herbert Gans, and many others, it continued to be the paradigm against which other models were measured.[1]

The focus of my remarks is something else entirely. My purpose is threefold: first, to make the case that the study of history is essential to understanding the present and future of any urban area; second, to suggest that in terms of age, size, density, and demographic patterns, New York has been *different from*, rather than typical of, American cities; and third, to argue that Gotham has been unusually successful for almost four centuries because of its heterogeneity, not in spite of it; because of its openness, not in spite of it; and because of its immigrants, not in spite of them. Certainly, the Hudson River metropolis has not won many accolades for being gracious or charming. As John Steinbeck noted decades ago: "It [New York] is an ugly city, a dirty city. Its climate is a scandal. Its politics are used to frighten children. Its traffic is madness. Its competition is murderous. But there is one thing about it. Once you have lived in New York and it has become your home, no other place is good enough."

The little settlement that began at the southern tip of Manhattan has, however, been welcoming in a more important sense—it has provided a haven and opportunity for a larger and more diverse population over more centuries than any other city in human history.

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2. The Founding of New York

By American standards, New York is old. Founded as Fort Amsterdam by the Dutch in 1625, it predates Boston (1630), New Haven (1636), Newark (1666), Charleston (1670), Philadelphia (1682), Colonial Williamsburg (1699), and a hundred other places that we generally regard as more historic than Gotham. St. Augustine (1565) is assuredly older than New York, but for three centuries and more it consisted simply of a fort, a couple of chapels, a school, and a few hundred unremarkable human and animal inhabitants. St. Augustine was not a city by any reasonable definition and it gained prominence only in the twentieth century, when it became a tourist destination because of its age, not its prominence. Similarly, Jamestown (1607), the first English settlement, never found its niche and ultimately disappeared into the muck of the James River, where anthropologists continue in the twenty-first century to search for what little remains of the town. The same is true for Plymouth, the Pilgrim village in Massachusetts that was founded in 1620. It never grew beyond a few small buildings, fell quickly into ruin, and found new life only in the twentieth century, when it was reborn and reconstructed as a kind of historical theme park. Meanwhile, thousands of miles to the west, Santa Fe began in 1610 as a Spanish colonial administrative center. But it remained a wide place on a dusty road until the twentieth century, and not until after World War II did it find success as an art and cultural center.

New York does not seem "historic" to most people because it has been so successful for so long that its population has exploded, its real estate prices have risen dramatically, and its building lots have seen repeated development. Quite simply, because it was important in history, it does not have many buildings that testify to its age—the structures having been torn down repeatedly by successive generations of developers eager to cash in on rising real estate values. Charleston, South Carolina, by contrast, has much of its historic value within its boundaries precisely because little of historic importance happened there. Charleston went into long-term decline after 1820 and grew only slightly over the next half-century. Property values remained low, change was glacial, and old antebellum houses continued to stand along the waterfront into the twenty-first century. Such an outcome would be impossible to conceive in Manhattan, where turbulence, congestion, and constant building—not to mention fires in 1776, 1778, and 1835—contrived to destroy virtually everything of the city's important colonial past.

Of course, other parts of the world boast great cities that are centuries older than New York, whose age is unimpressive when compared with Athens, Rome, Beijing, Tokyo, London, Paris, or a thousand other cities. What was Manhattan when Aristotle and Plato were musing in ancient Greece or when Caesar conquered Gaul? Of what did the Empire City consist when the Ming Dynasty moved its capital in 1421 from Nanking to Peking? And Istanbul, the exotic meeting place between east and west, was already 900 years old in 1492, when Christopher Columbus first set sail for a new route to the Indies.

3. Size

If New York is not old as a settlement by world standards, it is nevertheless old as a big city by world standards. Indeed, it was a major metropolis by 1860, when (including Brooklyn) it had 1 million inhabitants and was larger than any city on the European continent except Paris. By the end of the century, Gotham had 3.4 million citizens and was, after London, the second-largest city on earth and the richest metropolis anywhere. In 1900, for example, approximately half of all the millionaires in the United States, and perhaps a third of those in the entire world, lived in the New York metropolitan region.

In 2005, Gotham remains the only American municipality ever to exceed 4 million residents, and each of its five boroughs would rank as an important city in its own right. Brooklyn alone was almost as big as Chicago; Queens was larger than Philadelphia; the Bronx was bigger than Detroit and Cleveland combined; and Staten Island was more populous than Pittsburgh, St. Louis, or Atlanta.

Figures for the New York metropolitan region have been even more impressive over the past century. In 1930, New York became the first urbanized area in the world to exceed 10 million residents; in 1970, it became the first to exceed 15 million. Although its current thirty-one-county metropolitan region of 22 million people is exceeded by Tokyo and possibly by São Paulo and Mexico City, the Hudson River metropolis remains a human agglomeration of almost unimaginable size.

These statistics remind us that New York has a significance in history unrelated to the date of its establishment as a Dutch trading post. Its size and wealth over the past 150 years has meant that Gotham has had to deal with issues of public health, public transportation, public safety, fire prevention, water supply, and a hundred others before they were addressed in a modern way by Athens, Rome, Moscow, or Istanbul—all of which were smaller and poorer than New York a century ago.

4. Density and Demographic Patterns

Why should anyone care whether any city is particularly old? What does history have to do with our present circumstances?

Demographers have long regarded the spatial arrangement of the United States as so outside the mainstream that they have settled on a term, "the North American pattern," to describe it. Quite simply, the model of urban settlement in this nation is a donut, meaning that all the life, energy, and vitality of the American metropolis is on the edges—in shopping malls, corporate office parks, and residential subdivisions. In the older, urban neighborhoods, one finds pathologies of every description—poverty, public housing, decrepit schools, graffiti-infested playgrounds, racial minorities, prostitution, heavy drug use, and visible homeless problems. While the central business district may feature a few high-end restaurants and glittering skyscrapers, perhaps even a sports arena, Main Street is essentially deserted after dark. Indeed, this pattern is so ingrained in our culture that Americans have devised special ways of discussing it that are understood by the general population. When we mention "inner-city problems," for example, it is not necessary to spell out what we mean.

New York differs from the North American pattern in three fundamental ways: 1) the socioeconomic distribution of the population, 2) the population density of the inner city and the outer suburbs, and 3) the change in gross density over the past half-century. Let us consider each of these demographic patterns in turn.

First, the Hudson River metropolis in some ways follows the North American pattern. Gotham has more than its share of famous and expensive suburbs—from Scarsdale, Chappaqua, Bronxville, and Bedford to the north; to Greenwich, Darien, and New Canaan to the northeast; to Saddle River, Metuchen, and Short Hills to the west; and to the Five Towns and Great Neck to the east. Similarly, the five boroughs include many desperately poor neighborhoods as well as a disproportionate share of the region's public housing and homeless population.

But so it is with all American cities. What makes New York unusual is that the greatest concentration of wealth on earth is in the middle of Manhattan, the wealthiest ZIP code address is 10021, and the most expensive real estate is along Park Avenue, Fifth Avenue, and Central Park West. Moreover, of the 3,137 counties in the United States, the poorest in 2000 was in western Nebraska, with a per capita income of less than $3,000. By that measure, the wealthiest single county in the entire nation was New York County, otherwise known as Manhattan, with a per capita income in excess of $70,000 in 2000.

This statistic is astonishing, if only because Manhattan has long been the locus of so much concentrated poverty. After all, Manhattan contains the nation's largest Dominican population, which is mostly poor, as well as Harlem, the nation's most famous black community. It includes tens of thousands of newly arrived Chinatown residents who are working for below-minimum-wage rates as well as thousands of unemployed and underemployed actors and actresses. And the Manhattan total excludes many wealthy families who own apartments near Central Park but who go to great lengths to prove that their official residence is somewhere else, the better to avoid Gotham income taxes. Yet despite all that, Manhattan comes out as the richest county in the United States, a place not on the edges but at the center.

Second, New York is assuredly not a donut in terms of population density or activity. Its central business district far overshadows any shopping mall or corporate office park, and no one would argue that the city is deserted after dark or quiet at night. And no teenager growing up in Fairfield County or Westchester County or Morris County would likely argue that the Stamford Mall or the Galleria or the Paramus Mall is where the action is or is representative of a lifestyle they want to emulate. They know that the shopping opportunities, sports arenas, concert halls, restaurants, and nightclubs of Manhattan easily eclipse anything they will ever find in White Plains, Garden City, or Saddle River.

But this demographic characteristic goes well beyond the preferences of young adults. As even a casual examination would reveal, the United States is a low-density civilization, and its metropolitan regions spread over larger spaces than those of any other advanced nations. Rare is the American city (Chicago, Philadelphia, Boston, San Francisco) with a population density of more than 10,000 per square mile (a number that would be typical of cities in Europe or Asia). Many municipalities (San Jose, Denver, Portland, Houston, Seattle) have densities of fewer than 5,000 per square mile and some American cities (Memphis, Jacksonville, Oklahoma City, Kansas City) have densities of fewer than 2,000 per square mile, or about as many as who live in completely rural parts of India or Bangladesh. New York, of course, is quite different. Its population density in 2000 was more than 25,000 per square mile for the entire city, and many times that number in most of Manhattan.

Third, Gotham's density is also unusual in that it is not declining. In the United States as a whole, especially since 1950, metropolitan regions have been hollowed out even as the fringes have developed at a rapid pace. The American city could be described as a balloon in the twentieth century that was squeezed in the middle, thus forcing expansion on the edges. In cities that did not expand their boundaries in the twentieth century, the total population declined. Thus, Cleveland went from 915,000 inhabitants in 1950 to 478,000 in 2000; Detroit went from 1,850,000 to 951,000; Philadelphia went from

2,072,000 to 1,518,000; Pittsburgh from 677,000 to 335,000; and Buffalo from 580,000 to 292,000. St. Louis is perhaps the most dramatic case, as it declined from 857,000 in 1950 to 348,000 in 2000.

The same phenomenon is true as well in the exploding cities of the south and west that expanded their boundaries over the past 100 years. So that even though Houston, Dallas, San Antonio, San Diego, Phoenix, and Memphis have grown since 1950 in total population, their densities have declined, meaning that their area has increased even faster than new families have moved in.

Only two American cities had population densities that were higher in 2000 than they were in 1950: New York and San Francisco. Thus, what is unusual about Gotham is not that millions of its citizens left for Westchester County or Florida. Rather, what makes New York City unusual is that somebody took their place.

And contrary to what has often been the popular perception in the United States, the density and diversity of New York have made the city safer than other large American agglomerations. For example, even in 1992, when the murder toll in Gotham reached its horrendous peak of 2,245 in a single year, the city ranked no higher than tenth in the nation in its homicide rate. In the next thirteen years, the number of murders in New York plummeted so far (to fewer than 600 per year between 2002 and 2005) that the city no longer ranks among the country's 150 most dangerous places.

5. Immigration and Diversity

New York has other unique characteristics, among them its heavy reliance on public transportation, its twenty-four-hour orientation, and its diverse cultural offerings. Indeed, it would be easy to argue that taken as a whole, the numerous opera houses, symphonic opportunities, rock concerts, jazz choices, dance performances, legitimate theaters, and art museums in New York provide residents with a cultural richness that Paris, London, Vienna, Berlin, Tokyo, Milan, Moscow, and Los Angeles cannot challenge.

The most important characteristic of New York City, however, has been its openness to newcomers. Essentially, Gotham has never had a majority culture. It was founded by the Dutch to trade and to do business, and for that reason the ruling elite of the small colony were not particularly concerned about religious, racial, or ethnic differences. Even in the 1640s, for example, more than eighteen languages were being spoken on New Amsterdam's streets—and the town had fewer than 1,000 total residents at the time.

The early history of New York contrasted sharply with that of Boston, where the Puritan's "city on a hill" worked mightily to prevent religious dissent and to enforce a kind of theocracy on the inhabitants. When one strong-willed resident, Anne Hutchinson, dissented from the ruling orthodoxy, she was put on trial for heresy and banished from Boston and the Massachusetts Bay Colony.

Such an action would have been inconceivable in the Dutch settlement at the mouth of the Hudson River. Following the traditions of the Netherlands, then the most liberal and tolerant nation in Europe, the city fathers of New Amsterdam followed a kind of "live and let live" policy. They did not particularly care whether one went to church or believed in any god at all, regarding such issues as matters of personal preference.

When the English took the city in 1664 and renamed it New York, they retained much of its Dutch flavor and its tradition of openness.

After the thirteen colonies won their independence and transformed themselves into the United States, Gotham continued to be unusual in the heterogeneity of its citizenry. In 1900, for example, New York had more Irish than Dublin, more Italians than Naples, and more Germans than Hamburg. Indeed, the *kleindeutschland* neighborhood below Fourteenth Street in Lower Manhattan would have ranked as the third-largest city in the Kaiser's German Empire. The almost unbelievable diversity on the streets was captured in print by the young radical John Reed, who gained fame by joining the Russian Revolution in 1917 and writing about his experiences in *Ten Days That Shook the World*. Before he died of tuberculosis in his adopted land, however, he wrote about his early life in Gotham:

> New York was an enchanted city to me. I wandered about the streets, from the soaring imperial towers of downtown, along the East River docks, smelling of spices and the clipper ships of the past, through the swarming East Side, alien towns within alien towns, where the smoky glare of miles of clamorous pushcarts made a splendor of shabby streets. I knew Chinatown and Little Italy, Sharkey's and McSorley's saloons, the Bowery lodging houses and the places where the tramps gathered in winter, the Haymarket, the German village and the dives of the Terderloin. The girls that walked the streets were friends of mine, and the drunken sailors off ships from the world's end. I knew how to get dope, where to go to hire a man to kill an enemy. Within a block of my house was the adventure of the world. Within a mile was every foreign country.

Even in 2005, many global cities remain largely homogenous. In Tokyo, for example, ethnic homogeneity is so ingrained in the culture that Koreans who have lived in Japan for their entire life are derisively called *Zainichi*, which means to stay in Japan. In school, boys and girls shun them as playmates; as adults, they are considered inferior and are not eligible for important or prestigious government jobs. Similarly, in Shanghai, Beijing, Seoul, Moscow, Hong Kong, and São Paulo, one or two ethnic groups make up more than 90 percent of the total population. Other cities have become heterogeneous only since World War II—one thinks of Paris, Vancouver, Toronto, Sydney, Melbourne, and Berlin. London, as always, is a leader among cities. Leo Benedictus, for example, noted in 2005 that 300 languages were being spoken by the people of London, that 2.2 million people in the city had been born outside England, and that the city had at least fifty nonindigenous communities with populations of 10,000 or more. As he wrote, "Virtually every race, nation, culture, and religion in the world can claim at least a handful of Londoners."

But New York remains in a class by itself, as it has been since the middle of the seventeenth century. According to the 2000 census, 2.93 million foreign-born persons, up from 2.18 million in 1990, lived in the five boroughs, and unlike the British, who count persons from Wales and Scotland as foreign born, Americans do not classify persons from California or Texas or Mississippi as foreign born, although they have to travel farther than someone from Northern Ireland to get to the cultural and financial capital. Significantly, the largest group of foreign-born persons in Gotham—those from the Dominican Republic—account for only 14 percent of the newcomer total. Quite simply, New York is *the* immigrant metropolis, and it has a more diverse population than any other city in the history of man. Queens alone is the most polyglot place on earth, with 1,028,339 "official" foreign-born persons in 2000, or 46 percent of the total.

6. The Jewish Experience

New York has transformed many ethnic and racial groups—the Dutch, the English, the Irish, the Germans, the Italians, African-Americans, the Greeks, for example—who in turn have transformed the metropolis. No other group, however, reveals the peculiar history and challenges of New York better than the Jews.

Quite simply, the major events in New York's Jewish history reflect the larger history of the metropolis. The first small band of Jews to reach New Amsterdam arrived on September 1, 1654, from Portuguese Brazil, where they had been forced to leave. Their initial reception in Manhattan was not much better because Peter Stuyvesant, the last of the four Dutch governors of the town, had no use for the newcomers and wanted to send them on their way. But his superiors in Amsterdam learned of the controversy and reminded Stuyvesant that the purpose of the colony was to encourage trade and to welcome opportunities for business growth, not to encourage some sort of Christian conformity. Properly chastened, the governor allowed the Jews to remain, and even to hold religious services in their homes. By the time the English captured the city in 1664, the Jews were already holding public services. Called Shearith Israel, the congregation rented quarters on Beaver Street and had about 100 members by the end of the seventeenth century.

The second major shift in Jewish New York came between 1825 and 1875, when a large number of German, Austrian, Bohemian, and Hungarian Jews came, largely after the revolution of 1848. This group, which later formed the core of what Stephen Birmingham would call "Our Crowd," exemplified the theme of aspiration.

The third major moment in New York Jewish history lasted from about 1881, when the Russian pogroms began in earnest, until 1924, when restrictive immigration laws at least temporarily cut off the flow of newcomers from eastern Europe. These were the peak years of immigration, captured in prose by Emma Lazarus's famous poem *The New Colossus* and in physical form by the Statue of Liberty. And while life on the Lower East Side was never easy, those years and those streets exemplified the theme of hope.

The fourth major moment came in the 1930s, when German refugees fleeing Hitler congregated in Washington Heights and when second-generation Jews from the Lower East Side became, as Deborah Dash Moore has argued, "at home in America," moving away from Rivington and Essex and Delancey and Orchard Streets to places like East New York in Brooklyn and the Grand Concourse in the Bronx.

Since World War II, there has been an exodus of the Jewish population from the five boroughs to places like Scarsdale and Great Neck or to Florida and the Sunbelt more generally. At the same time, the growth of the Orthodox and Hassidic populations in Crown Heights, Williamsburg, and Borough Park has meant that the Jewish proportion of the city's population has stabilized.

7. The Decline of Industrial and Port Employment

So what? Are there larger lessons to take from the New York experience in terms of tolerance and openness to newcomers?

The suggestion of my remarks is an emphatic yes. New York has not only been the Promised City for the Jews, but also for a succession of other immigrant groups. Both the city and the immigrants themselves benefited from the exchange, whether successful entrepreneurs like Andrew Carnegie and Alexander T. Stewart or penniless newcomers who only dreamed of economic success, political opportunity, and religious freedom. Taken as a group, they transformed what in 1775 was a second-tier city in the British Empire into what by 1950 was variously considered the Capital of the Twentieth Century, the Capital of Capitalism, or, as the late Pope John Paul II famously said, the Capital of the World.

The constant infusion of new energy and ideas into the metropolis over the years enabled New York to meet economic and technological challenges that destroyed the prospects of competing cities. Consider how the engines of Gotham's prosperity have changed over the past half-century. In 1955, the twin underpinnings of the metropolitan economy were manufacturing and the port. Indeed, at midcentury, Gotham was the most important industrial city in the world. German and Japanese competitors had of course been blasted into ruins, and other European cities were still recovering from the conflict. Chicago and Pittsburgh were of course dominated by factories of every description, but their populations were so much smaller than that of New York that the value added by manufacturing and the total employment in production was less than half that of Gotham. The same was true of Detroit with its automotive plants or Los Angeles with its aircraft construction. What made New York unusual was the absence of heavy industry and instead the presence of thousands of little factories where operatives were sewing buttons onto overcoats, building and repairing warships, making razor blades and file cabinets, producing chewing gum and caskets, bottling milk and brewing beer, printing checks and magazines, and turning out hats, blouses, and skirts by the millions—usually in businesses with fewer than 1,000 employees.

What happened to New York's industries? In the past half-century, more than three-quarters of them have disappeared as manufacturing employment in the city declined from more than 1 million in 1950 to fewer than 200,000 at the turn of the century. Brewing is perhaps typical. In 1900, Gotham was home to more than ninety breweries, mostly concentrated in Greenpoint and Williamsburg in Brooklyn; as late as 1960, New York produced more beer than Milwaukee and St. Louis combined. By 1975, however, the industry was dead in the city, and in 2005, not a single brewery, other than a micro-pub, remains in the five boroughs.

The harbor has followed a similar trajectory. A half-century ago, the Port of New York was the busiest and most important in the world, and it had held that position for more than a century. During the second half of the nineteenth century, there were many years when the volume of trade passing through the Manhattan, Brooklyn, and Staten Island docks was greater than that of every other harbor in the United States *combined*. It was not just a world port, it was *the* world port. During World War I, freight trains backed up all the way to Pennsylvania and beyond awaiting their turn to unload cargo destined for France and the Western Front. The pattern was similar during the Second World War, when Gotham was again the major point of transshipment for men and material heading for North Africa, Italy, and England, and through Normandy and France to the German heartland. Practically every tank, gun, soldier, and uniform involved in the invasion of Europe passed through the New York docks on their way overseas.

The 1954 motion picture classic, *On the Waterfront*, starring Marlon Brando, illustrated the powerful role of the harbor in the economy, as it depicted the tens of thousands of stevedores who showed up every morning and afternoon in the hope of getting the chance to unload boxes or bags from a ship. Recreational boating and swimming were rare because the East and Hudson Rivers were so crowded with tugboats and commercial shipping.

What happened to the Port of New York? In the past half-century, it has been eclipsed by Rotterdam and Hong Kong and Los Angeles and Long Beach. More important, its thousands of jobs were rendered unnecessary because of the switch to containers. These rectangular metal boxes, now forty feet in length and longer, are stacked and unstacked on great container ships that ply to waterways of the world. But they no longer require gangs of stevedores; instead, one man in the cab of a hoist, another who places a hook onto a container, and another who guides it to the ground (or onto the rear of a tractor-trailer truck) are able to accomplish the entire process in less time and with less pilferage and loss than a hundred men could have done a half-century earlier.

Thus, manufacturing and the port have both essentially disappeared from the economy of New York. But unlike Detroit or Cleveland or Newark or Buffalo or Pittsburgh, Gotham reinvented itself as a different kind of city, a place on the leading edge of the service and white-collar economies. As a result, New York City has more and better jobs in 2005 than it did in 1905 or 1955.

8. Openness, Tolerance, and Change

Change, openness, and tolerance are at the heart of what New York is and what New York represents. For more than three centuries, it has been more diverse and more open than any

other important city. Because of its history and its diversity, Gotham has long been a haven for dissent. It is no accident that the NAACP traces its origins to Manhattan and not to Mississippi, or that the Communist Party made New York its headquarters for the entire twentieth century, or that the Gay Rights Movement reportedly began in the Stonewall bar in Greenwich Village in 1969. New Yorkers as individuals are probably no more tolerant than residents of South Carolina or Oregon, as racial and ethnic confrontations too numerous to mention in the city's boroughs (fatal incidents in Howard Beach, Crown Heights, and Bay Ridge, are just a few examples) remind us. But the density, diversity, and size of New York have made public dissent possible by granting anonymity to almost anyone who wants it. A troublemaker in Mississippi could easily be identified, located, and punished. But New York is far too big and complex for its residents to concern themselves with the politics, religion, or ethnicity of strangers.

No one has done a better job than E. B. White of describing this essential characteristic of the great American metropolis. "New York," he wrote in 1949, "blends the gift of privacy with the excitement of participation, and better than most dense communities New York succeeds in insulating the individual against all enormous and violent and wonderful events that are taking place every minute." He continued with what remains the most succinct sentence yet written about the big and gritty city: "New York is peculiarly constructed to absorb almost anything that comes along, whether a thousand-foot line out of the East or a twenty-thousand man convention out of the West, without inflicting the event on its inhabitants, so that every event is in a sense optional, and the inhabitant is in the happy position of being able to choose his spectacle and so conserve his soul."

Endnotes

1. On the use of theory by urban historians, see Gilfoyle (2001).

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Session 2

Immigration

Paper by

George J. Borjas

Commentary by

Stephen J. Trejo

Paper by

John Mollenkopf

Commentary by

Douglas S. Massey

George J. Borjas

Immigration Trends in the New York Metropolitan Area

1. Introduction

There has been a resurgence of large-scale immigration in the United States and in many other countries in recent decades. Not surprisingly, the impact of immigration on economic conditions in the receiving country is often a topic of contentious policy debate. In the U.S. context, this concern has motivated a great deal of research that attempts to document how the U.S. labor market has adjusted to the large-scale immigration in the past few decades. Much of this research has focused on analyzing the determinants of the skill composition of the foreign-born workforce (see the survey in Borjas [1994]). This analytical focus can be easily justified by the fact that the skill composition of the immigrant population is perhaps the key determinant of the social and economic consequences of immigration.

For example, the connection between the skill composition of the immigrant population and the fiscal impact of immigration is self-evident. The many programs that make up the welfare state tend to redistribute resources from high-income workers to persons with less economic potential. Skilled workers, regardless of where they were born, typically pay higher taxes and receive fewer social services.

Skilled immigrants may also assimilate quickly. They might be more adept at learning the tools and "tricks of the trade" that can increase the chances of economic success in the United States, such as the language and culture of the American workplace. Moreover, the structure of the American economy changed drastically in the 1980s and 1990s, and now favors workers who have valuable skills to offer (Katz and Murphy 1992). It seems, therefore, as if high-skill immigrants would have a head start in the race for economic assimilation.

The skill mix of immigrants also determines which native workers are most affected by immigration. Low-skill immigrants will typically harm the economic opportunities of low-skill natives, while high-skill immigrants will typically have a similar effect on high-skill natives.

Finally, the skills of immigrants determine the economic benefits achieved from immigration. The United States benefits from international trade because it can import goods that are not available or are too expensive to produce in the domestic market. Similarly, a country can benefit from immigration because it can import workers with scarce qualifications and abilities.

In addition to measuring the relative skill endowment of immigrants, the existing literature also stresses the economic consequences that arise from the fact that immigrants cluster in a small number of geographic areas (Friedberg and Hunt 1995; Card 2001). It is well known that New York City and its environs have been an important immigrant gateway for more than a century. Although the geographic gravity of modern immigration has shifted to other parts of the United States, such as California, Texas, and Florida, the New York metropolitan area remains an important receiving site. In 2000,

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15.7 percent of all foreign-born workers resided in the New York metropolitan area—down from 24.5 percent in 1970, prior to the resurgence of immigration.

This paper documents the impact of recent changes in immigration settlement patterns on the skill endowment of immigrants in the New York metropolitan area. The empirical analysis uses the available U.S. census microdata between 1970 and 2000 to examine two related questions that inevitably lie at the core of any study of immigration's economic impact in the New York area:

- Which types of immigrants choose to settle in New York?
- How do these immigrants compare with the native-born population of the New York region and with the immigrants who choose to settle elsewhere?

2. Basic Trends

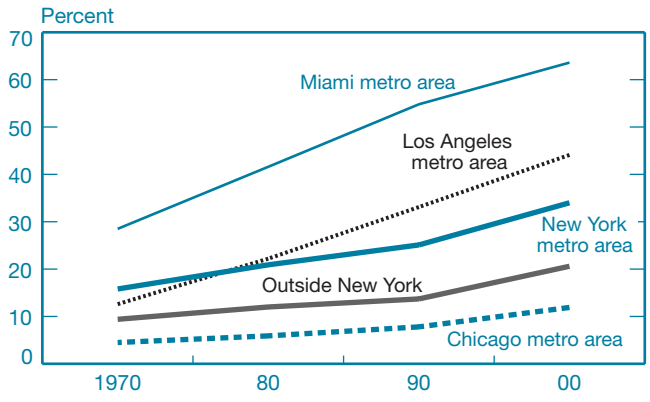
Our analysis uses data drawn from the 1970-2000 Integrated Public Use Microdata Series (IPUMS) of the U.S. census.[1] The data contain information on the skills and labor market outcomes of millions of workers in the United States. Throughout this study, persons who are not citizens or who are naturalized citizens are classified as immigrants; all other persons are classified as natives.[2] To examine the contribution of immigration to the workforces of particular geographic areas, we focus on the sample of workers aged twenty-five to sixty-four who are not in the military and who are not enrolled in school.

The growth of the foreign-born workforce in the New York metropolitan area in the past two decades has corresponded roughly with the growth of the foreign-born workforce in other parts of the country. Chart 1, for example, illustrates trends in the immigrant share—that is, the percentage of the workforce that is foreign born—in the New York metropolitan area and in the rest of the country (labeled "outside New York" in the chart). In 1970, 15.8 percent of the workforce in the New York metropolitan area was foreign born. The figure grew to 25.1 percent by 1990 and to 34.0 percent by 2000. This growth rate is significantly faster than the growth rate in the immigrant share outside the New York area, where the immigrant share grew from 4.5 percent in 1970 to 11.9 percent in 2000.

Chart 1 also shows, however, that the immigrant share grew even faster in some other metropolitan areas. In particular, the chart summarizes the experience of three other large metropolitan areas that are important gateways for immigrants: Los Angeles, Miami, and Chicago. Both the Los Angeles and Miami metropolitan areas have a substantially larger immigrant share, and their immigrant share grew at a much faster rate during the 1970-2000 period. In 1970, for example, the New York metropolitan area had a slightly higher immigrant share than did the Los Angeles metropolitan area (15.8 percent and 12.6 percent, respectively). By 2000, however, the immigrant share in the Los Angeles metropolitan area had risen to 44.1 percent, a 10 percentage point difference over the share in the New York metropolitan area. In Miami, the immigrant share rose from 28.5 percent to 63.6 percent over the same period.

One important difference between immigration to the New York metropolitan area and to other parts of the country lies in the national origin mix of the immigrant population. It is well known that partly as a result of the policy changes introduced by the repeal of the national origins quota system in the 1965 Amendments to the Immigration and Nationality Act, the national origin mix of immigrants shifted from Europe and Canada to countries in Latin America and Asia beginning in the 1970s. Table 1 shows the difference in the national origin mix of immigrants in the various U.S. regions as of 2000. The data reveal that there is a great deal more diversity in the national origin mix of the immigrant population in the New York

Chart 1
Trends in the Immigrant Share of the Workforce
By Area



Source: Author's calculations, based on U.S. Census Bureau's 1970-2000 Integrated Public Use Microdata Series.

Notes: The workforce is defined as the group of persons aged twenty-five to sixty-four who are not enrolled in school and who worked in the civilian sector at least one week in the year prior to each decennial census. The immigrant share is the fraction of the workforce that is foreign born.

TABLE 1

National Origin Mix of Immigrants, 2000

Percentage of Immigrant Stock Originating in a Particular Country

Country	New York Metro Area	Outside New York	Los Angeles Metro Area	Miami Metro Area	Chicago Metro Area
All immigrants					
Canada	0.8	2.6	1.1	0.5	1.0
Mexico	4.2	35.0	45.0	1.9	42.4
Central America	6.3	7.4	13.1	15.4	3.0
Cuba	1.6	2.8	0.6	43.9	0.7
West Indies	22.9	3.9	0.4	14.2	1.3
Europe	19.7	13.3	6.1	3.5	23.8
China	7.2	4.4	4.9	0.5	3.1
Korea	2.7	2.5	4.1	0.1	2.3
Philippines	3.1	5.4	6.2	0.5	5.1
Vietnam	0.5	3.9	4.8	0.2	1.1
India	6.9	4.5	2.0	0.5	7.1

Source: Author's calculations, based on U.S. Census Bureau's 2000 Integrated Public Use Microdata Series.

Notes: Figures are calculated using the sample of persons aged twenty-five to sixty-four who are not enrolled in school and who worked in the civilian sector at least one week in the year prior to each decennial census. The "outside New York" region is composed of the sample of persons residing outside the New York metro area.

metropolitan area than there is outside the New York area or in other selected metropolitan areas.

Not surprisingly, outside the New York metropolitan area, immigration is dominated by the Mexican origin population: 35.0 percent of immigrants and 40.0 percent of newly arrived immigrants (that is, immigrants who have been in the United States fewer than five years) outside the New York area are of Mexican origin. In contrast, only about 4.2 percent and 8.9 percent of the immigrant and newly arrived immigrant workforces in New York, respectively, are of Mexican origin. In fact, the largest immigrant group in the New York metropolitan area comprises those who originate in the West Indies (which includes Jamaica and the Dominican Republic). In 2000, 22.9 percent of immigrants in New York originated in the West Indies. Outside the New York area, however, immigration from the West Indies accounted for only 3.9 percent of the immigrant workforce. Equally interesting, the second largest group of immigrants in the New York area is formed by European immigrants; they make up 19.7 percent of the immigrant workforce.

In contrast to the national origin mix of immigrants in New York, consider the composition of the immigrant workforce in the three other metropolitan areas (Table 1). Between 40 percent and 50 percent of the immigrants in each of these metropolitan areas belong to a *single* national origin mix. In Los Angeles, 45.0 percent are of Mexican origin; in Miami, 43.9 percent are of Cuban origin; and in Chicago, 42.4 percent are of Mexican origin.

It is well known that there are substantial differences in socioeconomic outcomes among the various national origin groups that make up the immigrant population and that Mexican immigrants, in particular, tend to have relatively low educational attainment and wages. As a result of these national origin differentials, Table 1 suggests that the economic impact of immigration on the New York area will likely differ substantially from the impact on other metropolitan areas—even if those other regions have roughly similar levels of immigration.

We conclude this section by describing the occupational distribution of immigrant men in New York and of immigrant men outside New York.[3] The first two columns of Table 2 present the basic distributions. The data indicate that a relatively large fraction of immigrant men in the New York area tend to be employed in management occupations and in sales. These two occupations alone, in fact, employ a quarter of immigrant men in the New York metropolitan area. The concentration of immigrants in these occupations, of course, could reflect the fact that the New York occupational structure may be heavily weighted toward those types of jobs. To adjust for the fact that the occupational distribution of immigrant men in a particular region is affected by the occupational structure of the local labor market, we report in the last two columns of Table 2 the statistic given by the *ratio* of the percentage of immigrants employed in a particular occupation to the percentage of natives employed in the same occupation in a particular region. A value of 1 for this statistic would imply that immigrant and native men have the same proportional representation in the particular occupation in the local labor market. In the New York metropolitan area, immigrant men tend to be underrepresented in such occupations as management, business operations, legal, and protective service, and are overrepresented in health care support, production, and transportation and material moving. Remarkably, a comparison of the last two columns of the table suggests that, with only a few exceptions, there is a great deal of similarity in the degree of immigrant penetration in particular occupations in New York and outside New York.

Table 2

Occupational Distribution of Immigrant Men, 2000

Occupation	Percentage of Immigrants Employed in Occupation		Percentage of Immigrants Employed in Occupation Relative to Percentage of Natives Employed in Occupation	
	New York Metro Area	Outside New York	New York Metro Area	Outside New York
All immigrant men				
Management occupations	13.9	12.3	0.6	0.7
Business operations specialists	2.4	2.0	0.6	0.6
Financial specialists	3.6	2.0	0.6	0.6
Computer and mathematical occupations	3.8	3.0	1.2	1.4
Architecture and engineering	2.4	3.6	0.9	1.1
Life, physical, and social science	0.9	1.0	1.1	1.3
Community and social service	1.1	1.1	0.6	0.6
Legal	2.9	1.2	0.2	0.3
Education, training, and library	3.4	2.7	0.4	0.6
Arts, design, entertainment, sports	3.9	1.8	0.5	0.8
Health care practitioners and technical	2.7	2.3	1.1	1.2
Health care support	0.5	0.4	2.0	1.2
Protective service	5.4	3.2	0.4	0.3
Food preparation and serving	1.9	1.7	3.7	3.6
Building and grounds cleaning and maintenance	3.4	3.2	1.6	1.9
Personal care and service	1.1	0.9	1.4	1.2
Sales	11.7	10.3	0.8	0.7
Office and administrative support	8.5	6.4	0.8	0.8
Farming, fishing, and forestry	0.1	0.8	2.0	3.9
Construction trades	7.4	10.5	1.3	1.2
Extraction workers	0.0	0.2	0.3	0.4
Installation, maintenance, and repair workers	5.8	7.9	1.0	0.8
Production	5.2	11.5	2.1	1.3
Transportation and material moving	7.9	10.1	1.5	0.9

Source: Author's calculations, based on U.S. Census Bureau's 2000 Integrated Public Use Microdata Series.

Notes: Figures are calculated using the sample of persons aged twenty-five to sixty-four who are not enrolled in school and who worked in the civilian sector at least one week in the year prior to each decennial census. The "outside New York" region is composed of the sample of persons residing outside the New York metro area.

3. The Skills and Earnings of Immigrants

The skill composition of the immigrant population is the key determinant of the economic impact of immigration. This section examines how the skills and economic performance of immigrants in the New York area compare with those of native workers in the region as well as with those of foreign-born workers in other regions of the country. In addition, we document the extent to which regional differentials in immigrant skills and economic performance have changed over time.

Table 3 presents the trend in the distribution of educational attainment for male native and immigrant workers. Because of the rising level of educational attainment among native workers, the table shows a significant decline in the fraction of native working men who are high-school dropouts in all geographic areas between 1970 and 2000. Outside the New York metropolitan area, for example, the fraction of native workers who are high-school dropouts fell from 40.0 percent to 8.0 percent between 1970 and 2000. In New York, the decline was equally steep, from 37.2 percent to 5.7 percent.

The New York metropolitan area, however, witnessed a much more rapid increase in the fraction of natives who are college graduates. In the New York area, the fraction of male workers with at least sixteen years of schooling rose from 20.1 percent to 41.5 percent between 1970 and 2000, or an increase of 21.4 percentage points. Outside the New York area, the fraction rose from 15.2 percent to 28.8 percent, or an increase of 13.6 percentage points. This dramatic improvement

in the relative educational attainment of the native-born workforce in the New York area will play an important role in our discussion of regional differences in the relative economic performance of the foreign-born workforce.

As it did among the native-born workforce, the fraction of immigrants who are high-school dropouts fell between 1970 and 2000, with the decrease being steeper in the New York metropolitan area. In New York, the fraction of immigrants who are high-school dropouts fell from 52.3 percent to 21.5 percent, or a decrease of 30.8 percentage points. This decline contrasts strikingly with the much more modest 15.8 percentage point drop that occurred outside the New York metropolitan area, from 48.6 percent to 32.8 percent. Similarly, there was a more rapid increase in the relative number of foreign-born workers who are college graduates in New York than there was elsewhere. In New York, the fraction of the foreign-born workforce with a college degree rose from 15.5 percent to 29.7 percent, or an increase of 14.2 percentage points. In contrast, the share of foreign-born college graduates outside the New York area rose only from 18.4 percent to 26.6 percent, or an increase of 8.2 percentage points.

In sum, relative to the rest of the country, the New York metropolitan area experienced a dramatic improvement in the educational attainment level of its workforce between 1970 and 2000—for *both* native-born and foreign-born workers. The New York area's advantage is even more dramatic when the trends in educational attainment are compared with the trends experienced by other immigrant-receiving metropolitan areas. In Los Angeles, for example, the share of immigrant men who are high-school dropouts fell by only 5.6 percentage points over the period, from 45.0 percent to 39.4 percent, while the share who are college graduates rose by only 3.9 percentage points, from 17.3 percent to 21.2 percent. Similarly in Miami, the fraction of immigrants who are college graduates rose from 14.6 percent to 22.2 percent, or a 7.6 percentage point increase.

Note, however, that the improvement in the educational attainment of the immigrant workforce in the New York metropolitan area—although steep relative to that of the immigrant workforce elsewhere—occurred concurrently with an even faster improvement in the educational attainment of New York's native-born workforce. As a result, it will be instructive to determine the trends in economic performance of immigrants in New York not only relative to the native-born population in the New York area, but also relative to the foreign-born workforce that chooses to settle elsewhere.

Consider the trend in the wage differential between immigrant and native workers within a certain geographic region. Chart 2 summarizes the 1970-2000 trend in the log weekly wage differential between male immigrant and native workers in a particular region. Contrast initially the log wage gap between immigrants and natives in the New York metropolitan area with that found outside the New York area. The chart reveals two interesting facts. First, immigrants living outside the New York metropolitan area have a higher wage relative to natives than do immigrants living in the New York area. In other words, *relative to the native workforce in the specific region*, immigrants are somewhat more skilled outside the New York area. In 2000, for example, the log wage gap between immigrants and natives stood at -.41 in New York and -.22 outside New York, implying approximately a 34 percent wage gap between immigrants and natives in New York and a 20 percent wage gap outside New York.[4] Second, both in New York and outside New York, the wage disadvantage of

TABLE 3
Distribution of Educational Attainment for Male Workforce

	Natives		Immigrants	
	1970	2000	1970	2000
New York metro area				
High-school dropouts	37.2	5.7	52.3	21.5
High-school graduates	31.5	27.2	22.5	30.7
Some college	11.3	25.6	9.7	18.2
College graduates	20.1	41.5	15.5	29.7
Outside New York				
High-school dropouts	40.0	8.0	48.6	32.8
High-school graduates	33.2	33.1	21.8	23.5
Some college	11.6	30.2	11.1	17.2
College graduates	15.2	28.8	18.4	26.6
Los Angeles metro area				
High-school dropouts	27.4	4.7	45.0	39.4
High-school graduates	32.5	21.5	22.7	22.6
Some college	20.7	34.8	14.9	16.8
College graduates	19.5	39.0	17.3	21.2
Miami metro area				
High-school dropouts	36.2	8.2	51.7	22.2
High-school graduates	31.3	26.9	21.6	32.3
Some college	13.2	29.4	12.1	23.3
College graduates	19.4	35.6	14.6	22.2
Chicago metro area				
High-school dropouts	36.7	5.4	54.1	31.5
High-school graduates	32.7	26.9	18.5	26.4
Some college	13.7	30.2	11.2	15.7
College graduates	17.0	37.6	16.2	26.4

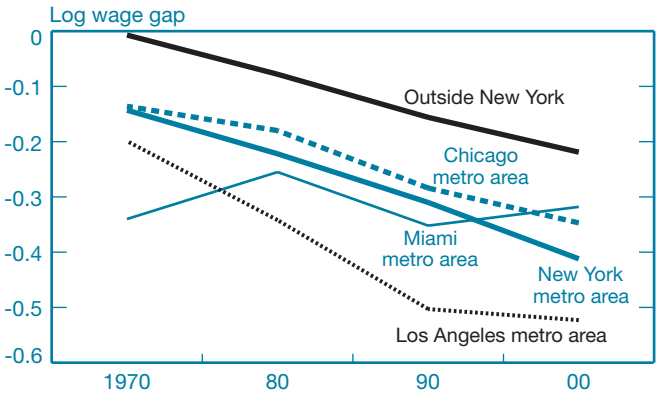
Source: Author's calculations, based on U.S. Census Bureau's 1970-2000 Integrated Public Use Microdata Series.

Notes: Figures are calculated using the sample of persons aged twenty-five to sixty-four who are not enrolled in school and who worked in the civilian sector at least one week in the year prior to each decennial census. The "outside New York" region is composed of the sample of persons residing outside the New York metro area.

Chart 2

Trends in the Log Weekly Wage of Immigrant Men Relative to the Wage of Native Men

By Area



Source: Author's calculations, based on U.S. Census Bureau's 1970-2000 Integrated Public Use Microdata Series.

Note: Figures are calculated using the sample of persons aged twenty-five to sixty-four who are not enrolled in school and who worked in the civilian sector at least one week in the year prior to each decennial census.

immigrants relative to that of natives grew steadily between 1970 and 2000, and the rate of decline was approximately the same in both regions.

Chart 2 also shows how the relative wage disadvantage of immigrants differs across the main immigrant-receiving metropolitan areas. Most striking is the experience of Los Angeles, where the wage disadvantage grew dramatically between 1970 and 2000. By 2000, immigrants in Los Angeles earned approximately 41 percent less than native-born workers.

As noted above, the trend in the log wage gap between immigrants and natives in a particular geographic region does not provide a complete picture of what is happening to immigrant skills because native skills have been changing over time as well—and the dramatic improvement in native educational attainment in the New York area may account for a large part of the increasing relative disadvantage of immigrants in that area. In other words, the tracking provided in Chart 2 isolates the trend in the relative economic standing of immigrants in a particular geographic region—but it may provide a very misleading picture about whether a certain region is attracting a more skilled immigrant workforce than are other regions.

To isolate what is happening to immigrant skills in New York as compared with immigrant skills elsewhere, we contrast the wage of immigrants in New York with the wage of immigrants in other parts of the country. One important difficulty with this type of comparison is the presence of differences in wage levels across metropolitan areas that reflect cost-of-living differences.[5] To adjust for these cost-of-living differentials, we use the respective Bureau of Labor Statistics cost-of-living index for each particular metropolitan area to deflate the wage data reported in the various censuses.

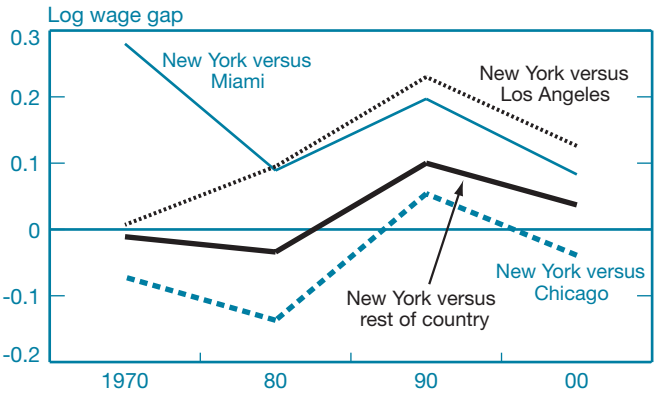
Chart 3 illustrates the change in the (deflated) log weekly wage of immigrants in the New York area relative to immigrants in other areas. Compare initially the trend in the real wage of immigrants in New York with that of immigrants in the rest of the country.[6] In 1970, the typical New York area immigrant earned slightly less than the typical immigrant residing outside New York (the log wage gap was -.01), and the immigrant position worsened slightly between 1970 and 1980 (the log wage gap in 1980 stood at -.03). Although the data are somewhat noisy, the chart reveals that there was a general improvement in the real wage of immigrants in New York relative to that of immigrants elsewhere between 1980 and 2000, so that by 2000 the log wage gap stood at .037. In short, at the same time that the wage of immigrants in New York was falling relative to that of natives in New York, it was improving relative to that of immigrants employed outside the New York area.

The comparison between immigrants employed in New York and in some of the other immigrant-receiving metropolitan areas indicates that immigrants in New York are substantially more skilled than the immigrants who settle in Los Angeles or Miami. The difference between Los Angeles and New York is particularly striking. In 2000, the log wage gap of .126 between the two groups of immigrants implied that

Chart 3

Log Weekly Wage of Immigrant Men in the New York Metro Area Relative to the Wage of Native Men

By Area



Source: Author's calculations, based on U.S. Census Bureau's 1970-2000 Integrated Public Use Microdata Series.

Note: Figures are calculated using the sample of persons aged twenty-five to sixty-four who are not enrolled in school and who worked in the civilian sector at least one week in the year prior to each decennial census.

New York immigrants earned about 14 percent more than their counterparts in Los Angeles.

The difference in the results between Charts 2 and 3 implies that a systematic evaluation of the economic impact of immigration in the New York area will inevitably have to confront the fact that, while New York immigrants are relatively more skilled than immigrants elsewhere, they are relatively less skilled than native workers in New York—and that while the skill advantage of New York's immigrants relative to immigrants elsewhere is growing over time, the skill disadvantage of New York's immigrants relative to New York's natives is also growing. In an important sense, the New York area is doing quite well competing for skilled immigrants in the "immigration market," but the skill level of the native New York workforce is increasing even more rapidly, so that even the relatively skilled immigrants attracted by New York's labor market are at an increasing disadvantage in the local economy.

Many studies in the modern literature on the economics of immigration focus on analyzing how the earnings potential of immigrant workers adapts to the host country's labor market.[7] In the past two decades, this literature has concentrated on measuring both the "assimilation" and "cohort" effects that jointly determine the evolution of the relative wage of immigrants over time (Chiswick 1978; Borjas 1985, 1995). The assimilation effect arises because immigrants acquire relatively more human capital than do native workers as they accumulate experience in the U.S. labor market. As a result, the human capital stock of immigrants grows relative to that of natives, and immigrants experience faster wage growth. Cohort effects arise because there may be permanent differences in skills among immigrant waves. For example, the immigrants who arrived in the late 1990s may be different (as reflected, for example, by the entry wage) than the immigrants who arrived in the late 1970s, who, in turn, might differ from those who arrived in the late 1950s.[8]

Chart 4 summarizes the evidence on interregional differences in cohort effects over the past thirty years by looking at the trend in the log wage gap between native workers and immigrants who belong to the cohort of newly arrived immigrants at each census date (that is, immigrants who have been in the United States fewer than five years as of the census date) in a particular geographic region. Consider initially the cohort effect for the immigrants who are residing outside the New York metropolitan area shortly after their arrival in the United States. The trend in their relative wage clearly indicates that the relative wage of consecutive immigrant cohorts declined between 1970 and 1990, from a 20 percent wage disadvantage in 1970 to 35 percent in 1990. Interestingly, this trend was reversed in the 1990s. By 2000, the wage disadvantage of newly arrived immigrants living outside the New York metropolitan area rose to 31 percent.

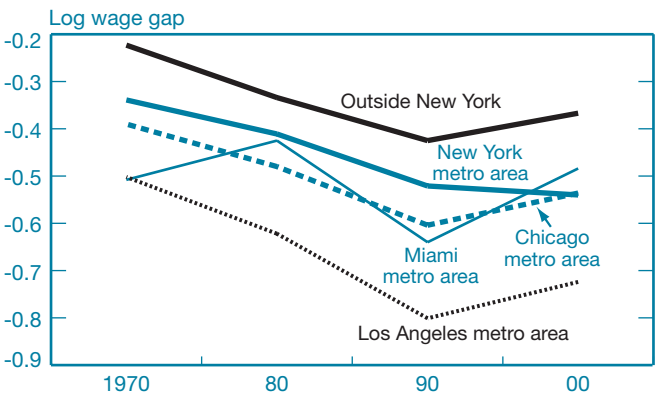
The comparison of the trend for cohort effects among immigrants living outside the New York area with the cohort effects for immigrants residing in the New York area yields two interesting findings. First, newly arrived immigrants in the New York area tend to do systematically worse than newly arrived immigrants elsewhere in the country—relative, of course, to natives in each of the respective geographic regions. In 1990, for example, the relative wage disadvantage of newly arrived immigrants living in the New York area was 41 percent, as compared with a disadvantage of 35 percent for newly arrived immigrants living outside New York. Second, the "uptick" in the relative skills of new immigrants arriving between 1990 and 2000 is not found among newly arrived immigrants settling in the New York area.

Borjas and Friedberg (2004) have recently shown that the uptick in cohort quality for immigrants who arrived in the late 1990s (at the national level) can be explained in terms of a simple example that has significant policy relevance. In particular, the entire uptick disappears when the relatively small number of immigrants who are employed as computer scientists and engineers is excluded from the analysis. Although the census does not provide information on the type of visa that immigrants use to enter the country, it is probably not a

Chart 4

Log Weekly Wage of Newly Arrived Immigrant Men Relative to the Wage of Native Men

By Area



Source: Author's calculations, based on U.S. Census Bureau's 1970-2000 Integrated Public Use Microdata Series.

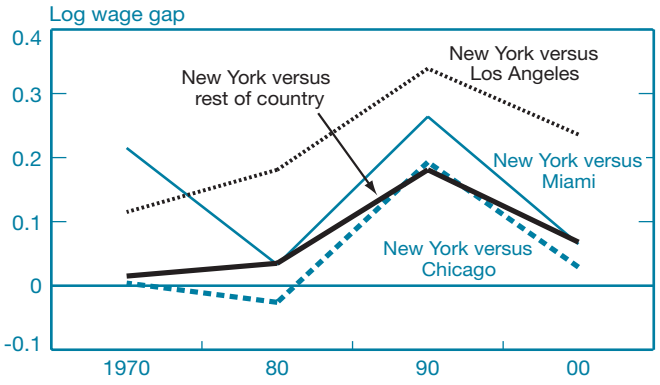
Notes: Figures are calculated using the sample of persons aged twenty-five to sixty-four who are not enrolled in school and who worked in the civilian sector at least one week in the year prior to each decennial census. The sample of newly arrived immigrants includes foreign-born persons who have been in the United States for fewer than five years as of the census date.

coincidence that the increase in the relative number of high-tech immigrants occurred at the same time that the size of the H-1B visa program grew substantially. This program allows employers to sponsor the entry of temporary workers in "specialty occupations." Most of the workers entering the country with an H-1B visa are employed either in computer-related occupations or in engineering (70 percent in 2000).[9] Between 1990 and 1994, the number of H-1B visas hovered around 100,000 annually. This number increased to 144,548 in 1996, to 240,947 in 1998, and to 302,326 in 1999.[10]

It turns out that the growth in high-tech employment for native workers was roughly similar in New York and outside New York, but the growth in high-tech employment for newly arrived immigrants lagged slightly in the New York area. In 1990, for example, about 3.5 percent of native workers were employed in computer-related occupations or engineering. In 2000, the fraction of natives employed in these high-tech occupations stood at 5 percent both in New York and outside New York. Among immigrants, however, the fraction employed in high-tech occupations increased by 4.5 percentage points, from 3.0 percent to 7.5 percent, in New York, but by 5.3 percentage points, from 3.6 percent to 8.9 percent, outside New York. It would be of great interest to explore whether the relatively slow growth of foreign-born high-tech employment in the New York metropolitan area (due, perhaps, to the concentration of H-1B employment on the West Coast) could explain the differential cohort effects revealed by the data.

Chart 5

Log Weekly Wage of Newly Arrived Immigrant Men in the New York Metro Area Relative to the Wage of Newly Arrived Immigrant Men in Other Areas



Source: Author's calculations, based on U.S. Census Bureau's 1970-2000 Integrated Public Use Microdata Series.

Notes: Figures are calculated using the sample of persons aged twenty-five to sixty-four who are not enrolled in school and who worked in the civilian sector at least one week in the year prior to each decennial census. The sample of newly arrived immigrants includes foreign-born persons who have been in the United States for fewer than five years as of the census date.

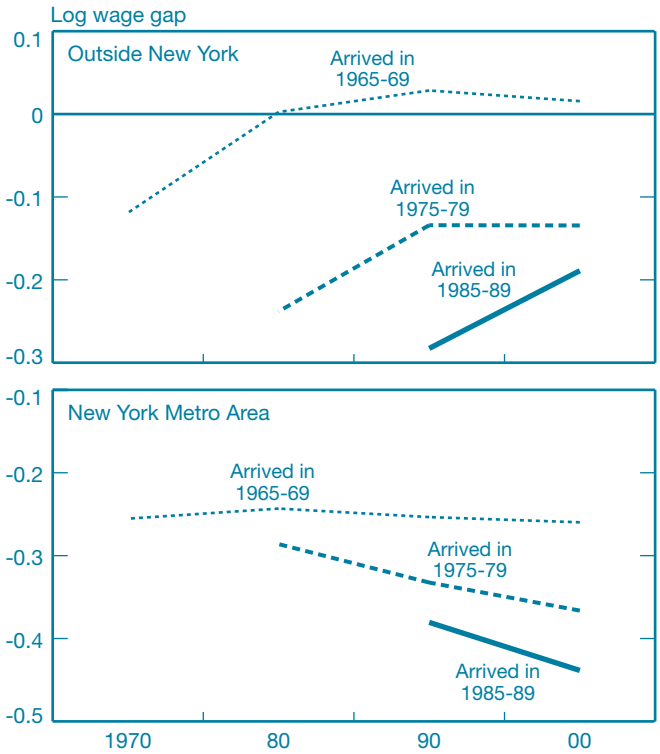
As noted earlier, the changing log wage gap between immigrant and native workers in each metropolitan area could also reflect a region-specific changing mix of skills in the native-born workforce. To isolate the status of the newly arrived immigrant population in New York relative to that of newly arrived immigrants residing elsewhere in the country, we calculate the (real) wage of immigrants in the New York metropolitan area relative to the real wage of immigrants in other parts of the country. Chart 5 summarizes the trends in this adjusted real wage. Although the trends are noisy, the data clearly indicate that newly arrived immigrants in the New York area typically earn substantially more than newly arrived immigrants in other parts of the country.

Finally, the 1970-2000 census data can also be used to measure the extent of "economic assimilation," the improvement in the relative wage of a specific immigrant cohort over time. Chart 6 uses a simple methodology to

Chart 6

Economic Assimilation of Immigrant Men (Relative Wage of Immigrants Who Entered the Country at Ages Twenty-Five to Thirty-Four)

By Area



Source: Author's calculations, based on U.S. Census Bureau's 1970-2000 Integrated Public Use Microdata Series.

Note: Figures are calculated using the sample of persons aged twenty-five to sixty-four who are not enrolled in school and who worked in the civilian sector at least one week in the year prior to each decennial census.

calculate rates of economic assimilation within specific regions of the country. Consider first the group of immigrant men living outside the New York area who arrived in the late 1960s when they were twenty-five to thirty-four years old. The top panel of Chart 6 shows that these immigrants earned about 11 percent less than comparably aged native workers at the time of entry (as observed in the 1970 census). Move forward ten years to 1980, when both the immigrants and the natives were thirty-five to forty-four years old. The wage gap between the two groups has essentially disappeared. Move forward again ten years to 1990, when the workers are now forty-five to fifty-four years old. The data indicate that immigrants now earn about 2.8 percent more than native workers. Overall, the process of economic assimilation exhibited by this cohort reduced the initial wage disadvantage of these immigrants by about 14 percentage points over a thirty-year period—with most of the growth occurring in the first ten years after immigration.

Contrast this pattern with the rate of economic assimilation measured for immigrants who arrived when they were twenty-five to thirty-four years old in 1970 *and resided in the New York metropolitan area* at the time of each census observation (Chart 6, bottom panel). They entered the country with a 22.5 percent wage disadvantage. Unlike their counterparts who lived outside New York, the wage gap between these immigrants and native workers in New York remained relatively constant over the next thirty years. By 2000, the wage disadvantage between these workers still stood at 22.9 percent.

Although it may be tempting to conclude from these calculations that immigrants in the New York metropolitan area do not experience much economic assimilation, it is unlikely that this interpretation is correct. For example, there is a great deal of interregional internal migration between New York and other parts of the country in *both* the foreign-born and native-born workforces. Suppose, for instance, that these internal migration flows lead to a large number of low-skill immigrants moving into the New York metropolitan area *after* their initial settlement elsewhere, or lead to the out-migration of high-skill immigrants who initially settled in the New York area. These internal migration flows could easily generate the perverse assimilation paths illustrated in the bottom panel of Chart 6. As a result, the intriguing differences in the synthetic assimilation profiles generated by the tracking of specific cohorts across various census data sets suggest that the differential internal migration decisions of immigrant and native workers in the New York metropolitan area remain an important topic for future research.

4. Summary

This paper uses data drawn from the 1970-2000 Integrated Public Use Microdata Samples of the U.S. census to analyze the trends in the educational attainment and earnings of immigrants in the New York metropolitan area. Although the growth of immigration in California, Texas, and Florida in recent decades has shifted the geographic gravity of immigration in the United States, the New York metropolitan area remains an important receiving site. In 2000, 15.7 percent of all foreign-born workers resided in the New York metropolitan area.

The empirical analysis presented here documents the observation that although the immigrants who settle in the New York area tend to be more skilled than the immigrants who settle elsewhere, they tend to be less skilled than native-born workers in the New York area. Moreover, because of the dramatic improvement in the educational attainment of native-born workers in New York in recent decades, the (relative) economic disadvantage experienced by immigrants in New York has widened.

Endnotes

1. These data are available at the University of Minnesota's IPUMS website (<http://www.ipums.umn.edu/usa/index.html>). The data contain a 1 percent sample of the U.S. population in 1970 and a 5 percent sample in 1980-2000.

2. This definition implies that persons born abroad of American parents or persons born in American territories are classified as natives. Some of the variables reported in the census, such as annual earnings, refer to the year prior to the survey. We avoid confusion by always referring to the data in terms of the census year.

3. The remainder of the analysis focuses on the trends in skills and earnings of the male workforce. The trends in the relative wage of immigrant women (and interregional differences in those trends) are likely to be heavily influenced by the selection issues that characterize the huge differences in female labor force participation rates both across groups and across regions.

4. The percentage wage gap implied by a specific value of the log wage gap, x, is given by $e^x - 1$.

5. Note that these differences do not play a role in the data summarized in Chart 2 because these data difference the earnings of immigrants and natives within a metropolitan area at a particular point in time.

6. To deflate the wage for immigrant workers residing outside the New York metropolitan area, we simply use the national aggregate of the consumer price index.

7. Borjas (1994) and Smith and Edmonston (1997) survey this extensive literature.

8. The cross-section correlation may also be contaminated by cohort effects if there is selective out-migration of immigrants, so that the trend in the earnings of "survivors" over time will not measure the actual earnings growth experienced by a particular immigrant cohort.

9. U.S. Immigration and Naturalization Service (2002).

10. U.S. Immigration and Naturalization Service (various years).

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Stephen J. Trejo

Commentary

George J. Borjas' paper provides a very clear and convincing analysis of the labor market skills and earnings of immigrant workers in the New York metropolitan area. The author compares New York immigrants with U.S. natives residing in the same metropolitan area and with immigrants residing elsewhere in the United States, including other large cities such as Los Angeles, Chicago, and Miami. Using decennial census data, Borjas tracks these comparisons over the 1970-2000 period. A key finding is that New York workers, immigrants as well as natives, are more skilled than workers in the rest of the country. Interestingly, the skill advantage of New York immigrants relative to other immigrants has widened over the past thirty years, but so has the skill *dis*advantage of New York immigrants relative to New York natives.

The empirical analysis is transparent, sensible, and compelling. Initially, I worried about Borjas' decision to group island-born Puerto Ricans with U.S. natives rather than with immigrants. Although Puerto Ricans are U.S. citizens and therefore not subject to restrictions on their migration to the mainland, those who do migrate face some of the same adjustment issues as other foreign-born workers. Moreover, I was concerned that the exclusion of relatively low-skilled Puerto Ricans from his immigrant sample was driving Borjas' finding that New York immigrants are more skilled than immigrants living elsewhere in the United States. It turns out, however, that the author's findings are not sensitive to whether island-born Puerto Ricans are grouped with immigrants or natives. For example, in the 2000 census data, redefining island-born Puerto Ricans as immigrants would increase the size of the New York metropolitan area immigrant sample by less than 10 percent and would have a negligible impact on estimates of the average education or earnings of either immigrants or natives in the area. As Borjas shows, the national origins of immigration flows to New York are much more diverse than those to other U.S. gateway cities; thus, the overall pattern of immigration flows into New York is not dominated by the characteristics of immigrants from any one source country. Indeed, over the last couple of decades, substantial inflows of Mexicans and Central and South Americans have joined the sizable Puerto Rican and Dominican populations that had already been established, making the New York metropolitan area perhaps the only place in the United States with significant numbers of Latin American immigrants from virtually all of the major Hispanic national origin groups.

I do not doubt Borjas' basic empirical findings about New York immigrants, but I do question how we should interpret these findings. For example, how much of the skill advantage of New York metropolitan area immigrants relative to other U.S. immigrants derives from differences in national origins, especially when we consider the fact that New York receives comparatively few low-skilled immigrants from Mexico? This question could be answered with a simple decomposition analysis, similar to what Borjas has done in

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previous work on immigration. The answer is of interest because it would reveal the extent to which New York can attract more skilled immigrants from a given source country.

As another example, consider Borjas' finding that, outside the New York metropolitan area, the trend of declining skills for new immigrant arrivals reverses in 2000, but this reversal does not occur in the New York area. Citing his recent work with Rachel Friedberg, Borjas attributes the uptick in immigrant skills observed in nationwide data for 2000 to the large number of high-tech H-1B immigrants who arrived in the late 1990s, and he speculates that the absence of such an uptick in New York may reflect a smaller influx of H-1B immigrants there.

For two reasons, however, I doubt that the H-1B visa program is the entire story here. First, Borjas shows that between 1990 and 2000, the share of new immigrants employed in high-tech occupations grew only slightly less in New York (from 3.0 to 7.5 percent) than it did outside New York (from 3.6 to 8.9 percent). I am skeptical that this small difference accounts for the fact that immigrant skills were falling in New York over this period while they were rising in the rest of the country. Certainly, it would be a simple matter for Borjas to replicate for New York the analysis that he and Friedberg conducted at the national level and, in that way, evaluate the accuracy of his speculation. Second, I believe that even at the national level, more is going on than just the effects of the H-1B program. Borjas and Friedberg show that, when they exclude immigrants who work in high-tech occupations, the average skills of new immigrants are similar in 1990 and 2000. Therefore, the influx of high-tech immigrants in the late 1990s (many of whom are presumably H-1B admissions) might explain the rise in immigrant skills between 1990 and 2000, but it cannot explain why the downward trend, observed from 1970 to 1990, halted in 2000. Even after one excludes high-tech workers, immigrant skills leveled off between 1990 and 2000, rather than declined, as the preceding twenty-year trend led us to expect.

Finally, as other researchers do, Borjas argues that the skill level of immigrant workers is an important issue for U.S. policy, but he provides only a cursory discussion of what the optimal skill mix of U.S. immigrants might look like. The underlying tone of the paper suggests that Borjas views skilled immigrants as better for the United States than unskilled immigrants, but a more explicit discussion of this topic would have been enlightening. As Borjas notes, skilled immigrants probably have a more favorable effect on government budgets because they tend to pay more taxes and receive less public assistance. From an international trade perspective, however, the United States might be thought of as having a relative abundance of skilled labor; therefore, it would make sense to import unskilled labor via both trade and immigration. As such, unskilled immigration and the unskilled labor embodied in imported goods might be two sides of the same coin. In this context, it is interesting to note that unskilled U.S. immigrants seem to concentrate in sectors that produce nontraded goods and services (for example, construction, restaurants, hotels, and domestic service). Perhaps unskilled immigrants are a viable substitute for imports in these sectors.

At any rate, a bit more discussion of optimal immigration policy could have provided a nice framework for interpreting the provocative empirical findings that Borjas so deftly reveals. For instance, what should we make of the widening skill gap between New York natives and immigrants? Is this a "problem"? Evidently, New York is doing quite well in the competition with other U.S. cities to attract skilled immigrants, and it is doing even better in the competition to attract skilled natives. Is this a good thing for New York or for the United States as a whole? Answers to questions like these will help us to understand the policy consequences of Borjas' findings.

John Mollenkopf

Trajectories for the Immigrant Second Generation in New York City

1. Introduction

It has become a truism to say that immigration has transformed American society since 1965. Beginning with "gateway" cities like New York and Los Angeles, the effect of new immigrants now extends to small pork- or chicken-processing towns in Iowa or North Carolina. Indeed, the March 2004 annual demographic supplement to the Current Population Survey (CPS) indicates that almost 12 percent of America's residents were born abroad, doubtless an underestimate. In places where first-generation immigrants concentrate, like New York City, immigrants now make up almost half the adult population—and in the case of Miami, more than three-fifths. This outcome has led scholars to undertake many studies of the new immigrants, for example, using individual traits to model individual earnings or looking at the school performance or health conditions of the children of immigrants.

One leading researcher, George Borjas, has warned that the relatively low skill levels of recent immigrants bode poorly for their lifetime earnings and chances for upward mobility (Borjas 1990, 1999). Incorporating new immigrant ethnic groups also poses many other challenges, such as heightened tensions among ethnic and racial groups (Gerstle and Mollenkopf 2001). Despite problematic aspects of the effect of immigration, however, many observers, including this one, think that the new immigrants constitute a clear net plus for American society. Immigrants are "positively selected" from their populations of origin (Feliciano 2005). They pass a difficult test by resettling themselves and their families in the United States. They often take jobs natives do not want to perform, work hard for long hours, contribute a great deal of entrepreneurial creativity, and bring valuable cultural capital—qualities that their wages or other standards may not reflect immediately. While competition from immigrants may put some low-skilled natives, often members of minority groups, at a disadvantage in the labor market—and indeed highly skilled immigrants may compete against highly skilled natives—it seems to me that the strong work effort, relatively low labor cost, and varied talents of immigrants expand the overall economy and benefit most native-born people. Certainly, the official New York City position is that immigrants have prevented the city from becoming smaller, poorer, and more like Philadelphia (Lobo and Salvo 2004, p. xiv). Regardless of how many books scholars write on this topic, however, they are not likely to resolve anytime soon the question of whether new immigrants are good or bad for America.

That may not be the most important question, however. Instead, the fates of their children—the new second generation—will likely shape how we evaluate the current

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Much of the data and most of the ideas presented here have been developed in collaboration with Philip Kasinitz, Mary Waters, and Jennifer Holdaway, my partners in the Study of the Immigrant Second Generation in Metropolitan New York. They provided valuable criticism of the first draft but do not necessarily agree with all of my conclusions. They inspired the good qualities of this study, and any remaining errors are mine alone.

epoch of immigration. If the children of immigrants continue on their parents' upward path, the judgment is likely to be positive. After all, we judge the last great era of immigration, the 1880s to the 1920s, to have been a success because subsequent generations advanced, on average, beyond the previous ones (DiNardo and Estes 2000; Card 2005). As more and more descendants of post-1965 immigrants come of age today, scholars have begun to focus on what is happening to them. In addition to studies of individual outcomes, studies of this group, which includes native-born children of immigrants, have considered their family and neighborhood contexts (Kasinitz, Mollenkopf, and Waters 2004). To paraphrase Max Frisch, "we asked for workers, but families came."

The children of immigrants are numerous. The March 2004 CPS indicates that 10.6 percent of America's residents are native-born individuals with at least one immigrant parent (who might, following Rumbaut [2003], be termed 2.0- or 2.5-generation immigrants). If we subtract the 1.5-generation youngsters (defined as those who arrived by age twelve and then grew up here) from the immigrant total and add them to the native children with at least one immigrant parent, then adult immigrants over seventeen make up about 9.4 percent of the national population, while their 1.5-, 2.0-, and 2.5-generation children make up 12.9 percent. According to the March 2004 CPS, more than half the youngsters under eighteen in New York and almost two-thirds of those in Los Angeles County have at least one immigrant parent. Clearly, the fates of these youngsters are vital to the future of such cities.

The decennial census provides a way to take a more detailed look at young people growing up in immigrant households than is possible from the Current Population Survey. Unlike the CPS, the census no longer asks where one's parents were born. But if we look at young people still living in their parents' homes, we can use the U.S. Census Bureau's Public Use Microdata Sample (PUMS) to identify the nativity of parents. The 2000 PUMS indicates that 1.62 million biological children, adopted children, or stepchildren under the age of eighteen lived in families headed by their parent or parents in New York City in 2000.[1] (As they age past eighteen, children are increasingly likely to leave their parents' households, preventing us from knowing from the census the nativity of their parents. Almost all of those younger than eighteen, however, live in their families of origin, so we can analyze them from census data.) About 1 million of these youngsters lived in families with a household head and spouse, while 619,000 lived in families with a householder, typically the mother, and no spouse present. (Such families often did, however, include other adults, such as an unmarried partner or a grandparent.)

Table 1 shows that 513,000 (50.8 percent) of those living in two-parent families had two immigrant parents, while another 123,000 (12.2 percent) had one immigrant and one native parent. Almost two-thirds of those growing up in two-parent households therefore had at least one immigrant parent. Among children living in single-parent families, two-fifths had a foreign parent. Taking both types of families together, we note that children with at least one immigrant parent thus made up 54 percent of the young people in New York City families in 2000. If something differentially bad is happening to them, or even a large subset of them, it would not be good for the city's future.

TABLE 1

Families with Related Children under Age Eighteen and Number of Related Children under Age Eighteen by Nativity of Family Head and Spouse and Family Type

Household Type	Households	Percentage of Households	Related Children	Percentage of Related Children
NB 2PF	211,472	20.7	373,410	22.9
NB 1PF	259,959	25.4	370,227	22.7
Mixed 2PF	67,743	6.6	122,763	7.5
FB 2PF	299,504	29.3	512,537	31.5
FB 1PF	183,441	17.9	249,047	15.3
Total	1,022,119	100.0	1,627,984	100.0

Source: U.S. Census Bureau, 2000 5 Percent Public Use Microdata Sample.

Notes: The sample is all New York City households in 2000 with related children under age eighteen. NB is native born, FB is foreign born, 2PF is two-parent family, 1PF is single-parent family.

There is reason to worry about the future of this second generation. While New York City can be tough on any young person, regardless of where their parents were born, the children of immigrants face extra difficulties. First, only a third of New York City's 3 million households are families with related children under eighteen. (In other words, two-thirds of the households do not face the burdens of rearing children.) Within that group of families with children, those headed by immigrant parents are much less likely to speak English at home (only 19 percent do, as opposed to 60 percent of those headed by native parents) and they may not even understand English (about a quarter, as opposed to only 4 percent of native parents).[2] Only half the parents in immigrant families are citizens, compared with 100 percent of native parents, giving them far less political influence than native parents have.[3]

Most crucially, immigrant parents are less likely to be well educated than native parents: a third lack a high-school degree, compared with one-fifth of native parents; while only a fifth have college degrees, compared with a quarter of native parents. As a consequence, they have less income. Immigrant

parents had a mean household income of $54,404 in 1999, compared with $73,983 for native parents. Although white immigrants move to New York, only 18 percent of immigrant parents classify themselves as non-Hispanic whites, compared with 41.5 percent of native parents. Immigrant parents often live in neighborhoods surrounded by families with similar characteristics, potentially reinforcing their disadvantages. While living among fellow immigrants may also convey some advantages—for example, through employment opportunities available via ethnic networks—it would not seem logical that they outweigh the challenges of immigrant life. In short, kids growing up in immigrant families have parents with less English facility, less education, less political clout, and less income than those growing up in native families. It would not be surprising if these factors constituted barriers to their progress.

Scholars speculating about second-generation trajectories have also worried that the larger social patterns of racial inequality and discrimination will force those children of immigrants who are not classified as white into the ranks of persistently poor native minorities. Gans (1992), for example, was concerned that being black would trump the aspirations for upward mobility of dark-skinned children of immigrants, and his hypothesis received support from Waters' (2001) ethnography of Afro-Caribbeans in New York City. Building on this concern, Portes and his colleagues developed the "segmented assimilation" model of second-generation trajectories (Portes and Zhou 1993; Portes 1995; Zhou 1997; Portes and Rumbaut 2001a, pp. 44-69, 280-6; 2001b, pp. 303-12).

While the nuances and subtleties of this formulation allow for a wide variety of individual outcomes, its core idea is that whether they like it or not, groups of immigrants are forced to face the fundamental American condition of racial stratification and discrimination. Depending on immigrants' national origins, group socioeconomic characteristics, and the particular conditions of the places where they end up settling, the segmented assimilation model posits three general trajectories that groups might follow. A positive reception from the white middle-class majority would enable light-skinned immigrants from relatively high-income countries to assimilate relatively easily into the mainstream. Racial inequality, however, would force dark-skinned immigrants from poorer countries to assimilate downwardly into a native minority lower class. Groups that cannot easily be classified into white and black categories, however, might try to retain their cultural distinctiveness in service of economic achievement, especially when a group has developed a strong ethnic economy.

While this model has been subject to theoretical and substantive criticism (Waldinger and Feliciano 2004; Alba and Nee 2003), the notion that the dynamics of racial inequality in host societies will force major parts of the second generation toward downward mobility and socioeconomic exclusion has motivated a growing and intense debate in the United States and Europe. While Europe lacks an exact analog to African-Americans as an historically subordinated domestic racial group in the United States, many European nations must contend with difficult colonial legacies (European Commission 2003). In both places, some second-generation immigrant groups occupy particularly problematic positions. Most first-generation immigrants who entered bad situations in the receiving countries ultimately had higher earnings or income over time than they would have had in their old countries (otherwise, they would have gone home). In the United States, a striking number moved well beyond their low starting points. As a result, some degree of upward mobility seems practically built into the first-generation immigrant experience, even if earnings remain low compared with those of natives. We can make no such assumption about the second generation. In fact, first-generation achievements may soften the second-generation desire for mobility, even as the new second generation remains less well positioned than its native peers to make the transition to adulthood (Mollenkopf et al. 2004).

What, then, do the data tell us about how the passage of the children of immigrants through adolescence to young adulthood compares with that of the children of native parents in New York City? How do the characteristics of the parents, or the choices they and their children make, or the experiences they accumulate, shape such important outcomes as educational attainment, entry into the labor market, and family formation? Does the impact on children in immigrant families differ from the impact on youngsters with native-born parents? And how do racial differences affect the answers to these questions?

Until now, researchers have had only limited data to explore the trajectories of the second generation. Although the CPS in 1994 began to ask about a parent's place of birth, this relatively small random sample of the national population is designed to gather labor market information on adults, not detailed demographic and life-course information on specific immigrant groups in specific locales. (The CPS sample included 2,564 individuals in New York City in 2004.) One can combine CPS samples from different years, but this does not overcome limits on the kinds of questions the CPS asks or on the structure of its sample. The PUMS sample is not subject to this problem because it is 100 times larger than the CPS sample, but it does not identify parents' nativity once a youngster moves out of the

family of origin. The PUMS also reports only the answers to the twenty-nine questions on the census long form.

To address these data shortcomings, the Russell Sage Foundation initiated a research project that enabled the author and his colleagues to gather data on representative samples of young adults aged eighteen to thirty-two from five immigrant group backgrounds (Dominican, Colombian/Ecuadoran/Peruvian, Anglophone Afro-Caribbean, Chinese, and Russian) and three native-born racial and ethnic groups (white, African-American, and Puerto Rican) living in metropolitan New York. The project is the Immigrant Second Generation in Metropolitan New York (ISGMNY) study.[4] This paper uses the 2000 PUMS data on youngsters under eighteen in New York City to paint a broad, descriptive picture of the earlier years and uses the ISGMNY data to examine the details for specific groups as they enter adulthood.

2. The Parental Context

We have noted that immigrant parents tend to have less English language ability, education, and income than native-born parents. When comparing the two groups, however, it is useful to distinguish both their racial and ethnic backgrounds and family forms so we can analyze similar groups. Table 2 shows the distribution of families by nativity, race, and form.[5] Three patterns emerge. First, the different racial groups tend to have strikingly different family forms. Overall, 57 percent of all families with children under eighteen have a household head and spouse; however, this is true of more than four-fifths of white and Asian households, less than half of Hispanic households, and only a third of black households. Second, within these broad racial groups, the native families are more likely to be single-parent families than are the immigrant families. Finally, these broad racial categories have different mixes of native and immigrant families. Black and Hispanic families are roughly evenly split between native and immigrant parents, but white households are predominantly native and Asian households are predominantly immigrant. These patterns have a number of implications.

Table 2

Families by Type and Race of Family Head

Percentage of Households with Related Children under Age Eighteen

	Race of Family Head				
Family Type	Hispanic	NH Black	NH Asian	NH White	Total
NB 2PF	4.4	3.8	0.2	11.9	20.7
NB 1PF	8.6	12.6	0.1	3.6	25.4
Mixed 2PF	2.1	1.1	0.4	2.8	6.6
FB 2PF	8.9	5.1	7.9	5.6	29.3
FB 1PF	8.4	6.0	1.4	1.3	17.9
Total	32.4	28.6	9.9	25.2	100.0

Source: U.S. Census Bureau, 2000 5 Percent Public Use Microdata Sample.

Notes: The sample is all New York City households in 2000 with related children under age eighteen. NB is native born, FB is foreign born, 2PF is two-parent family, 1PF is single-parent family, NH is non-Hispanic. The family head may be either sex. Native American and NH other-race households (3.8 percent of total) are not reported.

How does controlling for a family's race affect the previously noted differences in English-language use, education, and income between native and immigrant parents? It turns out that the native-immigrant parental language gap is greatest among whites and large among Asians, but far less wide among blacks and Hispanics. This is because most black immigrants come from English-speaking countries in the Caribbean, so most speak English at home—just like the native born do. Similarly, most Hispanic immigrant families speak Spanish at home, but so do almost all native Hispanic families. To the extent that differences in household language from the native racial and ethnic comparison group impede the transition to adulthood, the differences should have the greatest impact on whites and Asians, less of an impact on blacks (although it is still an issue for Haitians), and the smallest impact on Hispanic immigrant families.

Controls for race and family form also attenuate the educational gap between immigrant parents and their native counterparts. Table 3 shows parental levels of education across native and immigrant families, controlling for race and family form. In general, all three factors—race, nativity, and family form—seem to have a stronger relationship to educational outcomes. In general, the rates of college education are much greater for white (42 percent) and Asian (35 percent) family heads than for black (14 percent) and Hispanic (8 percent) family heads. (White two-parent families are also much more likely to have a college-educated spouse.) Within each of these racial groups, heads of two-parent families are always more likely to have college educations than are heads of one-parent families.

After controlling for race and family form, however, we note that the pattern between native and immigrant family heads and spouses is less clear. For whites and Asians, the native-born parents are substantially more likely to be college educated than are the immigrant parents in both one- and two-parent families; this is also true, to a narrower extent, for Hispanic families. Blacks, however, constitute an exception: the

immigrant parents are more likely to be college educated than are the native parents. Note that although the racial groups differ greatly in terms of parental levels of education, and whites and Asians have higher levels than blacks and Hispanics, blacks are not the group with the lowest levels.

TABLE 3

Education of Family Head and Spouse by Race of Family Head and by Family Form and Nativity

Percentage of Households with Related Children under Age Eighteen

Race of Family Head	Family Form and Nativity	Family Head Lacks High-School Diploma	Family Head Has B.A.	Spouse Lacks High-School Diploma	Spouse Has B.A.
Hispanic	NB 2PF	31	10	32	11
	NB 1PF	43	06	—	—
	Mixed 2PF	29	13	32	15
	FB 2PF	50	09	51	08
	FB 1PF	50	07	—	—
	Total	44	08	43	10
NH black	NB 2PF	22	16	22	15
	NB 1PF	28	10	—	—
	Mixed 2PF	14	26	15	24
	FB 2PF	26	20	28	16
	FB 1PF	28	14	—	—
	Total	26	14	24	17
NH Asian	NB 2PF	07	53	07	48
	NB 1PF	18	22	—	—
	Mixed 2PF	14	55	18	46
	FB 2PF	29	35	34	28
	FB 1PF	31	30	—	—
	Total	28	35	33	29
NH white	NB 2PF	07	47	07	45
	NB 1PF	14	32	—	—
	Mixed 2PF	13	44	09	41
	FB 2PF	18	37	19	34
	FB 1PF	19	36	—	—
	Total	12	42	11	41
Total	NB 2PF	15	33	15	32
	NB 1PF	31	12	—	—
	Mixed 2PF	18	31	18	29
	FB 2PF	33	24	35	20
	FB 1PF	38	14	—	—
	Total	29	21	26	25

Source: U.S. Census Bureau, 2000 5 Percent Public Use Microdata Sample.

Notes: The sample is all New York City households in 2000 with related children under age eighteen. NB is native born, FB is foreign born, 2PF is two-parent family, 1PF is single-parent family, NH is non-Hispanic. The family head may be either sex. Native American and NH other-race households (3.8 percent of total) are not reported.

These controls also shed light on the overall patterns of employment, workers in the family, and household income (Table 4). Once more, racial differences are strong, with white and Asian parents having substantially higher rates of employment than black and especially Hispanic parents. As might be deduced from the high levels of education among

TABLE 4

Employment of Family Head and Spouse and Median Household Income by Race of Family Head and Family Form

Households with Related Children under Age Eighteen

Race of Family Head	Household Type and Nativity	Family Head Employed (Percent)	Spouse Employed (Percent)	Mean Workers in Family (Percent)	Median 1999 House-hold Income
Hispanic	NB 2PF	65	50	2.62	$47,000
	NB 1PF	42	—	1.82	$16,100
	Mixed 2PF	68	53	2.68	$43,000
	FB 2PF	61	41	2.78	$36,900
	FB 1PF	48	—	2.16	$20,900
	Total	54	45	2.33	$28,400
NH black	NB 2PF	65	62	2.72	$54,000
	NB 1PF	50	—	1.90	$21,100
	Mixed 2PF	75	66	2.81	$56,000
	FB 2PF	75	64	2.88	$55,000
	FB 1PF	66	—	2.25	$30,000
	Total	61	63	2.29	$33,000
NH Asian	NB 2PF	74	63	2.60	$64,000
	NB 1PF	58	—	2.20	$30,500
	Mixed 2PF	81	59	2.84	$67,000
	FB 2PF	77	49	2.73	$40,750
	FB 1PF	67	—	2.37	$33,900
	Total	75	50	2.68	$40,900
NH white	NB 2PF	85	60	2.71	$83,100
	NB 1PF	67	—	2.05	$42,000
	Mixed 2PF	82	57	2.66	$71,000
	FB 2PF	76	48	2.61	$49,000
	FB 1PF	61	—	2.07	$27,300
	Total	79	56	2.55	$64,300
Total	NB 2PF	77	58	2.69	$66,600
	NB 1PF	50	—	1.90	$21,610
	Mixed 2PF	76	58	2.70	$57,220
	FB 2PF	71	49	2.74	$43,000
	FB 1PF	57	—	2.20	$26,000
	Total	65	53	2.42	$38,000

Source: U.S. Census Bureau, 2000 5 Percent Public Use Microdata Sample.

Notes: The sample is all New York City households in 2000 with related children under age eighteen. NB is native born, FB is foreign born, 2PF is two-parent family, 1PF is single-parent family, NH is non-Hispanic. The family head may be either sex. Native American and NH other-race households (3.8 percent of total) are not reported.

white parents, their income levels are even higher than their employment rates compared with other groups. Family form also has a strong effect on employment rates and income, with two-parent families by definition being much more likely to have an employed spouse, more workers in the family, and higher incomes than single-parent families.

Finally, nativity counts too, but not in a consistent way. Among Hispanics and whites, immigrant parents are somewhat less likely to work than their native-born counterparts; among blacks and Asians, however, they are more likely to be working. Immigrant single parents are also more likely to work than their native-born counterparts in every group but whites. (This is probably related to the fact that the black and Hispanic native-born single parents are substantially more likely to have had public assistance income.) Finally, the fact that immigrant families consistently have a higher mean number of workers than their native-born counterparts is also significant. This combined work effort helps to bring the median household incomes of the immigrant families closer to, and in some cases actually above, those of their native counterparts, despite their parental gaps in education and English-language proficiency. In particular, it is noteworthy that the median household income of the immigrant black, Hispanic, and Asian single-parent families exceeds that of their native counterparts, given the relative prevalence of this family form among blacks and Hispanics.

Beyond the ways in which two-parent families have obvious material advantages over single-parent families, work conveys moral authority in our society, and the mainstream often takes income as a measure of social achievement. Immigrant household incomes compare well with those of their native counterparts, given the disadvantages they face. Note also that white and Asian immigrant household incomes lag those of their native counterparts, partly because native whites are the best-positioned group and native Asians are relatively few. The incomes of Hispanic immigrants lag those of their native counterparts the least, partly because both groups are having the hardest time. Remarkably, black immigrant household incomes are doing the best compared with incomes of their native counterparts, despite the fact that this group is theoretically most at risk of downward assimilation.

The ISGMNY gives more detail on the family backgrounds of immigrant second-generation and native young adults aged eighteen to thirty-two who grew up in New York City and still live there. Some of the major dimensions are given in Table 5. As hinted at in the PUMS data, the type of family situation in which young people grow up and enter adulthood is an important factor differentiating blacks and Hispanics from whites and Asians, and to a lesser degree native parents from immigrant parents. Table 5 shows how fragile family life has been for many young New Yorkers, especially members of native minority groups. More than half of African-Americans and large minorities of West Indians, Puerto Ricans, and Dominicans grew up without ever knowing a parent, usually the father. Even a third of the native white children grew up without one biological parent. Of those who did grow up with two parents, in many cases those parents had split up by the time the child reached young adulthood, so that significantly

Table 5

Family Background: Children of Immigrants and Native Born

Percent

Group	Grew Up with Both Parents	Parents Still Together	More Than Two Parental Figures	Mean Number of Siblings Growing Up	Father Lacks High-School Diploma	Father Has B.A. or Higher	Mother Lacks High-School Diploma	Mother Has B.A. or Higher
CEP	68.1	51.2	16.6	1.98	26.8	18.1	33.2	12.3
DR	58.9	40.1	14.2	2.35	44.4	15.5	48.8	7.1
PR	55.0	34.9	12.2	2.16	41.0	10.0	37.9	11.8
WI	52.4	32.0	20.4	2.23	14.7	24.4	10.3	25.6
NB	43.0	21.0	9.8	2.69	22.2	17.1	16.1	19.8
CHI	88.9	79.8	25.7	1.55	38.1	19.3	42.9	14.8
RJ	82.0	73.0	28.8	1.00	5.4	58.7	4.6	68.2
NW	68.5	47.5	11.7	1.65	11.2	35.8	11.7	39.2

Source: Immigrant Second Generation in Metropolitan New York study.

Notes: The sample is people aged eighteen to thirty-two who grew up and still live in New York City. CEP is parents are from Colombia, Ecuador, or Peru, DR is parents are from the Dominican Republic, PR is parents are native Puerto Rican, WI is parents are from Anglophone West Indies, NB is parents are native black, CHI is parents are Chinese born abroad, RJ is parents are Jews from former Soviet Union, NW is parents are native white.

fewer than half have an intact family of origin for many of the groups we studied. Among our native black respondents, only one in five has such a situation. (In every comparison, the situation is more dire for the native groups.) Conversely, the immigrant groups often had additional adult figures beyond their parents in their household, such as a grandmother or uncle. Meanwhile, the groups that had relatively few parent figures to care for them also had larger mean numbers of siblings, with the native black families being the largest. This points toward what might be called differing "family strategies of intergenerational mobility" across the groups being analyzed—with some groups having significantly higher ratios of adults caring for children and working to receive income relative to the number of children to be cared for.

Finally, Table 5 makes it clear that most of the minority and immigrant young people we interviewed have parents with relatively low levels of education; even the native whites who grew up in New York City did not come from particularly well-educated families. Only the Russian parents stand out as highly educated. (If we include native whites who grew up outside New York, educational attainment for white parents would be substantially higher.) Within this overall pattern of relatively low rates of parental education, several striking differences emerge across the groups. The Dominican and Puerto Rican parents are the least educated, followed by the Chinese, the black groups and the South Americans are in the middle, and the West Indian parents are the best educated, while the two white groups have the highest levels of education. In each case, the immigrant parents are somewhat better educated than their native counterparts, with the Russian Jewish parents enjoying a particular advantage over the parents of native white New Yorkers. To the extent that parental education is a dominant factor in explaining children's educational attainment, and therefore their lifetime earnings, we might expect the outcomes for the children to follow the same general pattern (Sewell et al. 2001, pp. 20, 27).

3. Second-Generation Outcomes

The census PUMS data provide only very limited information for assessing the educational outcomes of the new second generation—whether school-age children are enrolled in grades appropriate for their age and whether they have completed those grades in a timely manner. (PUMS also tells us whether enrollment is in a public or private institution.) However limited this measure is, it is still an important yardstick. Since PUMS provides the most complete coverage, we begin with this source. To explore enrollment in an age-appropriate grade, we calculate measures to determine whether a child was enrolled in fifth grade or higher by age twelve or was enrolled in ninth grade by age sixteen. (Since children typically enter the first grade at age six, they have definitely fallen behind if they are not enrolled in the fifth grade six years later or in the ninth grade ten years later.) Table 6 presents the results for young New Yorkers categorized by their family's nativity and form and the race of the head of the household.

Looking first at the 526,000 youngsters aged twelve to seventeen, we note that about 2.5 percent overall have failed to

Table 6

Enrollment in Appropriate Grade and Private High School, Related Children under Age Eighteen by Household Type and Nativity and by Race of Householder

Percent

Race of Family Head	Household Type and Nativity	Not Enrolled in Fifth Grade by Age Twelve	Not Enrolled in Ninth Grade by Age Sixteen	Enrolled in Private High School
Hispanic	NB 2PF	3.8	6.2	19.6
	NB 1PF	3.3	8.0	10.3
	Mixed 2PF	2.1	3.1	12.3
	FB 2PF	2.6	7.7	12.4
	FB 1PF	2.9	6.6	7.7
	Total	3.0	7.0	11.7
NH black	NB 2PF	2.6	6.4	13.4
	NB 1PF	2.8	7.5	7.8
	Mixed 2PF	2.4	6.4	14.0
	FB 2PF	2.3	5.7	13.3
	FB 1PF	1.4	4.7	10.4
	Total	2.4	6.3	10.6
NH Asian	NB 2PF	1.4	4.4	10.9
	NB 1PF	0.0	0.0	0.0
	Mixed 2PF	7.1	13.9	8.2
	FB 2PF	2.5	4.8	8.2
	FB 1PF	1.4	4.3	5.8
	Total	2.5	4.8	7.9
NH white	NB 2PF	1.7	3.6	54.0
	NB 1PF	1.9	4.0	35.3
	Mixed 2PF	1.1	3.7	61.7
	FB 2PF	1.5	4.2	31.4
	FB 1PF	4.0	10.7	31.8
	Total	1.7	4.2	45.7

Source: U.S. Census Bureau, 2000 5 Percent Public Use Microdata Sample.

Notes: NB is native born, FB is foreign born, 2PF is two-parent family, 1PF is single-parent family, NH is non-Hispanic. The family head may be either sex. Native American and NH other-race households (3.8 percent of total) are not reported.

enroll in the fifth grade. Table 6 suggests that this trend does not vary greatly across racial groups, although whites are doing best and Hispanics worst, with blacks and Asians in between and blacks actually doing better than Asians. For Hispanics and blacks, the children in immigrant households are doing better than those in the comparable native-born households, but the opposite is true in white and Asian families. Family form does not seem to have a consistent or marked impact, which may be good news. Table 6 shows similar patterns for the 170,000 youngsters aged sixteen or seventeen. Whites continue to be the least likely not to have achieved the appropriate grade for their age, while Hispanic children are the most likely to be lagging. Blacks have now moved in front of Asians to be the second most likely group to be lagging. Children in native-born single-parent families are now more at risk than those in two-parent families across all racial groups, but unexpectedly, children in immigrant single-parent families are *less* likely to be behind than children in native-born single-parent families, except for white immigrant single-parent families, which seem to be having large and increasing difficulties over time compared with the other racial groups. As before, the largest consistent differences seem driven by race. Family form and nativity count, but not as expected. Strikingly, the children in Hispanic and black immigrant single-parent families are less likely to be lagging their native counterparts, but children in Hispanic and black immigrant two-parent families are more likely to be lagging.

The racial differences in age-appropriate grade enrollment are accentuated by the fact that white families are more than four times as likely to send their children to private high schools compared with the other racial groups. Hispanic and black native two-parent families are also more likely than other groups to send their youngsters to private high schools; single-parent families, with less means, are less likely to do so. Ironically, the group that shows the highest levels of educational attainment in relation to their parents' low levels of education—the children growing up in Asian immigrant families—are the *most* likely to stick with the public high schools. As the work of the ISGMNY has shown, the Asian second generation is the most able to navigate the New York City public school system to find the best schools, while the black and Hispanic groups are the least able (Mollenkopf et al. 2001). Since the age limit of seventeen for the PUMS data prevents us from computing high-school graduation rates, the ISGMNY data, presented in Table 7 in a form comparable to that of the prior PUMS data, confirm these patterns.

Table 7 shows the strong differences in outcomes according to the race, family form growing up, and nativity of the families of our respondents. The two native minority groups, African-Americans and particularly Puerto Ricans, are most likely to lack a high-school diploma and least likely to have a B.A. (or to be seeking one). Failure to obtain a high-school degree ranges 23 percentage points, from a low of 7.6 percent among Russian Jews to a high of 30.4 percent among Puerto Ricans. (The spread on college achievement is greater, 50 percentage points, from 21 percent among African-Americans to 71.5 percent among Russians.) The spread across family types is smaller, but still marked, generally on the order of 5 to 7 percentage points, depending on the group. As the last column of Table 7 suggests,

Table 7

Educational Attainment by Group and Family Form Growing Up

Percent

Group	Two-Parent Family	No High-School Diploma	High-School Diploma, No B.A.	B.A./ Enrolled	Males, No High-School Diploma
CEP	Yes	14.4	45.5	40.1	13.8
	No	16.3	48.1	35.6	23.1
	Total	15.0	46.3	38.7	16.5
DR	Yes	19.4	47.1	33.5	23.8
	No	23.9	50.3	25.8	24.8
	Total	21.2	48.4	30.3	24.0
PR	Yes	23.0	48.5	28.4	25.7
	No	39.3	44.6	16.1	31.9
	Total	30.4	46.8	22.8	28.4
WI	Yes	15.8	50.0	34.2	16.4
	No	20.9	49.4	29.7	23.9
	Total	18.2	49.7	32.0	19.6
NB	Yes	19.9	56.7	23.4	22.5
	No	26.6	54.3	19.1	31.4
	Total	23.7	55.3	21.0	27.8
CHI	Yes	8.1	22.3	69.6	8.3
	No	15.5	25.9	58.6	20.0
	Total	8.9	22.7	68.4	10.0
RJ	Yes	7.5	18.5	74.0	10.7
	No	8.0	32.0	60.0	14.3
	Total	7.6	20.9	71.5	11.4
NW	Yes	16.1	33.9	50.0	6.4
	No	13.7	45.1	41.2	3.8
	Total	15.3	37.4	47.2	5.8

Source: Immigrant Second Generation in Metropolitan New York study.

Notes: The sample is people aged eighteen to thirty-two who grew up and still live in New York City. CEP is parents are from Colombia, Ecuador, or Peru, DR is parents are from the Dominican Republic, PR is parents are native Puerto Rican, WI is parents are from Anglophone West Indies, NB is parents are native black, CHI is parents are Chinese born abroad, RJ is parents are Jews from former Soviet Union, NW is parents are native white.

the men in each group are doing less well than the women in both types of families. In particular, except for native whites, males growing up in families headed by their mothers seem particularly vulnerable—the rate at which they fail to get a high-school diploma ranges from only 3.8 percent among native whites to almost 33 percent among Puerto Ricans and African-Americans. This result is worthy of a paper all its own; suffice it to say that young men are more exposed to the vicissitudes of the street and negative encounters with authority while also being surrounded by a peer culture that values toughness and boldness, while young women receive more encouragement for academic achievement and are more sheltered from the street by their families. (These patterns hold even when looking at all respondents who grew up in the metropolitan area, so they are not simply the product of the out-migration of the more successful members of less successful groups.)

Much about these outcomes jibes with the standard status attainment model. Young adults from groups characterized by two-parent families, better educated parents, parents with jobs, and fewer siblings did the best. Those who grew up in the opposite contexts generally had the hardest time getting an education. Still, multivariate analysis that regresses educational outcomes on family and parental characteristics shows that significant group differences remain even after applying these family controls (for elaboration on this point, see Kasinitz et al. [forthcoming]). As one can sense from Table 7, the Chinese are doing extraordinarily well given their modest family origins—indeed, they are far outperforming what family backgrounds alone would predict—while Puerto Ricans and African-Americans are achieving significantly less education than family background alone would predict. That the second-generation youngsters are getting consistently although not hugely more education than their native counterparts even after controlling for family background says as much about how bad things are for native minorities as it does for how well the children of immigrants are doing. Nevertheless, it is noteworthy that after family background is controlled for, the educational attainment of second-generation South Americans, Dominicans, and West Indians is not statistically significantly different from that of New York–bred native whites. (Of course, because these second-generation groups have different family backgrounds than do whites, they are not getting as much education as whites in absolute terms.)

One important fork in the road faced by young New Yorkers is where to go to high school. While the literature on educational attainment has found that school characteristics do not have much effect on educational attainment net of family background, that seems not to be the case in New York City. Some high schools had high graduation and college attendance rates, while our respondents told us that others lacked discipline or had teachers who they felt disrespected their students. These characteristics were clearly associated with post-secondary enrollment net of family characteristics (Mollenkopf et al. 2001). Faced with bad public schools, many families sought private alternatives for their children, mostly parochial schools (or Jewish yeshivas in the case of Russian youngsters).

Table 7 shows that native whites were most likely to exit the public school system, followed by Russians and South Americans. The pattern across family types shows that, except for Chinese and Russians, where there were no differences, the two-parent families were consistently more likely to send their children to private high schools, largely because their incomes were higher and more could afford to do so. Interestingly, two groups with quite different educational attainment profiles, native blacks and Chinese, were the most likely to attend public high schools, followed by native blacks, West Indians, Dominicans, and Puerto Ricans. One reason why the Chinese, unlike the other second-generation groups, were highly likely to stay in the public schools is that they tended to live in less segregated neighborhoods near whites that had better primary schools that fed into better high schools. Whites, Russians, and Chinese were least likely to go to public high schools in the bottom quintile of school performance rankings. Indeed, almost one-fifth of Chinese went to one of New York City's famed selective high schools, such as Brooklyn Tech or Townsend Harris in Queens, as did one out of ten Russians. Meanwhile, a third of those from the poorer Hispanic groups—Dominicans and Puerto Ricans—went to badly performing public high schools, as did a quarter of native blacks and a fifth of West Indians. These high schools drew from the poorest neighborhoods of the city, had overwhelmingly minority student bodies, and often had many students from Spanish-speaking families. The table shows that many two-parent families, even from these relatively low income groups, sacrificed to take their children out of the public system.

These different kinds of high schools tracked directly into the disparate experiences with post-secondary education already outlined above. Using the *U.S. News and World Report* ranking system, with National I being the highest rating and Regional IV the lowest rating, Table 8 shows the percentage of those attending college whose institution falls into the lowest category. While the pattern overall is similar to that for high-school quality, several departures stand out. West Indians, who had been less likely than African-Americans to attend the lowest performing high schools, were about as likely to attend the lowest ranked colleges and universities. In addition, the Russian second generation, which had almost entirely avoided

Table 8

Type of High School and College Attended and Educational Attainment by Group and Family Form Growing Up

Percent

Group	Two-Parent Family	Public High School	Lowest High-School Quintile	Attended Regional IV College	Aged Twenty-Five and Older with B.A.
CEP	Yes	80.5	12.1	10.0	24.5
	No	89.2	10.0	25.0	21.9
	Total	83.2	11.4	15.6	23.8
DR	Yes	84.6	29.7	25.0	26.1
	No	92.3	36.4	46.7	20.8
	Total	87.7	32.4	35.5	24.1
PR	Yes	82.0	33.3	29.4	14.1
	No	92.2	39.8	40.0	11.3
	Total	86.6	36.5	35.1	12.9
WI	Yes	85.6	14.4	38.9	27.6
	No	94.7	24.6	44.4	13.6
	Total	89.9	19.4	41.7	21.5
NB	Yes	92.8	22.3	44.4	14.3
	No	94.1	25.5	45.5	9.0
	Total	93.5	24.2	45.1	11.3
CHI	Yes	95.3	7.6	3.1	60.0
	No	91.2	7.3	0.0	18.2
	Total	94.9	7.6	2.9	56.7
RJ	Yes	82.6	0.0	42.9	45.3
	No	82.0	0.0	33.3	22.2
	Total	82.5	0.0	40.0	39.4
NW	Yes	58.3	12.0	0.0	22.6
	No	62.0	4.0	14.3	19.0
	Total	59.5	9.3	7.7	21.7

Source: Immigrant Second Generation in Metropolitan New York study.

Notes: The sample is people aged eighteen to thirty-two who grew up and still live in New York City. CEP is parents are from Colombia, Ecuador, or Peru, DR is parents are from the Dominican Republic, PR is parents are native Puerto Rican, WI is parents are from Anglophone West Indies, NB is parents are native black, CHI is parents are Chinese born abroad, RJ is parents are Jews from former Soviet Union, NW is parents are native white.

the low-performing public high schools, also often found itself in the lowest ranked post-secondary institutions. Meanwhile, the Chinese almost entirely escaped them and were among the most prevalent of any group in higher ranked institutions. The last column of Table 8 looks only at those young people who grew up and still live in New York who are aged twenty-five to thirty-two and who have had more time to complete a college degree. Two second-generation groups, Chinese and Russians, substantially outperformed all the others in attaining a B.A. and in performance, followed by Dominicans, native whites, West Indians, and South Americans—all bunched around one in five. Puerto Ricans and native blacks achieved only half that rate. For every group, children growing up in two-parent families were more likely to have gotten their degrees.

Outcomes other than education are also of considerable interest, particularly labor force status and the balance between working and parenting. These are summarized in Table 9. The majority of every group of our respondents found a job by age twenty-three, in most cases the great majority. South Americans, Chinese, Russians, and West Indians all had employment rates that exceeded that of whites. Once again, however, the two native-born minority groups, African-Americans and Puerto Ricans, were least likely to be working. Reciprocally, a third of African-American and a quarter of Puerto Rican young adults were neither at work nor attending school. (Subtracting the first two columns of data in Table 9 from 100 yields the percentage of those in each group who are attending school but not working.) Growing up in a one- or two-parent family did not seem to have a great direct effect on participation in the labor force, although those from two-parent families were consistently somewhat more likely to have a job. Only among Chinese, Russians, and whites, where growing up in a single-parent family was comparatively rare, did this seem to have a big effect on people neither having a job nor going to school at age twenty-three or older. Having an arrest record probably was related to labor market status: the males among our respondents were twice as likely as the females to have been arrested. Table 9 shows that a good many males in every group except Chinese and Russians were likely to have gotten into trouble with the police, rising to one-third among African-Americans. Except for Dominicans, males growing up in single-parent families were more likely, and in some cases substantially more likely, to have been arrested. Needless to say, this can have a deleterious effect on one's job prospects, although the damage is likely greater for minority young people than for whites (Pager 2003).

Similarly, most of our respondents remain unmarried and are not cohabiting with a partner. Only among Dominicans are a majority married or cohabiting. Chinese are far and away the least likely to be forming relationships, just as they are among the more likely to be working or going to school. Interestingly, those who grew up in two-parent families are consistently less likely to have formed a serious relationship, while those who grew up in single-parent families are more likely to have exited their parent's household and formed a new relationship of their own. More troubling are the continuing patterns of forming single-parent households among African-Americans and Puerto Ricans and to a lesser extent West Indians and

Table 9

Labor Force Participation, Male Arrest, and Family Formation by Group and Family Form Growing Up

Group	Two-Parent Family	Aged Twenty-Three and Older, Working (Percent)	Aged Twenty-Three and Older, Not Working and Not in School (Percent)	Males Aged Eighteen to Thirty-Two, Ever Arrested (Percent)	Aged Twenty-Three and Older, Not Married or Cohabiting (Percent)	Females Aged Eighteen to Thirty-Two with Children but No Partner (Percent)	Mean 1999 Household Income
CEP	Yes	79.6	13.9	15.5	58.4	7.8	$46,200
	No	85.2	13.0	28.0	51.9	3.8	$28,600
	Total	81.2	13.6	19.3	56.5	5.8	$40,400
DR	Yes	78.6	15.9	21.3	43.7	9.1	$34,900
	No	71.0	26.0	19.7	31.9	16.0	$21,400
	Total	75.9	19.5	20.6	39.5	12.2	$29,400
PR	Yes	70.9	26.0	24.1	56.7	17.7	$33,300
	No	69.0	28.7	27.7	40.2	25.5	$24,600
	Total	70.1	27.1	25.7	50.0	21.2	$29,400
WI	Yes	81.0	13.0	21.4	60.0	18.5	$50,900
	No	78.3	12.0	30.4	54.2	19.0	$30,700
	Total	79.8	12.6	25.1	57.4	18.8	$41,600
NB	Yes	63.1	31.7	25.9	62.1	45.3	$27,700
	No	63.8	33.9	41.9	52.8	36.3	$24,800
	Total	63.5	33.4	35.2	57.0	40.2	$26,100
CHI	Yes	81.1	12.0	6.7	80.8	0.9	$43,300
	No	70.0	20.0	25.0	61.9	0.0	$29,200
	Total	80.1	12.6	9.0	79.0	0.8	$41,700
RJ	Yes	84.3	7.2	10.5	53.0	1.8	$50,100
	No	75.0	21.4	15.4	40.7	0.0	$54,500
	Total	82.0	10.8	11.4	50.0	1.4	$57,900
NW	Yes	81.1	14.9	14.0	53.4	6.0	$42,300
	No	68.0	20.0	40.0	58.3	8.3	$29,000
	Total	77.8	16.2	20.7	54.6	6.7	$37,700

Source: Immigrant Second Generation in Metropolitan New York study.

Notes: The sample is people aged eighteen to thirty-two who grew up and still live in New York City. CEP is parents are from Colombia, Ecuador, or Peru, DR is parents are from the Dominican Republic, PR is parents are native Puerto Rican, WI is parents are from Anglophone West Indies, NB is parents are native black, CHI is parents are Chinese born abroad, RJ is parents are Jews from former Soviet Union, NW is parents are native white.

Dominicans, many of whom grew up in such households. Table 9 shows that about twice as many African-American women—two out of five—have had children but are neither cohabiting nor married. This is also true for about one out of five Puerto Rican and West Indian women.

Given the high level of risk among the native minority groups—African-Americans and Puerto Ricans, followed at some distance by West Indians and Dominicans—it is perhaps not surprising that these groups have lower rates of labor force participation and educational attainment and the lowest mean household incomes. Across the board, those who grew up (and often still live in) singe-parent families have lower mean household incomes. By contrast, Chinese and Russians are more likely to grow up in two-parent families and attend better schools; the men are less likely to face arrest and the women are much less likely to have had children on their own. (Chinese, in particular, are also highly unlikely even to get married in their twenties.) They have the highest mean family incomes, indeed higher than that of native whites who grew up and still live in New York City.

4. Conclusion: How Race, Nativity, Family Form, and Gender Affect Young People in New York City

Massey (2005) correctly observes that the "segmented assimilation" model should not be portrayed as holding that race by itself will trump ethnicity, family background, gender, and other factors in determining the trajectories of the second generation. Indeed, its central insight is just the reverse—that under the right circumstances, ethnicity and family background can allay the impact of racial discrimination. At the same time, the work of Portes and Rumbaut consistently presents African-Americans as the archetypical group for whom family and ethnic resources have failed to save them from being pushed to the bottom. The data presented here do not support that argument in several respects. First, Table 4 points out that neither African-American nor Afro-Caribbean households have the lowest mean household incomes in New York City—instead, native Hispanic households, largely Puerto Rican, occupy that position—and they do not generally classify themselves as black. (Most native Hispanic heads of households with children in New York City chose "other race" or "white" in the 2000 census; only about 10.8 percent gave their race as "black.") Similarly, members of Dominican immigrant households also suffer more on many measures than do African-American households, and they too generally do not say they are black (12.8 percent gave "black" as one of their races). Clearly, the fact that African-Americans and West Indians speak English at home, while Puerto Ricans and Dominicans generally speak Spanish at home, gives them one advantage over Hispanics. In any case, these data suggest that, however strong the force of racial discrimination may be in New York, black families appear more capable of negotiating it than Hispanic families.

Portes and Rumbaut's formulation emphasizes that the selectivity of immigration, the human and social capital of immigrant families and communities, and the varying context of reception will affect group trajectories (2001a, pp. 44-69). Yet they note that the first barrier facing the children of nonwhite immigrants is "the persistent practice of discrimination based on [physical differences], especially against black persons" (pp. 55-6). The authors posit that this interacts with two other closely related factors—the hourglass central-city economy wrought by deindustrialization and suburbanization, and the "emergence of an adversarial outlook and deviant lifestyles in American inner cities"—to keep "second- and third-generation offspring of 'colored' minorities bottled up in the inner city while simultaneously preventing them from taking advantage of emerging opportunities in the new postindustrial economy" (pp. 58-9). The result, in their view, is the "'hyperghetto'—veritable human warehouses where the disappearance of work and the everyday reality of marginalization led directly to a web of social pathologies" (pp. 59-60).

From this description, it is hard to avoid the conclusion that because African-Americans often live in poor neighborhoods plagued by joblessness, broken families, and adversarial attitudes and behaviors, they constitute a negative example that the children of immigrants should avoid, if at all possible. In Portes and Rumbaut's analysis, the dark-skinned, relatively poor immigrant groups at risk of being located in such places should use any family resources and strategies they can to escape. Otherwise, they will be prone to downward assimilation. It is no exaggeration to say that the segmented assimilation model portrays native blacks as having the worst outcomes.

It is therefore theoretically interesting that the data clearly show that African-Americans in New York are *not* at the bottom and that black immigrants, largely from the Anglophone Caribbean, are doing even better than native blacks. If the causal mechanisms underlying the segmented assimilation model are at work, then these groups must have more family and community resources to resist and overcome racial discrimination than that model suggests. This should prompt us to rethink whether black communities do indeed constitute such a negative model. In the ISGMNY, West Indians are getting more education than African-Americans, even after taking their somewhat higher parental levels of education and employment into account. So being phenotypically black and living near African-Americans may not be as much of a barrier as the segmented assimilation model seems to posit. Indeed, the substantial levels of education and income achieved by many African-Americans in New York may provide a positive model, not a negative one.

The data presented here should also lead us to reflect on why Hispanic groups, not black groups, seem the most adversely affected by the mechanisms of racial and economic inequality in New York City. As Massey (2005) notes, Hispanic groups occupy an ambiguous position in America's black-white hierarchy and come from societies that have different ways of categorizing African ancestry (Itzigsohn 2004; Itzigsohn, Giorguli, and Vazquez 2005). Dominicans, Puerto Ricans, and other Hispanic groups in New York City are clearly not comfortable placing themselves along a black-white axis and choose "other" on the census race question. It is also clear that the Dominican Republic and other sending societies have complicated racial classification systems of their own that differ from that of the United States. Race cannot be dismissed as a factor, but it needs to be understood in light of how African ancestry may interact with growing up in a Spanish-speaking

environment to produce even more challenges than simply being black or simply speaking Spanish. The fact that the census data and the ISGMNY show that Puerto Ricans and Dominicans are experiencing the most difficulties should prompt more analysis of this question.

Second, we need to dissect more minutely why young adult children growing up in South American, Dominican, or West Indian immigrant families are going to somewhat better schools, achieving somewhat more education, and doing better at avoiding arrest and single parenthood than those growing up in very similar native Puerto Rican and African-American families. For example, West Indians growing up in single-parent families are half as likely as African-Americans to have earned a B.A. at age twenty-five or older, while those growing up in two-parent families are twice as likely (Table 8). The children of Chinese immigrants, though nonwhite, have managed to make extraordinary educational progress despite their parents' low level of education. The segmented assimilation model suggests that these patterns reflect the immigrant parents' ability to avoid the poorest, most segregated native minority neighborhoods characterized by street crime and poor schools. But there may also be other factors at work, and we need to specify what they are.

Third, one way forward suggested by this analysis is to focus on what we might call multigenerational strategies for accumulating capital and transferring it across generations. The most successful children come from groups in which families often have two parents—as well as other adults—earning wages and caring for relatively few children. The Chinese excel with respect to the ratio of working adults to children. While it is true that Chinese parents relentlessly expect their children to perform well in school, they also provide them with higher household incomes, live in neighborhoods with better schools, keep them out of the labor force while they study, and find the bureaucratic pathways to the best schools in the New York City public school system. Children growing up in African-American and Puerto Rican families also have parents with relatively low levels of education, but they often live in single-income families that cannot afford to move out of the poorest neighborhoods with the worst performing schools and the highest exposure to crime and arrest.

Finally, the Russian and Chinese second generation has outdistanced the native white young people who grew up and remain in New York City, especially when parental education and income are taken into account. Russian parents had very high levels of education, but few were able to translate their credentials into professional careers, and many spent time on public assistance. Though some Chinese parents, such as those from Taiwan or Hong Kong, had professional degrees, the great majority had low levels of education and little ability to speak English. The fact that they have done so well should remind us that our native white New Yorkers—often from Irish, Italian, or even Jewish working- and lower-middle-class backgrounds—faced a good number of obstacles growing up as well. Our image of successful young white New Yorkers is shaped by how many of them—a third or more—grew up and were educated elsewhere and came to New York as young adults to make a professional career.

Despite the success of many members of native minority groups, the data here present a distressing picture of outcomes for many Puerto Ricans and African-Americans in New York City. The high levels of poverty and single-parent families among the adults show signs of being reproduced in the next generation. (Given how many African-Americans grew up in single-parent families in segregated settings, their accomplishments are all the more remarkable.) Even when native white New Yorkers grow up in single-parent families or attend poorly performing schools, they have significant advantages over their African-American and Puerto Rican peers. They are far less likely to have neighbors in the same position and far more likely to own their homes or have relatives who can tie them into job opportunities. Because it encapsulates a complex dynamic of scarce family resources, high obstacles to success, and a risky environment, race still counts very much in New York City. Just because some children of immigrant minority parents can avoid its worst effects, that does not lessen the sting on those who cannot.

Endnotes

1. This analysis covers own and related children in families composed of householders and their spouses, if any. However, about 8.4 percent of the residents of New York City live in subfamilies, that is, the own or related children of the household head or spouse have children of their own. We do not analyze the experience of these children—the grandchildren of the householder—who make up about 2.6 percent of New York City's residents. They would also qualify as members of the second generation if their parents—the children of the householder—were foreign born.

2. The data are from the 2000 census 5 Percent PUMS for New York City and include the individual records on household head; spouse, if any; and children in households with one or more own or related children.

3. Although my daughter's experience with the New York City public schools highlighted the importance of having parents capable of engaging the bureaucracy for me, Philip Kasinitz has emphasized the degree to which noncitizenship poses a problem for the children of noncitizens. Only half of all immigrant parents become citizens, and they are less likely to vote than are native-born parents.

4. Support for the project was provided by the Russell Sage Foundation, the Andrew W. Mellon Foundation, the Rockefeller Foundation, the Ford Foundation, the UJA-Federation, and the National Institute for Child Health and Human Development. Survey data on 4,000 individuals were collected in 1998 and 1999; follow-up in-person, in-depth interviews were conducted with a subsample of 346 individuals in 2000, with 152 reinterviewed in 2002. The Russell Sage Foundation funded a counterpart study that gathered data in 2004: Immigrant Integration in Metropolitan Los Angeles, directed by Rubén Rumbaut and Frank Bean of the University of California, Irvine; Min Zhou, of the University of California, Los Angeles; and a number of their colleagues.

5. These racial categories consolidate as a distinct group Hispanics from all races.

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Commentary

John Mollenkopf's paper uses data from two sources to consider patterns of assimilation among second-generation immigrants in New York City. From the 2000 Public Use Microdata Sample for New York, he compiles data on household type by generation, race, and ethnicity, and shows how household income and school enrollment are conditioned by variation in these variables. He then turns to the Immigrant Second Generation in Metropolitan New York study, on which he is a principal investigator, to extend his analysis beyond what can be accomplished using census data alone.

By relating race and ethnicity to family structure, income, and education, Mollenkopf seeks to challenge the hypothesis of segmented assimilation formulated by Portes and Zhou (1993) and elaborated by Portes and Rumbaut (2001). He finds that African racial origin does not necessarily trump class, family background, gender, and other factors in determining socioeconomic outcomes, and on this basis concludes that segmented assimilation is unsupported as a theoretical explanation. From the data presented in the paper, however, I do not believe that he is justified in reaching this conclusion, for two major reasons.

First, by reducing the hypothesis of segmented assimilation to the simple idea that race trumps other factors in determining trajectories among the second generation, Mollenkopf transforms what is very broad and subtle theory into a stylized caricature of itself. In fact, the model of segmented assimilation posits that immigrant adaptation and integration are "structured" by specific elements of an immigrant group's auspices of departure and context of reception. Race and racial discrimination are just one of several structuring factors mentioned by Portes and his colleagues. The auspices of departure revolve around the original motivation for international migration. Whether people are leaving their homeland to flee political persecution, escape a natural disaster, maximize returns to human capital, or overcome missing or failed markets will determine much about the configuration of human, social, and cultural capital that immigrants bring with them and the strategies they then employ to advance their interests in American society. The ability of different groups to advance their interests, whatever they may be, is also conditioned by the context of reception, which includes government policies that determine an immigrant's legal status (such as temporary worker, asylee, refugee, undocumented immigrant, or permanent resident alien), the point of insertion into the labor market (primary, secondary, or enclave), residential location (size of community, kind of neighborhood), and patterns and levels of racial and ethnic discrimination (in various markets). All of these factors must be considered when testing the concept of segmented assimilation, not just race and racial discrimination.

My second reservation is that the analysis too quickly dismisses race as a structuring factor in the experience of second-generation immigrants. Mollenkopf notes that households headed by neither native-born nor immigrant

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blacks have the lowest mean household incomes, and that Hispanics—primarily Puerto Ricans, who are not generally black—occupy that position. Moreover, he observes that households headed by Dominicans also suffer as much or more on many measures than those headed by African-Americans, and they too generally say they are not black. I do not believe, however, that these results by themselves justify the conclusion that race is not a salient, perhaps even a predominant, factor in determining the experience of second-generation immigrants in New York City.

For one thing, the fact that immigrant blacks are better off than Puerto Ricans and Dominicans does not negate the hypothesis that immigrants are stratified along racial lines, because the tabulations presented in the paper do not control for the selectivity of the original migration or the structuring elements in the context of reception. Whereas Puerto Rican migration to the U.S. mainland was overwhelmingly working and lower class, black Caribbean immigrants were generally selected from the lower professional and middle classes. Moreover, although Dominicans tend to have higher class origins than do Puerto Ricans, they are nonetheless generally less selected than black Caribbeans, and a larger share of families in this population are undocumented. In order to conclude that race is not a major factor influencing outcomes such as income and school enrollment in the second generation, we really need more sophisticated regression models that control for the human, social, and cultural capital possessed by different immigrant groups. Even then, there is always the possibility that unobserved heterogeneity arising from variation in the auspices of departure could bias estimates of racial effects. Given the analysis conducted in Mollenkopf's paper, we are not really in a very good position to judge the relative importance of race as a factor in the experience of immigrants and their children in New York City.

I also question the wisdom of pointing to poor outcomes among Puerto Ricans and Dominicans as evidence to challenge the hypothesis of racial hegemony. This strategy is problematic because both populations contain large numbers of people who are descended from forebears of African origin. Even though relatively few respondents in either group may identify themselves as "black," that does not mean that native white Americans would not put them in this racial category and treat them accordingly, subjecting them to higher levels of discrimination than other immigrants. The fact that most Puerto Ricans and Dominicans identify themselves as "other race" reflects the Caribbean conceptualization of race as a continuum from white to black rather than the dichotomous conceptualization that historically has prevailed in the United States; it does not mean that they have no African ancestry. In fact, when one compares socioeconomic outcomes among Caribbean Hispanics who identify themselves as white, other, or black, one generally finds that those in the "other" category lie much closer in status to blacks than to whites, suggesting the operation of distinctly racialized processes (see Massey and Bitterman [1983] and Denton and Massey [1989]).

What Mollenkopf's paper ultimately presents are some interesting tabulations that document differentials in income and education by generational status, race, ethnicity, and family background in New York. However, these data are insufficient by themselves to test the model of segmented assimilation, which incorporates many other structuring elements besides race into its explanatory model. Simple cross-classifications are also insufficient to judge the relative importance of race itself as a stratifying agent without the introduction of controls into much more complicated statistical models. Segmented assimilation theory may or may not ultimately hold up when subject to systematic scrutiny using data from the Immigrant Second Generation in Metropolitan New York study, but the tabulations presented represent only the very first steps in a much longer journey to examine that theory.

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Session 3

Socioeconomic Outcomes

Paper by

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Commentary by

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Paper by

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Commentary by

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Immigration, Health, and New York City: Early Results Based on the U.S. New Immigrant Cohort of 2003

1. Introduction

Every year, several hundred thousand persons become legal permanent residents (LPRs) of the United States,[1] averaging 781,848 in the 1991-95 period, 771,307 in the 1996-2000 period, and 944,884 in the 2001-04 period.[2] They include new arrivals to the United States (some coming for the very first time) as well as persons already living in the United States, having come earlier on a temporary visa or without documents and now achieving the coveted LPR status. Mingled with their hopes and dreams are the personal characteristics that propelled the move—the peculiar migrant energy—and the myriad faculties, experiences, attributes, and skills that will shape the immigrant trajectory.

Immigrants settle in one point within the vast U.S. geography. Classically, there are four great reception areas: the two coasts, Chicago, and the southern border. New York City was the gateway for the great migrations of the turn of the twentieth century, and it remains a major destination for new immigrants.[3] Repeatedly, the city has been shaped and reshaped by the distinctive characteristics of successive waves of new immigrants; new immigrants, in turn, like their native-born counterparts who arrive from Seattle and Iowa City and Laredo, have found in New York City both haven and spur.

Among the things immigrants bring with them to the United States is their health set: the combination of health levels and health behaviors. This paper has the twofold objective of exploring immigrant health and doing so with an emphasis on New York City. We make use of a new data source, the New Immigrant Survey (NIS)—the first longitudinal survey of a nationally representative sample of new legal immigrants to the United States—drawing information from Round 1 of its fiscal year 2003 cohort, known as NIS-2003. (At this writing, the data from Round 1 are being prepared for initial public release in 2005, and plans are under way for fielding Round 2.) An important additional objective of this paper is to make known the availability of this new data source, which will enable researchers to address a wide variety of topics, from language acquisition and identity formation to religion dynamics, not to mention the staples of studies of immigration, such as selectivity, emigration, and naturalization.

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Two questions dominate the study of immigrant health:

1. What is the health status of a new immigrant?
2. What is the immigrant's health trajectory over the life course?

The first question, the *selection* question, encompasses all factors and mechanisms in both origin and destination countries that influence who migrates—including, for example, origin-country skill prices and destination-country visa allocation regimes—some of which are, directly or indirectly, attentive to matters of health. The second question, variously called the *assimilation* or *incorporation* question, focuses on the health-relevant aspects of the receiving country environment and the immigrant's resources and behaviors in the new country.

At first blush, the immigrant health problem considers health at arrival and examines subsequent health. For example, a popular story in recent years has been that of a healthy person immigrating to the United States and subsequently acquiring some of the bad eating habits associated with American fast food, leading to health decline.

Migration is complicated, however, and we argue that a more faithful approach would incorporate the health effects of the migration process itself, which may begin long before "arrival" and may differ for immigrants facing different migration-relevant environments, such as different visa regimes (Kasl and Berkman 1983; Vega and Amaro 1994; Jasso 2003; Jasso et al. 2004). For example, navigating the visa application process may be quite stressful, illegal immigrants are constantly in fear of discovery and deportation, some legal immigrants have "conditional" visas for two years after admission to legal permanent residence, and immigrants may face prejudice.

Prolonged exposure to stressful circumstances has been shown to have powerful negative effects on a variety of bodily systems (McEwan and Lasley 2002). One important set of effects is cardiovascular. Chronically elevated levels of adrenaline increase blood pressure associated with the human stress response and raise the risk of hypertension. At the same time, elevated fibrogen levels increase the likelihood of blood clots and thrombosis while the build-up of "sticky" white blood cells causes the formation of arterial plaques that contribute to atherosclerosis. Excessive stress also causes the production of excess glycogen and fat, raising the risk of obesity; and the suppression of insulin during periods of stress leads to excessive blood sugar and a greater risk of Type II diabetes (McEwan and Lasley).

Chronic stress also compromises the human immune system, suppressing the human immune response and increasing susceptibility to illness and infection (McEwan and Lasley 2002). Under some circumstances, it may also over-stimulate the immune system, causing it to attack targets within the body that normally do not pose a threat, leading to the expression of inflammatory diseases such as asthma and autoimmune diseases such as multiple sclerosis, arthritis, and Type I diabetes (McEwan and Lasley).

Attentiveness to the migration process suggests that if the migration process is stressful, then the appropriate time for assessing health selectivity is at the time of the *migration decision*—rather than at the time of actual migration—and, further, that assessment of health change subsequent to immigration should take into account heterogeneity in the sources of health change and their timing.

Accordingly, and building on the health and immigration literatures, we formulate a model that distinguishes between the permanent and transitory components of health and that identifies three distinct sources of change in the transitory component of immigrant health: 1) *visa stress*, defined as the set of stresses related to the process of obtaining legal permanent residence; 2) *migration stress*, defined as the set of stresses related to the process of moving from one country to another, net of the visa application process; and 3) *U.S. exposure*, conceptualized as dietary and environmental factors.

Each of the three sources of health effects has a distinctive temporal span and affects distinctive subpopulations. For example, U.S. exposure affects everyone, not only immigrants; migration stress affects all international movers, whether or not they have to go through the visa process, including, to illustrate, persons born in Puerto Rico or American Samoa and persons who, though born in the United States, were raised abroad by their foreign-born parents, possibly since infancy; and visa stress affects only those who must obtain legal permanent residence. With respect to the time dimension, visa stress presumably ends with admission to LPR (or, as will be seen, somewhat earlier for refugees and somewhat later for conditional immigrants); migration stress probably ends at some point after inception of U.S. residence; and U.S. exposure effects do not end, although positive effects may be accentuated and negative effects mitigated by discerning choices and behaviors.

Accordingly, to assess health selectivity, it is important to measure health before the onset of visa stress, migration stress, and U.S. exposure, or to control for their operation in the estimating equations. And assessing health changes requires isolating the separate effects of the three sources of health change.

Overall, the contributions of this paper include: 1) a sharp distinction between health at the time of the migration decision and health at admission—the former being the variable of interest in exploring health selectivity; 2) a distinction between

three sources of health change among immigrants (and concomitantly among others); 3) a description of key health-relevant features of the U.S. immigration system and of NIS data, which will enable substantial new work among immigration and health researchers; 4) an NIS-based description of recent legal immigrants both to the United States in general and to New York City in particular; and 5) a preliminary NIS-based estimation of health selectivity, health change, visa depression, and body-mass index (BMI).

2. Immigration and Health

2.1. A Brief Overview of U.S. Legal Immigration

An immigrant visa is a scarce commodity, as more persons would like to immigrate to the United States than current or foreseeable law permits.[4] In the face of high demand for immigrant visas, the United States allocates visas by means of a system that includes family reunification and employment criteria, as well as humanitarian and diversity considerations. In brief, the system of visa allocation in the period since 1921 may be characterized by three features. First, the United States restricts the number of immigrants (restricting since 1921 the number from the Eastern Hemisphere, and since 1968 the number from the Western Hemisphere as well). Second, immediate relatives of adult U.S. citizens—defined as spouses, minor children, and parents—are exempt from numerical restriction.[5] Third, numerically limited visas are allocated via two sets of preference categories: one for family-sponsored immigrants, the other for employment-based immigrants. Over the years, the United States has altered both the definition of immediate relatives of U.S. citizens (for example, in 1952 by extending to U.S. citizen women the right, already held by men, to sponsor the immigration of an alien spouse outside the numerical limitations) and the system for granting numerically limited visas (for instance, by establishing a structure of preference categories in 1965 but not placing the Western Hemisphere under that structure until 1977, and subsequently revising the preference categories in the Immigration Act of 1990). Under current law, the number of visas available annually in the family preference categories is at least 226,000, but may be larger (though never larger than 480,000) depending on the previous year's volume of numerically unrestricted immigration; in the employment-based categories, the annual number of visas available is at least 140,000, but may be larger if there are unused family preference visas.[6]

Additionally, U.S. immigration law provides legal permanent resident visas on humanitarian and diversity grounds. On humanitarian grounds, persons admitted to the United States with refugee visas or given asylee status (both refugee and asylee visas are nonimmigrant temporary visas) may adjust to legal permanent residence after residing in the United States for one year. There is no ceiling on refugee adjustments to permanent residence, and the number has ranged in recent years from a low of 39,495 in fiscal year 1999 to 118,528 in fiscal year 1996; in contrast, asylee adjustments are constrained to 10,000 per year. On diversity grounds, the United States grants 50,000 visas annually to nationals of countries from which the number of numerically limited immigrants is less than 50,000 in the preceding five years. Eligibility requirements include a high-school degree or equivalent, or two years' work experience (within the preceding five years) in an occupation requiring two years of training or experience; selection is by lottery.[7]

Finally, U.S. immigration law provides for the legalization of certain persons illegally in the United States, through the registry provisions or via cancellation of removal.[8] Of course, illegal persons may also acquire LPR via all the other immigrant visa categories.

Among family-based and employment-based immigrants, a key actor in the migration process is the visa sponsor (also known as the "petitioner")—the individual (or firm, in the case of some employment-based immigrants) who, as relative or employer of the prospective immigrant, establishes the latter's eligibility for an immigrant visa.[9] The visa sponsor initiates the paperwork. For all family-sponsored immigrants and for a subset of employment immigrants, the visa sponsor must also become the main support sponsor, assuming responsibility for the immigrant's support, should the immigrant require assistance, and signing an affidavit of support contract.[10]

Additionally, the prospective immigrant must pass a medical examination to ensure that he or she is not inadmissible on medical grounds. The medical grounds for inadmissibility are grouped into four categories: 1) communicable disease of public health significance (such as tuberculosis or syphilis), 2) lack of required vaccinations (for example, for polio and hepatitis B), 3) physical or mental disorders with harmful behavior, and 4) drug abuse or addiction. Thus, U.S. immigration law plays a part in shaping the immigrant's health status at admission to legal permanent residence.

In most visa categories except those for immediate relatives of U.S. citizens (spouse, parent, minor child), visas are awarded not only to the individual qualifying for an immigrant visa but also to his or her spouse and minor children who are "accompanying, or following to join" the immigrant principal.

2.2. Health Implications of the U.S. Visa Allocation System

Health Selection

The U.S. visa allocation system has several implications for immigrant health at the time of the initial migration decision. A priori, the spouses of U.S. citizens—approximately a third of adult immigrants—would be expected to be healthy; the marital tastes of U.S. citizens, assortative mating mechanisms, and the energies and attributes required for participation in the international marriage market would militate to produce healthy spouses. Employment-based immigrants would also be expected to be in superior health, again in view of their participation in international labor markets. Similarly, the children of U.S. citizens would be expected to be healthy, especially given their youth. On the other side of the ledger, less healthy immigrants may include refugees (who may have suffered many privations) and parents of U.S. citizens (who may be of advanced age).

Health Trajectory—Visa Stress

The visa allocation system also has implications for the health trajectory during the visa application process. While all visa classes require assembling documents—such as birth certificate, marriage certificate, police record, military record—and filling out forms, they differ on the requirements for a sponsor and for an affidavit of support.

Numerically limited and numerically unlimited visas differ in the time required to obtain them. The overall waiting period has two phases. The first phase, applicable only to numerically limited visas, involves waiting for availability of a visa. Visa waiting times vary by both class of admission and country of origin; for example, in April 2005, there was no delay for some employment-based visas, but the delay for family-based visas ranged from four years in the first family category (unmarried sons and daughters of U.S. citizens) for natives of all countries except Mexico and the Philippines to more than twenty-two years in the fourth family category (siblings of U.S. citizens) for persons from the Philippines (see U.S. Department of State [various years]).

The second phase of the waiting period consists of application processing. Of course, for prospective migrants who qualify for a numerically unlimited visa, this phase is coterminous with the entire waiting period. The length of this phase varies with administrative factors, such as the number of personnel assigned to immigrant visa processing and whether changes in immigration law make necessary the design of new forms and/or retraining of personnel.

As would be expected, qualifying for an immigrant visa is an overriding concern for prospective immigrants to the United States, and visa allocation law is a critical component of the environment faced by prospective immigrants. Accordingly, the time waiting for a visa may be a time of accumulating visa stress.

In some situations, all or some of the waiting period is spent in the United States. For example, persons with legal temporary nonimmigrant visas—as foreign students, say, or H-1B specialty workers—may be applying for legal permanent residence under family or employment provisions of the law. Some persons do not qualify for a legal permanent visa under any provision of the law. They may enter the United States with a legal temporary visa and then lapse into illegality. Or they may enter the United States illegally (that is, "without inspection").

For most persons admitted to LPR, visa stress ends on the day of admission. The date of admission to permanent residence is a milestone in an immigrant's life. The new immigrant, who may be arriving from abroad at a U.S. port of entry (a "new arrival") or may be adjusting to permanent residence from a legal temporary visa in the United States (an "adjustment of status"), acquires a set of privileges, including that of sponsoring the immigration of certain kin. The passport is stamped to indicate admission to legal permanent residence, the "green card"—the paper evidence of legal permanent residence—is ordered, and the clock starts on the residency requirement for naturalization.

For some categories of immigrants, visa stress may end earlier or later than admission to LPR. The main category of immigrants for whom visa stress may end prior to admission to LPR is that of refugees, who gain permanent admission when they are admitted with a (nonimmigrant temporary) refugee visa. Arguably, for refugees, the stressful part of the application process ends with arrival in the United States. Refugees may, but need not, adjust to legal permanent residence; they are eligible to do so after one year. Asylees also may, but need not, adjust to legal permanent residence, and they are eligible to do so after one year; however, in contrast to refugees, there is an annual ceiling of 10,000 on their adjustment. We may surmise that the ceiling generates stress, and thus for asylees visa stress would definitely continue until admission to permanent residence.

Meanwhile, for a subset of immigrants, visa stress does not end on the date of admission to LPR. These are the conditional

immigrants—chiefly spouses of U.S. citizens and of LPRs, in marriages of less than two years' duration, and employment-based investor immigrants—whose visas are conditional for two years and who must apply for removal of the conditionality restrictions.

2.3. The Distinction between Visa Stress and Migration Stress

Individuals may be subject to visa stress and not migration stress, or, conversely, to migration stress but not visa stress. This distinction paves the way for future research in identifying the separate effects of these two potential sources of health change.[11]

Migration Stress without Visa Stress

Not all persons who move permanently to the United States from a foreign country require a visa, and thus such persons would be vulnerable to migration stress but not to visa stress. Two important subpopulations may be considered; they may be regarded as "natural" comparison groups in migration research: 1) U.S. citizens who are natives of territories of the United States, such as Puerto Rico, American Samoa, and the Northern Marianas, and 2) U.S. citizens who were born in the United States to foreign-born parents and raised abroad, such as the young children of foreign students. These groups may experience all the migration stress associated with an international move, but none of the visa stress. Future research might undertake a sharp examination of the two distinct kinds of stresses by studying one or more of these groups together with new immigrants. Here we focus on new legal immigrants, most of whom experience both visa stress and migration stress.[12]

Visa Stress without Migration Stress

The opposite may also arise—persons who experience visa stress but not migration stress. Three cases come to mind. The first two pertain to children raised in the United States who might either be born in the United States to diplomat parents and thus not citizens at birth or foreign born and raised in the United States by illegal parents. Such children are often fully "American" in sensibility but must undergo the visa process. The third case pertains to persons who acquire LPR but never take up residence in the United States; this situation, in which U.S. permanent residence operates as insurance, has come to light in the course of NIS fieldwork. The first two cases, involving children, may be more useful for empirical identification of the operation of visa stress and migration stress, given that the situation is exogenous, the choices and decisions made by the parents and not by the children.

3. Theoretical and Empirical Framework

3.1. Modeling Immigrant Health

Health Selection

Consider an adult residing in a foreign country and contemplating a permanent move to the United States. At the time of the migration decision—roughly when the first steps are taken to obtain legal permanent residence in the United States—he or she has a certain level of healthiness. The distribution of healthiness among all prospective immigrants to the United States around the world at this stage of the immigrant career is determined by selectivity forces, including U.S. immigration criteria. Of course, the intensity of self-selection on healthiness may vary; for example, refugees may be less self-selected on health than are employment immigrants. The healthiness distribution may be a composite distribution, consisting of several distinct subdistributions corresponding to distinct migration flows.

We conceptualize overall healthiness H as having two components—a permanent component, denoted h^p, and a transitory one, denoted h^t:

$$H = h^p + h^t. \tag{1}$$

Following the standard model, pioneered by Grossman (1972), health is an important form of human capital, and includes both a persistent time-invariant component and a time-varying component (Strauss and Thomas 1998).

We assume that immigrants make their initial migration decision based on the permanent component of their healthiness. If the transitory component of health does not change between the initial migration decision and the actual migration, then health selectivity can be inferred from observed healthiness at migration. If, however, the transitory

component changes, then observed healthiness at migration would provide a biased estimate of the persistent component, and hence of the selectivity forces. As sketched above and as we will discuss, there is reason to believe that the transitory component changes nonrandomly. Accordingly, understanding health selectivity in migration requires attentiveness to the permanent component and thus, in empirical analysis, attentiveness to observed healthiness at the time of the initial migration decision, rather than at immigration.

The selectivity forces on health differ for different migration streams. In general, the decision to migrate can be thought of as a balance between the gains and costs of migrating—or, as the Romans put it, *ubi bene, ibi patria*: Where one is well-off, there is one's country. To the extent that economic considerations play a part—as they no doubt do for most immigrants who will join the labor force—we can begin with a model of migration in which the individual migrates if the economic gains from migrating exceed the costs (as set forth in Jasso et al. [2004]). Incorporating wages, skill prices, and skill transferability, as well as costs of migrating, yields the implication that the higher the skill prices in a country of origin and the greater the country's distance from the United States, the higher the skill levels of its emigrants to the United States. If skill levels are higher among healthier people, then the gains from migrating will be greater for healthier individuals and migrants will be positively self-selected on health. Thus, *ceteris paribus*, the higher a country of origin's skill prices and the greater its geographic or cultural distance from the United States, the greater the health selectivity of U.S. immigrants from that country.

Labor market considerations may be less important or not important at all for older immigrants and immigrants who do not plan to work, as well as for refugees who are fleeing for their lives. Accordingly, such immigrants may be less positively selected on health. Of course, individuals who become refugees in the United States are the survivors of extreme situations, and thus may possess higher levels of health.

Moreover, migration to the United States may be fueled by the freedoms and other aspects of the American social and political climate, independent of economic considerations, and it is not obvious how health selection would operate. For example, a young person may want to live in a society where parental permission to marry is not required or where a baby may be given any name one chooses or where one can stop going to church without fear. These "freedom gains" would not necessarily be greater for healthier individuals. Thus, immigrants primarily seeking freedom gains would not be positively selected on health.

Health Trajectory—Visa Stress

The initial migration decision is followed by the process of applying for permanent residence. As discussed above, this process can be highly stressful, and the transitory component of health declines in response to visa stress. Similarly, living in the United States illegally is highly stressful, and the transitory component declines.[13]

The decline in the transitory component of health can be characterized by its magnitude, by the length of time during which the decline occurs, and by the shape of the decline (such as its steepness). These aspects of the decline may vary by migration stream. For example, visa stress may be greater for immigrants requiring an affidavit of support (all family immigrants and a subset of employment immigrants) than for other immigrants, and therefore the magnitude of the decline may be greater for these immigrants; visa stress may also be greater for illegals.

Among applicants for legal immigrant visas, permanent residence is eventually obtained. At that point, visa stress ends, and we may conjecture that observed healthiness—more precisely, the transitory component of health—begins an upward trajectory. The incline, like the decline, may be characterized by its magnitude, by the length of the recovery period, and by its shape. And, as with the decline, aspects of the recovery period may also vary by immigrant stream. Except for normal aging, one might imagine that following the recovery period, the immigrant returns to the original level of observed healthiness, so that the magnitude of the decline would equal the magnitude of the incline, unless, of course, the stresses have been so severe or prolonged that the body's physiology is altered (Seeman et al. 1997; Smith 1999).[14]

This model raises several new empirical questions, including: 1) whether the steepness of the decline and the steepness of the recovery are related, 2) whether the duration of the application process affects the duration of the recovery period, and 3) whether, within the application and recovery periods, steepness, total decline/recovery, and duration are related.

Health Trajectory—Migration Stress and U.S. Exposure

Additionally, as we discussed, there are two other effects that must be incorporated into the model. The first is the migration stress associated with adjusting to life in a new country. It includes stress due to different language, different customs,

and so on. As with visa stress, migration stress may end, and its health effect may be characterized by decline and recovery, with attention similarly paid to magnitude, duration, and steepness.

The second, U.S. exposure, involves the possibly deleterious effect of the U.S. environment. It has been conjectured that the combination of a possibly less healthy diet and environmental agents may induce a deterioration of the immigrant's health (Frisbie, Cho, and Hummer 2001; Rumbaut and Weeks 1996). Of course, an opposite conjecture is also plausible, given that: 1) health-relevant conditions are more favorable in the United States than in many origin countries; 2) immigrants experience large gains in earnings, on average, after immigration;[15] and 3) immigrants, whose propensity to invest in themselves is visible in their migration behavior, are likely to invest in their health, taking advantage of their earnings gains and new opportunities in the United States.[16]

Health Trajectory—Disentangling Visa Stress, Migration Stress, and U.S. Exposure

It is illuminating to contrast these three sets of effects on immigrant health, and we do so along two dimensions: first, by noting their spatio-temporal character; second, by highlighting comparison groups.

Visa stress is tightly linked to the visa process. It begins with the first filing, proceeds differentially by visa class, and ends with admission to LPR, or, for conditional immigrants, at removal of the conditionality restrictions.[17] Moreover, visa applicants are subject to visa stress, regardless of where they are located, whether in the origin country or in the United States.

In contrast, migration stress and U.S. exposure have different life spans, independent of the visa process and both beginning with inception of U.S. residence. Moreover, as discussed above, migration stress and U.S. exposure affect different subsets of people. U.S. exposure affects all residents, whether native born or foreign born. Migration stress affects all movers, whether they go through the visa process or, as discussed earlier, are already U.S. citizens (such as persons born in Puerto Rico or the foreign-raised, U.S.-born children of foreign students). Table 1 provides a brief summary of the three sources of health change and the subpopulations at risk.

Two examples illustrate. First, consider Pato Pascual. He came to the United States to study oenology, obtaining a Ph.D. Halfway through his studies, he fell in love with and married a U.S. winemaker, who sponsored his immigration as the spouse of a U.S. citizen. He worries that the immigration authorities will not believe that he is really in a love marriage; he worries about obtaining all the documents that are needed; he worries that the documents will be lost, etc. For him, U.S. exposure and migration stress began when he started school; he shares U.S. exposure with everyone who lives in the area (including his new bride), and he shares migration stress with everyone who comes from another country, including a golden classmate with a U.S. passport but little knowledge of English who was born in Baltimore when her parents were graduate students. Visa stress, however, began when his wife filed the first application for his legal permanent residence.

Meanwhile, Caperucita Roja applied for a diversity visa in her home country of Peru, went through the entire visa process in Peru, and arrived in Chicago with her visa, receiving the stamp on her passport in the "secondary" inspection area at O'Hare. For her, visa stress ended on the day that U.S. exposure and migration stress began.

This discussion suggests that for assessing both migration stress and U.S. exposure effects, the point at which inception of U.S. residence occurs is a critical time. The visible effects, if any, of migration stress and U.S. exposure will differ depending on whether inception of U.S. residence occurs before admission to permanent residence or at admission to permanent residence—that is, before or during the decline associated with visa stress or at its end. If the combined migration-U.S. exposure effect is zero, then both the visa-stress decline and the post-LPR recovery are unaffected. However, when inception of

Table 1

Sources of Health Change, by Subpopulation at Risk

Subpopulation	Visa Stress	Migration Stress	U.S. Exposure
Legal immigrants, potentially in NIS, residing in United States			
Born under diplomatic status (DS1)	Yes	No	Yes
Living in United States since infancy	Yes	No	Yes
All other immigrants residing in United States	Yes	Yes	Yes
Legal immigrants, potentially in NIS, not residing in United States			
Various types	Yes	No	No
Other persons (not immigrants), in NIS, residing in United States			
U.S. citizen sponsors of spouses	No	No	Yes
Newcomers (not immigrants), not in NIS, residing in United States			
Born in U.S. territories	No	Yes	Yes
Born in United States, raised abroad by foreign-born parents	No	Yes	Yes

U.S. residence occurs prior to admission to legal permanent residence, a positive net effect of the combined migration-U.S. exposure would attenuate the visa-stress decline, while a negative net effect would exacerbate it. Moreover, the combined migration-U.S. exposure net effect would also alter the recovery incline, exaggerating it if positive, attenuating or even reversing it if negative.[18]

3.2. Empirical Framework—Data, Measurement, Estimation

Data are drawn from Round 1 of the New Immigrant Survey's first full cohort, a probability sample of new legal immigrants whose administrative records were compiled by the U.S. government during a seven-month period in 2003. The NIS-2003 drew a sample that undersampled immigrants admitted as the spouse of a U.S. citizen (who constitute about a third of adult new legal immigrants) and oversampled employment-visa principals and diversity-visa principals (two categories that are smaller but in which there is much interest). In order to reach sampled individuals as soon as possible after admission to LPR, the sample was drawn in eight replicates (the first and last replicates were half-month replicates, the other six were full-month replicates). Interviews were conducted with the main sampled immigrant (8,573—achieving a response rate of 69 percent), the spouse of the main sampled immigrant (if he or she was living in the household—4,336), and with up to two children aged eight to twelve (1,062). Information was obtained on virtually every sociobehavioral domain, including migration history, schooling, employment, as well as earnings histories, language and religion histories, marital history, health, health behaviors, and health care. Information was also obtained on all children under eighteen residing in the household, and cognitive assessments were carried out on children aged three to twelve.

To ensure sample coverage and data quality, a basic principle of the NIS is that all persons are interviewed in the language of their choice. Accordingly, interviews were conducted in English, Spanish, Chinese, Russian, and eighty-two other languages, plus sign language. The mean and median time elapsed between admission to LPR and interview were seventeen weeks and fourteen weeks, respectively. (For further detail on the NIS project, the NIS-2003 sampling design, language design, and questionnaires, see Jasso et al. [forthcoming].)

Full empirical assessment of the immigrant health model that we have sketched is quite demanding, requiring health measures at several carefully chosen points in time: 1) at or just before the start of the visa application process, 2) at inception of U.S. residence, 3) at admission to legal permanent residence, 4) at several points between the start of the application process and admission to legal permanent residence, and 5) at several points after inception of U.S. residence and after admission to permanent residence.

Further, measuring health is no simple matter. Here we use two types of measures: the subjective assessment of overall health widely used in U.S. data collection and a subjective measure of health change.

The subjective assessment of overall health asks, "In general, would you say your health is: ?" and provides five response categories: excellent, very good, good, fair, and poor. Previous research suggests that subjective assessment of overall health accords well with objective measures (Ware and Donald 1978; Wallace and Herzog 1995). Nonetheless, it is possible that measured healthiness includes a new component—the immigrant's style of reporting, a style that may be understated or overstated. Moreover, the style of reporting may also have both a permanent component and a transitory component.

Thus, overall health, subjectively measured (denoted H^*), may contain four distinct components: the two health components introduced earlier plus two style-of-reporting components—a permanent component of the style of reporting, denoted s^p, and a transitory component of the style of reporting, denoted s^t:

$$H^* = h^p + h^t + s^p + s^t. \tag{2}$$

The NIS-2003 Round 1 data include three subjective assessments of health, pertaining to three points in time: 1) during childhood ("when you were growing up, from birth to age 16"), 2) at the time of the migration decision ("at the time of that first filing that started the process for the immigrant visa that you now have"), and 3) at the time of the interview.

All the measures capture the same permanent health component and permanent style component. They differ, however, in the transitory health component and the transitory style component.

With respect to the transitory health component, the question on healthiness at the time that the first application was filed taps healthiness prior to the start of visa stress; the childhood question does so as well, provided that the sample is restricted to respondents for whom the first filing occurred after they were age sixteen. In contrast, the question on current healthiness taps overall healthiness at a point subsequent to admission to permanent residence. The precise difference between the transitory health components in the at-filing and the current assessment depends on: 1) whether inception of

U.S. residence has occurred prior to the first immigration application filing, in which case the U.S. exposure effects and migration stress have started, and 2) whether the immigrant visa is conditional, in which case visa stress has not ended by the time of the interview.

With respect to the transitory style component, it is tempting to assume that because the measures are obtained at the same time, they contain the same transitory style component. However, one pertains to the present and the other two to the past. The measure of current healthiness is subject to underestimation, to avoid displaying hubris or jinxing one's health. The measures of past healthiness are probably more free of style distortions, although they may be subject to overestimation, if the past is remembered fondly.

Health Selection Equation

To estimate the health selection equation, we use two subjective measures of overall healthiness: during childhood and at the time of the first filing. These measures approximate a pure measure of the permanent component of health at the time of the initial self-selection. They are imperfect, however, because inception of U.S. residence may already have occurred, and thus migration stress and the effects of U.S. exposure may already have begun. To correct for this effect, we use information on whether the new immigrant is adjusting to LPR while already residing in the United States. Moreover, to distinguish between effects of legal and illegal prior residence, we define two binary adjustment variables, one for adjusting from a legal status and the other for adjusting from an illegal status.

To control for the transitory style component, we exploit the language feature of the NIS, including a control for whether the interview was conducted in English (Jasso 2003). To ensure that interview language does not operate as a proxy for English language skill, which could be associated with investments in health, we also include in the specification the interviewer's assessment of the respondent's fluency in English.

In one version of the health selection equation, we include binary variables for continent of birth and for the top-ten origin countries; in the second version, we include skill prices and distance from the United States, interacted with visa category, plus origin-country GDP per adult equivalent.[19, 20]

Note that as NIS survey rounds accumulate, it will be possible to use individual-specific fixed-effects estimation to obtain sharper estimates of the permanent component of health and thus of the health selection equation.

Health Change Equation

To assess the effects of visa stress, migration stress, and exposure to the U.S. environment, we make use of a question tapping health change between inception of U.S. residence and the baseline-round interview. For immigrants whose U.S. residence started at admission to LPR, visa stress ended at admission to LPR for all sample members except those with conditional visas, and thus the health change reflects migration stress and U.S. exposure, plus the recovery from visa stress. For immigrants whose U.S. residence started at some point prior to admission to LPR (which could have been before or after the first visa filing), the health change also reflects visa stress. Accordingly, the specifications include the adjustment variables and a dummy variable for a conditional visa. We expect adjustees to have greater incidence of health deterioration and lower incidence of health improvement, due in part to the visa stress experienced by adjustees and in part to the greater duration of the period of migration stress and U.S. exposure. The specifications also include the time elapsed between admission to LPR and the baseline interview; this variable targets the joint effects of migration stress and U.S. exposure after the end of visa stress (or net of visa stress, for immigrants with conditional visas).

4. Basic Characteristics of the NIS-2003 Cohort

4.1. General Characteristics

We begin by presenting an overview of the basic characteristics of the NIS-2003 immigrants—sex ratio and sex-specific average age and schooling and the proportions adjustee and fluent in English (Table 2). The table also reports the proportions in each of the thirteen major visa categories, plus a residual category, as well as basic characteristics for each of the visa categories. There is great heterogeneity across migration streams. For example, average schooling is highest among employment principals and diversity principals, and, by mechanisms of assortative mating, among their spouses, and lowest among parents of U.S. citizens, legalization immigrants, and spouses of LPRs. Age, of course, differs, as would be expected when some categories are reserved for parents and others for offspring under age twenty-one. Overall English fluency is high, almost 49.4 percent among men and 43.5 percent among women—with higher proportions among

Table 2

Basic Characteristics of New Legal Immigrants Aged Eighteen and Older: NIS-2003 Cohort

Visa Category	Percentage Female	Age		Schooling		Percentage Adjustees		English Fluency	
		Men	Women	Men	Women	Men	Women	Men	Women
Spouse of U.S. citizen (34.1%)	62.9	32.9	32.6	12.6	13.1	81.6	72.5	56.2	54.0
Spouse of legal permanent resident (2.44%)	82.4	43.8	40.1	8.48	7.79	51.0	63.4	24.8	19.3
Parent of U.S. citizen (11.9%)	66.1	65.5	62.7	8.75	6.93	25.5	33.5	26.6	24.4
Minor child of U.S. citizen (3.38%)	41.9	20.2	20.2	11.5	11.9	46.1	41.4	58.2	50.8
Sibling of U.S. citizen (3.94%)	51.4	48.5	48.2	11.8	11.1	8.97	12.9	41.9	25.7
Spouse of sibling (2.49%)	53.4	50.3	46.3	13.0	10.9	4.03	3.94	37.7	17.8
Employment principal (6.02%)	32.6	37.2	36.8	15.7	15.2	78.8	55.2	81.0	81.7
Employment spouse (3.63%)	77.3	40.2	35.3	14.6	15.3	57.1	76.2	72.3	79.3
Diversity principal (5.53%)	41.2	32.3	32.8	14.5	14.5	8.47	11.4	55.3	47.4
Diversity spouse (2.58%)	49.2	37.7	34.5	14.6	13.1	5.21	3.52	41.4	42.8
Refugee/asylee/parolee principal (5.35%)	41.7	40.8	38.2	12.8	11.8	100	100	46.2	41.1
Refugee/asylee/parolee spouse (1.22%)	76.0	44.5	43.2	13.3	11.0	100	100	32.9	37.4
Legalization (7.98%)	49.6	38.7	38.0	9.04	8.42	100	100	26.7	17.2
Other (9.36%)	51.8	35.9	36.2	12.1	11.8	24.2	23.0	44.5	36.8
All immigrants	56.4	38.7	39.1	12.3	11.6	57.9	57.0	49.4	43.5

Source: New Immigrant Survey, 2003 Cohort, Round 1.

Notes: The sample size is 8,573. Estimates are based on weighted data. The measure of English fluency requires that either the interview be conducted entirely in English or that the interviewer give the respondent's English the highest rating ("very good"). Among the subset coded fluent in English, 89.5 percent completed the interview entirely in English.

Table 3

Basic Characteristics of New Legal Immigrants in New York City Aged Eighteen and Older: NIS-2003 Cohort

Visa Category	Percentage Female	Age		Schooling		Percentage Adjustees		English Fluency	
		Men	Women	Men	Women	Men	Women	Men	Women
Spouse of U.S. citizen (23.8%)	56.0	35.7	34.3	12.1	12.3	70.8	44.6	63.5	62.1
Spouse of legal permanent resident (1.17%)	—	—	—	—	—	—	—	—	—
Parent of U.S. citizen (12.4%)	63.1	64.1	61.9	9.29	5.16	6.04	9.03	20.5	33.2
Minor child of U.S. citizen (5.95%)	32.0	19.5	19.5	11.7	11.7	17.4	21.7	55.5	38.2
Sibling of U.S. citizen (3.79%)	39.1	49.3	49.9	11.2	9.06	0	6.95	62.1	24.1
Spouse of sibling (2.84%)	48.8	52.0	49.4	12.2	8.53	0	0	88.0	9.34
Employment principal (3.94%)	41.3	39.2	40.0	14.8	14.2	84.6	74.3	63.7	83.6
Employment spouse (2.62%)	—	—	—	—	—	—	—	—	—
Diversity principal (9.62%)	42.9	32.4	33.0	14.7	15.0	7.77	7.81	60.5	45.8
Diversity spouse (5.15%)	56.4	38.2	36.8	14.6	13.6	5.93	4.07	24.5	42.9
Refugee/asylee/parolee principal (7.09%)	27.1	42.9	47.0	13.6	13.4	100	100	57.1	61.8
Refugee/asylee/parolee spouse (2.04%)	—	—	—	—	—	100	100	—	—
Legalization (1.38%)	—	—	—	—	—	100	100	—	—
Other (18.2%)	42.3	36.5	36.8	12.0	12.0	9.21	7.48	51.7	48.3
All immigrants	48.8	39.3	40.9	12.3	11.2	36.9	30.1	53.7	46.2

Source: New Immigrant Survey, 2003 Cohort, Round 1.

Notes: The sample size is 866. Estimates are based on weighted data. The measure of English fluency requires that either the interview be conducted entirely in English or that the interviewer give the respondent's English the highest rating ("very good"). Among the subset coded fluent in English, 95.5 percent completed the interview entirely in English. The sample sizes for spouse of legal permanent resident, employment spouse, refugee spouse, and legalization immigrants are too small to report summary characteristics.

employment principals and the spouses and children of U.S. citizens.[21]

Approximately 9.27 percent of the new immigrants declared New York City to be their initial residence.[22] Table 3 summarizes the basic characteristics for this subset. The New York City–bound immigrants differ in several important ways from the larger set. First, the proportion female is lower by almost 8 percentage points (48.8 percent versus 56.4 percent). Second, and consistent with the sex ratio, the proportion achieving LPR via marriage to a U.S. citizen is substantially lower—24 percent versus 34 percent. The New York City group has a smaller proportion who are employment principals (4 percent versus 6 percent) and a larger proportion who are diversity principals (9.6 percent versus 5.5 percent), and among employment principals, a substantially larger proportion who are female (41 percent versus 33 percent). Third, the proportion adjusting status is markedly lower in the New York City subset (by 20 percentage points among men and 27 percentage points among women), reflecting in part the smaller proportion of marriages to U.S. citizens but also fewer adjustments even among these couples. Fourth, New York immigrants display somewhat greater English fluency (53.7 percent versus 49.4 percent among men and 46.2 percent versus 43.5 percent among women).

The patterns in Tables 2 and 3 suggest differences in the origin countries of immigrants who settle initially in New York City and their counterparts who settle elsewhere in the country. Table 4 displays the top five origin countries for the entire set of immigrants as well as for the New York City and non-New York City subsets. As shown in the middle and lower panels, the two areas share only one country in the top five—China, which is the second-leading origin country in New York City and fifth among the non-New York City immigrants. Besides the largely nonoverlapping sets of top-five countries, the other important difference concerns the somewhat greater evenness among the New York City top five, in contrast to the non-New York City countries, which are dominated by Mexico.

As we observed, a basic principle of the NIS design is that every respondent is interviewed in his or her preferred language. Consistent with the greater English fluency among the New York City subset, 47.9 percent of the New York immigrants preferred English, compared with 40.6 percent in the rest of the country. English preference among New York City immigrants was led by immigrants from Guyana and Jamaica, virtually all of whom preferred English. In contrast, among non-New York City immigrants, English preference was led by immigrants from India and the Philippines, but the proportions from those two countries preferring English did not exceed 73 percent.

The NIS included the two questions on race and ethnicity that are standard in U.S. surveys. Among the New York City immigrants, the largest racial/ethnic group consisted of non-Hispanic Asians, of whom there are 27 percent, followed closely by non-Hispanic whites (25 percent), non-Hispanic blacks (17 percent), Hispanic whites (16 percent), Hispanics who did not provide race (5 percent), and non-Hispanics who also did not provide race (4 percent). In contrast, among the non-New York City immigrants, the largest group was Hispanic whites (30 percent), followed closely by non-Hispanic Asians (28 percent), non-Hispanic whites (19 percent), non-Hispanics who did not provide race (14 percent), non-Hispanic blacks (10 percent), and Hispanics who did not provide race (6 percent). The different origin-country distributions help explain these patterns. For example, the different proportions of Hispanic whites (16 percent in the New York City subset versus 30 percent in the non-New York City subset) can be

Table 4

Top Five Countries of Origin among New Legal Immigrants Aged Eighteen and Older, by Sex and Initial Residence

	Men	Women	All
All immigrants			
Mexico	16.2	18.7	17.6
India	7.19	7.36	7.28
El Salvador	6.82	6.49	6.13
China	5.14	5.61	5.49
Philippines	4.19	5.60	5.40
Top five	39.5	43.8	41.9
Immigrants with initial residence in New York City (n = 866)			
Dominican Republic	11.9	14.3	13.1
China	11.3	10.8	11.0
Guyana	7.84	5.45	6.28
Jamaica	6.5	4.63	5.05
Ecuador	4.67	4.55	4.27
Top five	42.2	39.7	39.7
Immigrants with initial residence not in New York City (n = 7,707)			
Mexico	18.0	20.2	19.3
India	7.67	7.66	7.66
El Salvador	7.55	6.95	6.67
Philippines	4.54	6.01	5.92
China	4.34	5.16	4.83
Top five	42.1	46.0	44.4

Source: New Immigrant Survey, 2003 Cohort, Round 1.

Notes: The sample size is 8,573. Estimates are based on weighted data.

attributed in part to different rates of declaring this combination (Hispanic white) among the top origin countries—51 percent among the New York City group from the Dominican Republic and 72 percent in the larger non-New York City group from Mexico.

Recall the higher proportion who are diversity principals in the New York City group (9.6 percent versus 5.5 percent). An important feature of recent immigration is that the diversity visa program has, as intended, generated new streams of immigrants from countries that have been underrepresented. Thus, almost half of diversity principals are from Africa—44 percent in the NIS-2003 cohort. And the fraction of Africa-born diversity principals who reside in New York City is larger than the corresponding fraction of other immigrants (12 percent versus 9 percent).

New York City has a large concentration of foreign-born persons—currently estimated at 36 percent of the population. Accordingly, the pool of marriageable persons is likely to be substantially foreign born, generating a higher-than-average proportion of foreign born among the U.S. citizen sponsors of spouses. As expected, while overall 47 percent of the U.S. citizen sponsors of spouses are native born, in the New York City immigrant subset, the corresponding figure is less than half—22 percent.

Finally, we examine home ownership among immigrants in the NIS-2003 cohort. New York City differs from the rest of the country in the proportion who own their home, and, indeed, in the ethos surrounding home ownership. Overall, more than 26 percent of the new immigrants already own their home—as well as 37 percent of adjustee immigrants, who have had more time in the United State. Not surprisingly, however, the corresponding figures for the New York City subset are 7 percent and 13 percent—or roughly 28 to 35 percent of the nationwide figures.

4.2. Health Characteristics

Health Self-Assessment

Table 5 reports the immigrants' assessments of their health at the time of the initial filing, which started the process by which they became legal permanent residents, reported at the baseline interview. As shown, overall the new immigrants thought of themselves as quite healthy at the time of the initial self-selection—almost three-fourths judged themselves to be in excellent or very good health and only slightly more than 4 percent in fair or poor health. In general, male immigrants judged themselves to be healthier than did female immigrants—although the largest difference is in the "excellent" category, which may reflect mechanisms other than actual health (such as male brashness or female wish to avoid hubris). There is a pronounced difference between those with very little schooling and those with a very high amount of schooling (53 percent of those with more than sixteen years of schooling pronouncing themselves to be in excellent health versus 27 percent among those with less than nine years of schooling).

Comparable figures (not shown) for the New York City contingent of immigrants indicate that at each of the three time points, New York immigrants are substantially healthier than other immigrants. For example, in the assessment of health at the time of first filing, 59 percent of the New York City immigrants judged their health to be excellent versus 41 percent of the non-New York City immigrants.

Health Change

In Table 6, we present the immigrants' reported health change between the last time they came to live in the United States and the time of the baseline interview, by visa category and separately for new arrivals and adjustees. As discussed earlier, for "true" new arrivals, visa stress will have ended at arrival (except for conditional immigrants) and all effects will be due to migration stress and U.S. exposure. For adjustees, the period since last arrival will also include a period of visa stress followed by the post-LPR recovery phase. Moreover, the length of the interval is substantially greater for adjustees than for new arrivals (less than four months for new arrivals and more than five years for adjustees, on average). As shown in the table, the results indicate that while similar proportions report improved health (20 percent of new-arrival immigrants and 22 percent of adjustee immigrants), a much larger proportion of adjustee immigrants report deteriorating health (14 percent versus 4 percent). This health decline could be due to the greater likelihood that for adjustees, arrival occurred before the start of the decline associated with visa stress or it could be due to the longer interval during which migration stress and the effects of U.S. exposure are experienced.

Immigrants who settle in New York City have a smaller proportion with deteriorating health than immigrants who settle elsewhere—7.1 percent versus 10.2 percent—a difference almost completely offset by the larger fraction of New York City immigrants whose health remained the same.

Table 5

Health Status at Time of First Filing for Immigrant Visa, Self-Reported at Baseline Round: NIS-2003 Immigrants Aged Eighteen and Older

Characteristic or Population	Health Status					
	Five-Category Variable (Percent)					
	Excellent	Very Good	Good	Fair	Poor	Index (Mean)
Selected basic characteristics						
All immigrants	42.6	30.9	22.5	3.53	0.52	3.11
Male immigrants	47.4	29.8	19.5	3.07	0.25	3.21
Female immigrants	38.8	31.8	24.8	3.88	0.74	3.04
Schooling less than nine years	26.7	28.2	36.9	7.37	0.83	2.73
Schooling more than sixteen years	52.9	32.5	12.7	1.93	0.04	3.36
Visa category						
Spouse of U.S. citizen	45.4	31.1	20.8	2.09	0.58	3.19
Spouse of legal permanent resident	28.1	37.7	31.2	3.00	0	2.91
Parent of U.S. citizen	21.4	29.3	37.1	11.0	1.18	2.59
Child of U.S. citizen	54.8	31.4	10.7	2.63	0.36	3.38
Sibling of U.S. citizen	37.8	35.7	23.3	3.21	0	3.08
Spouse of sibling	38.2	37.9	22.6	1.33	0	3.13
Employment principal	52.8	32.4	13.7	0.96	0.17	3.37
Employment spouse	43.2	38.1	15.2	3.49	0	3.21
Diversity principal	56.8	30.3	12.3	0.24	0.35	3.43
Diversity spouse	50.4	30.7	18.2	0.75	0	3.31
Refugee/asylee principal	44.3	28.7	20.6	4.93	1.40	3.10
Refugee/asylee spouse	37.0	24.4	30.3	5.28	3.04	2.87
Legalization	37.2	24.1	33.0	5.44	0.29	2.92
Other	48.4	31.0	18.4	2.16	0.09	3.25
Continent of birth						
Africa	59.0	24.9	12.6	2.97	0.62	3.86
Asia	39.2	35.5	21.9	2.99	0.35	3.10
Europe	44.7	33.3	18.6	2.50	0.82	3.19
Oceania	62.2	26.9	7.26	0	3.71	3.44
North America	39.8	27.9	27.1	4.75	0.56	3.02
South America	48.6	28.7	20.1	2.34	0.23	3.23
Top five countries of birth						
Mexico	33.2	28.3	32.5	5.32	0.81	2.88
India	47.7	29.8	19.7	2.64	0.17	3.22
El Salvador	39.1	24.7	30.7	5.47	0	2.98
Philippines	42.7	39.0	17.1	1.13	0.09	3.23
China	31.4	42.2	19.5	6.90	0	2.98
Adjustment of status						
New arrivals	43.1	31.5	21.4	3.78	0.28	3.13
Adjustees	42.2	30.5	23.3	3.34	0.71	3.10

Source: New Immigrant Survey, 2003 Cohort, Round 1.

Notes: The health status variable is coded 0-4, with poor coded 0. Estimates are based on weighted data.

Table 6

Health Change between Most Recent Arrival "to Live" and First Interview after Admission to Legal Permanent Residence: NIS-2003 Immigrants

Visa Category	Time since Arrival (Years)	Health Change		
		Worse	Same	Better
New-arrival immigrants				
Spouse of U.S. citizen	.325	5.72	75.3	19.0
Spouse of legal permanent resident	.289	3.05	88.0	8.91
Parent of U.S. citizen	.312	5.91	68.4	25.7
Minor child of U.S. citizen	.279	2.12	72.5	25.4
Sibling of U.S. citizen	.313	3.39	82.8	13.8
Spouse of sibling	.305	3.47	79.7	16.9
Employment principal	.323	5.40	79.1	15.5
Employment spouse	.045	3.74	74.3	22.0
Diversity principal	.316	2.86	79.7	17.5
Diversity spouse	.351	2.79	79.5	17.7
Other	.291	2.18	77.2	20.7
All new-arrival immigrants	.305	4.05	76.2	19.7
Adjustee immigrants				
Spouse of U.S. citizen	5.20	13.2	67.3	19.5
Spouse of legal permanent resident	6.34	11.7	63.5	24.7
Parent of U.S. citizen	6.41	15.9	64.3	19.7
Minor child of U.S. citizen	7.24	12.4	59.8	27.9
Sibling of U.S. citizen	8.16	16.7	60.0	23.5
Spouse of sibling	—	—	—	—
Employment principal	2.61	13.2	67.7	19.1
Employment spouse	2.19	11.7	74.5	13.9
Diversity principal	3.67	5.72	69.1	25.2
Diversity spouse	—	—	—	—
Refugee/asylee/parolee principal	6.89	16.3	57.5	26.2
Refugee/asylee/parolee spouse	6.18	24.1	51.7	24.2
Legalization	11.1	17.2	50.7	32.0
Other	9.64	6.55	68.9	24.6
All adjustee immigrants	5.25	14.0	63.6	22.3

Source: New Immigrant Survey, 2003 Cohort, Round 1.

Notes: Estimates are based on weighted data. Missing estimates pertain to subsets with fewer than twenty observations.

5. Multivariate Results

5.1. Health Selection

Ordered-logit estimates of the health selection equation are reported in Table 7, with three specifications (sex-specific and pooled) for the two health measures: health at first filing and health during childhood. The objective is to estimate the selectivities associated with the permanent component of health. Health at first filing is a good approximation of the permanent component of health among new-arrival immigrants but it is not as good for adjustees, whose U.S. residence may have antedated the first filing so that they may have already been experiencing migration stress and the effects of U.S. exposure. Additionally, both new-arrival and adjustee immigrants may have suffered harm in the origin country prior to the first filing. We address these possibilities by including control variables, such as the adjustee variables, and by estimating the health selection equation with health during childhood as the dependent variable. Health during childhood, for example, is likely to be free of the harm effects and free as well of migration stress and U.S. exposure—unless U.S. residence started before age sixteen.

We first assess the controls for sources of change in the transitory component of health. The controls we inserted for adjustees, as well as the control for having suffered harm, operate as predicted and most of the estimates are statistically significant. For example, the two adjustee variables are jointly highly statistically significant and both are negative, indicating that the observed health of adjustees is indeed lower than that of new arrivals, consistent with a negative net effect of the combined migration stress and U.S. exposure. The negative effect of adjusting from an illegal status is substantially larger than that of adjusting from a legal status, consistent with the operation of visa stress. Similarly, the effect of having suffered harm in the origin country is negative and statistically significant in the pooled and male specifications of the first-filing equation and not significant and of mixed sign in the childhood equation, indicating that men were more vulnerable to such harm and that on average it occurred after childhood.[23]

With respect to the control for style of reporting, the effect of being interviewed in English was statistically significant in all specifications except the male childhood one and positive, net of skill in English, consistent with the hypothesized association between English and a style of reporting that does not refrain from declaring high healthiness.

Turning now to our main focus, the health selectivities, we note that the estimates indicate that men are more highly positively selected on health than are women and that racial/ethnic characteristics and area of origin are importantly linked to health selection. The coefficients on the racial/ethnic categories indicate that Hispanic whites are the most positively selected for health, followed by non-Hispanic black men; the least selected for health are Hispanics who decline to declare a race.

The visa category variables are jointly significant in the women's at-filing equation and in both the men's and women's

childhood health equations. Comparison of the coefficients in the at-filing and childhood equations reveals interesting patterns. Among men, legalization immigrants are among the most robust in childhood, but by the time of the first filing they are less healthy; in contrast, refugee principals are less robust in childhood but by the time of the first filing they are healthier than many of their fellow immigrants. Among women, diversity principals are the most positively selected for health, followed by employment principals.

The joint tests for the continent and country dummies indicate high statistical significance in all cases except one—the continent dummies in the male first-filing equation. The coefficients (not shown) indicate that immigrants from North America (which includes Canada, Mexico, and Central

TABLE 7

Selected Estimates, Ordered-Logit Health Selection Equation: NIS-2003 Immigrants Aged Eighteen and Older at Time of First Filing for Legal Permanent Residence

	Specification					
	Health at First Filing			Health during Childhood		
Variable	All	Men	Women	All	Men	Women
Sex	-.260	—	—	-.109	—	—
	(7.08)			(2.73)		
Age at first filing	0.0266	.0123	.0340	.0326	.00697	.0496
Age squared	-.000597	-.000426	-.000680	-.000329	-.000045	-.000502
Age joint test chi^2 (2 df)	133.01	35.8	93.3	11.6	.49	15.5
Suffered harm in origin country	-.287	-.372	-.188	-.0479	-.0985	.0111
	(2.40)	(2.61)	(1.23)	(.52)	(.82)	(.08)
Hispanic, no race	-.469	-.270	-.631	-.567	-.514	-.621
Hispanic, white	.199	.0884	.302	.0228	.00298	.0399
Not Hispanic, Asian	-.230	-.228	-.219	-.144	-.177	-.0972
Not Hispanic, black	-.0893	.0747	-.318	.144	.160	.100
Not Hispanic, white	-.0330	-.0217	-.0142	.325	.382	.247
Race/ethnicity joint test chi^2 (5 df)	24.6	9.76	36.2	41.3	37.0	14.9
Spouse of U.S. citizen	.0855	.147	.0673	.101	.104	.107
Parent of U.S. citizen	-.161	-.375	-.0663	-.120	-.255	-.110
Child of U.S. citizen	.145	.366	-.251	-.227	-.475	.0744
Employment principal	.107	-.00945	.272	.0707	-.0650	.166
Diversity principal	.314	.219	.405	.229	.0889	.380
Refugee/asylee principal	-.0158	.136	-.250	.0360	-.0139	.00360
Legalization	-.0943	.0528	-.235	.109	.445	-.218
Visa category joint test chi^2 (7 df)	11.9	12.3	27.4	11.7	23.6	18.2
Adjustee, not illegal	-.107	-.142	-.0843	-.0616	.0718	-.155
Adjustee, illegal	-.440	-.467	-.408	-.389	-.493	-.295
Adjustee joint test chi^2 (2 df)	27.1	11.4	18.1	20.8	26.6	12.8
Interview in English	.211	.212	.216	.171	.173	.193
	(2.78)	(1.94)	(2.59)	(2.00)	(1.51)	(2.22)
English "very good"	.385	.479	.295	.222	.277	.153
	(5.18)	(4.27)	(3.72)	(3.15)	(2.91)	(1.82)
Continent dummies joint test chi^2 (5 df)	27.3	6.57	20.9	37.4	18.1	25.3
Country dummies joint test chi^2 (10 df)	892.1	892.7	563.3	470.0	685.1	534.7
Number of observations	7,517	3,687	3,830	7,246	3,569	3,677
Log pseudolikelihood	-8332.30	-3904.21	-4408.25	-7891.35	-3804.76	-4066.73

Source: New Immigrant Survey, 2003 Cohort, Round 1.

Notes: The dependent variables are coded 0-4, with poor coded 0 and excellent coded 4. Standard errors are corrected for heteroskedasticity due to clustering by origin country; absolute values of asymptotic *t*-ratio appear in parentheses under parameter estimates for numeric and binary variables. Joint tests are reported for multiple-category categorical variables. Cut-points are not shown.

America and the Caribbean) and Africa are the most highly positively selected for health, while immigrants from Europe (the omitted category), Asia, and Oceania are the least positively selected for health. Of course, for any individual immigrant, these effects have to be combined with the country effects. For example, the coefficients for India and Mexico indicate the highest and lowest selectivities, respectively, so that combining the country and continent effects alters the picture somewhat.

The area-of-origin effects point to mechanisms involving country characteristics. Table 8 presents ordered-logit estimates of the health selection equation based on an economic model in which selection responds to skill prices and the origin country's distance from the United States. Control variables—the adjustee variables, for example, and the English-language variables—operate as they do in the previous equations. However, the new results indicate important selectivity by origin-country skill prices. The joint test of skill prices and skill prices interacted with visa category indicates that these effects are highly statistically significant in all three at-filing specifications and in the women's childhood health specification. In contrast, distance and its interactions with visa

Table 8

Selected Estimates, Ordered-Logit Health Selection Equation, with Skill Prices and Distance: NIS-2003 Immigrants Aged Eighteen and Older at Time of First Filing for Legal Permanent Residence

	Specification					
	Health at First Filing			Health during Childhood		
Variable	All	Men	Women	All	Men	Women
Sex	-.251	—	—	-.0961	—	—
	(6.05)			(2.16)		
Age at first filing	0.302	.0115	.0438	.0386	.00645	.0650
Age squared	-.000618	-.000425	-.000741	-.000400	-.000057	-.000662
Age joint test chi^2 (2 df)	97.9	30.4	64.8	12.2	.22	25.3
Suffered harm in origin country	-.234	-.426	.0854	-.0828	-.229	.164
	(1.67)	(2.64)	(.48)	(.68)	(1.49)	(.82)
Race/ethnicity joint test chi^2 (5 df)	34.4	18.2	30.5	48.8	32.3	25.3
Spouse of U.S. citizen	-.697	-.121	-.394	.286	.297	.343
Parent of U.S. citizen	-.556	-.899	-.382	-.222	-.363	-.273
Child of U.S. citizen	-.454	.0550	-2.24	-.259	.0128	-2.24
Employment principal	.100	-.0400	.219	.283	.289	.242
Diversity principal	-.0800	-.338	.110	-.222	-.0481	-.602
Refugee/asylee principal	-.584	-.237	-1.21	-.477	-.471	-.419
Legalization	1.80	1.76	3.10	.483	.678	.742
Visa category joint test chi^2 (7 df)	38.9	24.7	13.5	17.1	17.3	13.7
Adjustee, not illegal	-.140	-.165	-.137	-.113	.0402	-.208
Adjustee, illegal	-.621	-.673	-.573	-.548	-.644	-.460
Adjustee joint test chi^2 (2 df)	47.4	16.4	36.2	31.5	29.1	17.5
Interview in English	.263	.245	.284	.252	.313	.209
	(3.37)	(2.19)	(3.12)	(2.96)	(2.55)	(2.53)
English "very good"	.376	.448	.307	.198	.269	.112
	(4.72)	(3.50)	(3.82)	(2.66)	(2.52)	(1.39)
Skill price interacted with visa joint test chi^2 (8 df)	28.3	35.4	29.3	5.33	7.74	21.4
Distance interacted with visa joint test chi^2 (8 df)	13.6	7.57	15.8	8.41	21.2	10.5
Real GDP per adult equivalent	8.34e-08	-1.75e-06	8.98e-07	2.06e-06	-1.30e-06	6.88e-06
	(.01)	(.23)	(.10)	(.29)	(.14)	(.93)
Number of observations	6,449	3,196	3,253	6,207	3,091	3,116
Log pseudolikelihood	-7151.94	-3368.99	-3758.69	-6777.83	-3302.51	-3446.55

Source: New Immigrant Survey, 2003 Cohort, Round 1.

Notes: The dependent variables are coded 0-4, with poor coded 0 and excellent coded 4. Standard errors are corrected for heteroskedasticity due to clustering by origin country; absolute values of asymptotic *t*-ratio appear in parentheses under parameter estimates for numeric and binary variables. Joint tests are reported for multiple-category categorical variables. Cut-points are not shown.

category produce mixed results, achieving statistical significance only among women in the at-filing equation and among men in the childhood equation. It is possible that distance is becoming less important as globalization takes root.

Finally, we re-estimated all the specifications in Tables 7 and 8 and include a binary variable for initial residence in New York City. The estimates are uniformly highly statistically significant and positive, indicating that at the initial selection, those immigrants who claim New York City as their first home after admission to LPR are more highly positively selected on health than are their fellow immigrants who settle elsewhere.

5.2. Visa Depression

In the health model sketched above, an important factor is the visa application process itself and the associated visa stress that may negatively affect health. We turn now to immigrants' subjective experience of visa stress. A question in the NIS-2003 Round 1 interview asks, "During the past 12 months, have you ever felt sad, blue, or depressed because of the process of becoming a permanent resident alien?" For convenience, we use "visa depression" as shorthand for feeling "sad, blue, or depressed. . . ." All respondents except for thirty-three achieved LPR during the twelve months before the interview (the mean time elapsed between LPR and interview was seventeen weeks; the median time elapsed was fourteen weeks). Overall, 15.9 percent of the men and 18.5 percent of the women reported becoming depressed because of the visa process. There is substantial variation in the experience of visa depression across visa category and origin country/region. Furthermore, notwithstanding the greater overall depression among women, the gender pattern itself varies, with men reporting higher depression rates among employment and refugee spouses. Visa depression is larger for adjustees than for new arrivals (by 2.0 percentage points among women and 4.5 percentage points among men). A question for future research concerns the possibility that visa depression may be reduced if visa stress is not experienced jointly with migration stress.[24]

The figures for the New York City immigrants indicate that the incidence of visa depression is lower among them and substantially so for men (10.7 percent versus 15.9 percent). Relatedly, the gender differential is substantially larger in New York City than it is in the larger cohort. Rates of visa depression are high among the city's largest immigrant contingent: those born in the Dominican Republic—the rates are more than twice those of all New York City immigrants, among both women and men (21 percent among men and 39 percent among women). At the other extreme, not a single case of visa depression was reported among China-born immigrant men in the New York City subset. Like the immigrants in the larger cohort, New York City adjustees have higher depression rates than do new arrivals; this is substantially so among women (20.5 percent versus 15.8 percent).

To explore visa depression in a multivariate context, we estimate a binary logit specification that includes age, race/ethnic background, visa category, years of schooling, the two adjustee variables, and binary variables for continent and selected country of origin, both for the sample as a whole and separately for men and women. The specification also includes a binary variable for having suffered harm in the origin country. Table 9 reports the results. As one would expect from the raw figures, women are significantly more likely to report visa depression. Moreover, the visa depression process differs importantly by gender, with apparently gender-specific risk and protective factors.

Having suffered harm in the origin country is a strong predictor of visa depression among men, but it does not reach statistical significance among women, although it remains positive. The visa category variables are jointly significant for men but not for women. It is no surprise that among men, legalization principals are more likely to report visa depression or that having a spouse or parent who is a U.S. citizen confers some protection against visa depression. What is surprising is that among women, having a spouse or parent who is a U.S. citizen appears not to provide substantial protection against visa depression. Moreover, among men, visa stress may be more manageable in the origin country than in the United States. The two adjustee variables are highly statistically significant among men, positive, and of approximately the same magnitude, suggesting that the lack of protection against depression while being in the United States prior to becoming a legal permanent resident is independent of legal or illegal status. Among women, however, the two adjustee variables are far from statistically significant, negative, and of magnitudes close to zero. Thus, the data hint that the origin-country environment protects men from visa stress but does not influence, in either direction, women's higher propensity for visa depression.[25]

The racial/ethnic variables are jointly significant in the women's equation but not in the men's. Of the groups identified, and net of origin area, non-Hispanic whites have the strongest likelihood of reporting visa depression.

Schooling does not protect against visa depression, on net, though the nonsignificant and small coefficients could be masking the opposite operation of two mechanisms—one

positive, the other negative. For example, high schooling might indeed make it easier to handle the vicissitudes of the visa process, while at the same time exacerbating the costs of waiting for LPR.

Finally, we re-estimated the equations with a binary variable for New York City. Immigrants who settle there are less likely to report having experienced visa depression than their counterparts who settle elsewhere in the country. This effect is highly statistically significant among men (β = -.559, absolute value of asymptotic t-ratio = 2.6) and almost twice as large as the not-quite-significant coefficient among women (β = -.312, absolute value of asymptotic t-ratio = 1.86).

Table 9
Selected Coefficients of Binary Logit Estimate of Visa Depression Equation: NIS-2003

	Specification		
Variable	All	Men	Women
Sex	.177	—	—
	(2.20)		
Age at admission to legal permanent residence	.419	.0316	.0458
Age squared	-.000579	-.000465	-.000627
Age joint test chi^2 (2 df)	14.9	4.54	14.7
Hispanic, no race	.148	.335	-.00346
Hispanic, white	-.0413	.129	-.205
Not Hispanic, Asian	-.0254	-.0571	.00976
Not Hispanic, black	.0243	.0482	-.0188
Not Hispanic, white	.161	-.00868	.323
Race/ethnicity joint test chi^2 (5 df)	5.08	2.44	13.4
Schooling (years)	.107	.00936	.0110
	(1.03)	(.58)	(.99)
Spouse of U.S. citizen	.0143	-.234	.128
Parent of U.S. citizen	.123	.0717	.123
Child of U.S. citizen	.113	-.302	.459
Employment principal	.249	.138	.142
Diversity principal	-.169	-.188	-.215
Refugee/asylee principal	-.336	-.866	.107
Legalization	.354	.466	.212
Visa category joint test chi^2 (7 df)	28.9	39.1	9.37
Adjustee, not illegal	.186	.512	-.0524
Adjustee, illegal	.220	.543	-.00311
Adjustee joint test chi^2 (2 df)	4.40	16.3	.30
Suffered harm in origin country	368	.440	.285
	(3.33)	(3.11)	(1.79)
Continent dummies joint test chi^2 (5 df)	19.6	7.42	21.8
Country dummies joint test chi^2 (10 df)	6284.14	770.99	8276.78
Intercept	-2.87	-2.57	-2.80
	(7.47)	(4.57)	(4.64)
Number of observations	8,149	3,951	4,198
Log pseudolikelihood	-3660.62	-1706.83	.-1926.80

Source: New Immigrant Survey, 2003 Cohort, Round 1.

Notes: Standard errors are corrected for heteroskedasticity due to clustering by origin country; absolute values of asymptotic t-ratio appear in parentheses under parameter estimates for numeric and binary variables. Joint tests are reported for multiple-category categorical variables.

5.3. Body-Mass Index and Time in the United States

Overweight and obesity have increased in the United States over the past forty years (Ogden et al. 2004). Accordingly, there is much interest in the causes and correlates of the increasing American girth. Immigrants present a useful laboratory for studying overweight. How do they compare with Americans? And what happens to their weight as they adjust to life in the United States?

The New Immigrant Survey asks respondents to provide their height and weight. Thus, the data enable analysis of three key characteristics—weight, height, and body-mass index. We examined BMI (weight in kilograms divided by the square of height in meters) among the NIS-2003 immigrants and among their native-born counterparts in the 1999-2002 sample of the National Health and Nutrition Examination Survey (NHANES), published in McDowell et al. (2005), focusing on the mean and selected percentiles, separately by age and sex. NHANES data are collected by trained health technicians in mobile examination centers, and thus are no doubt more accurate than the self-reported data collected in the NIS. Nonetheless, the contrasts point to some unmistakable results. In brief, immigrants have lower BMI than do Americans in the NHANES sample—lower mean, lower median, and, with only two exceptions, lower percentiles at every age.

A key question pertains to the effects on weight of living in the United States. Mean BMI is larger for adjustees than for new arrivals among both men and women and in every age group except, for both sexes, the sixty to sixty-nine age group. Of course, increasing BMI may be healthful, if BMI at arrival in the United States was too low. A BMI below 18.5 is considered to represent being underweight. Mean BMI in the new-arrival subsets is never below 18.5. Indeed, the fifth percentiles for the whole cohort are never below 18.5. Accordingly, it appears that the increase in BMI associated with time in the United States does not indicate an increase in health.

To explore in a multivariate context the effect of time on BMI in the United States, we specify and estimate a model with sex, age, age squared, visa-fixed effects, the two adjustee variables (adjusting from a legal status and adjusting from an illegal status), and continent and country dummies. Table 10 reports the results, estimated for the sample as a whole as well as separately for men and women. The results indicate that the

two adjustee variables are jointly statistically significant in all three equations and are both positive—BMI increases with time in the United States. Their relative effects, however, are sex-specific. Among women, the effect of time spent illegally is double the effect of time spent legally, while for men, the two effects are more similar, though the pattern is the reverse of that found among women, with time spent legally producing greater girth. This result suggests that among illegals in the United States, men may be more likely than women to be employed in high-exertion occupations; stress, too, may be a factor.

The results suggest other gender-based differences in BMI. Racial background is statistically significant only for men, and non-Hispanic Asian men are thinner than other immigrants. Visa category, in contrast, is significant only for women, with new immigrants who are sponsored by U.S. citizen spouses significantly thinner and parents sponsored by U.S. citizen offspring significantly heavier. As well, immigrant women with conditional visas are statistically significantly thinner. Given that 99 percent of the women with conditional visas are spouses of U.S. citizens married for less than two years, this result further suggests that, net of time in the United States, female thinness is not only an asset in the marriage market but also a further asset in the early years of marriage.

The continent dummies are jointly significant only for men, but the country dummies are significant for both sexes. If we rank-order the summed continent and country coefficients (not shown) for all ten countries, the country with the highest-girth women is Guatemala, followed by El Salvador, Mexico, Haiti, the Dominican Republic, Colombia, India, the Philippines, China, and Vietnam. Among men, the rank-ordering of countries would begin with Mexico, followed by the Dominican Republic, Guatemala, El Salvador, Colombia, the Philippines, Haiti, India, China, and Vietnam.

Thus, among both women and men, and net of visa category and time spent in the United States, immigrants from the Western Hemisphere have the highest girth and immigrants from Asia the lowest. This pattern immediately suggests the possible operation of selection mechanisms; if thinness is productive in the United States, then immigrants will be more positively selected on thinness the greater the distance from the United States. Of course, before exploring this question in greater depth, it is important to assess BMI in the parent populations of the origin countries. As well, it is useful to consider the possible role of such mechanisms as the extent of regulation in the origin country and the type of civil law, as discussed by Cutler, Glaeser, and Shapiro (2003). It is interesting to note that the highest-girth countries in our sample tend to be countries with a French-origin civil law, which runs counter to the hypothesis of Cutler, Glaeser, and Shapiro. Of course, highly regulated countries, besides producing girth-lowering effects via technology, also may inhibit development of greater knowledge as well as techniques for self-control (applying to the BMI context Vives' [1522-40] classic argument for gender equality). However, sharp assessment of the effects of regulation and civil law origin

Table 10

Selected Estimates, Ordinary Least Squares Equation of Determinants of Body Mass Index: NIS-2003

	Specification		
Variable	All	Men	Women
Sex	-.852	—	—
	(3.59)		
Age at Round 1 interview	.363	.370	.320
Age squared	-.492	-.00362	-.00282
Age joint test chi^2 (2 df)	79.2	42.9	61.6
Hispanic, no race	-.519	-.492	-.583
Hispanic, white	-.339	.110	-.895
Not Hispanic, Asian	-1.26	-1.08	-1.37
Not Hispanic, black	.240	-.300	.709
Not Hispanic, white	-.322	-.241	-.542
Race/ethnicity joint test chi^2 (5 df)	1.89	2.33	1.98
Schooling (years)	-.0709	-.0286	-.0860
	(2.95)	(1.18)	(2.42)
Spouse of U.S. citizen	-.348	.280	-.582
Parent of U.S. citizen	.770	-.141	1.15
Child of U.S. citizen	.159	-.213	.458
Employment principal	-.183	-.323	-.285
Diversity principal	-.303	-.322	-.0248
Refugee/asylee principal	.342	.313	.504
Legalization	.184	.464	.126
Visa category joint test chi^2 (7 df)	5.58	1.28	4.26
Adjustee, not illegal	.570	.645	.407
Adjustee, illegal	.677	.401	.916
Adjustee joint test chi^2 (2 df)	11.8	8.13	11.3
Conditional visa	-.527	-.148	-.523
	(2.38)	(.39)	(1.97)
Continent dummies joint test chi^2 (5 df)	1.68	2.46	1.22
Country dummies joint test chi^2 (10 df)	93.7	91.0	213.9
Intercept	18.0	17.8	17.6
	(20.4)	(15.7)	(12.6)
Number of observations	7,802	3,884	3,918
R^2	.124	.100	.158

Source: New Immigrant Survey, 2003 Cohort, Round 1.

Notes: Standard errors are corrected for heteroskedasticity due to clustering by origin country; absolute values of asymptotic *t*-ratio appear in parentheses under parameter estimates for numeric and binary variables. Joint tests are reported for multiple-category categorical variables.

requires careful characterization of all origin countries represented in the sample, a task outside the scope of this paper but an important one for future work.

Schooling achieves statistical significance for women but not for men. Its effect is to reduce BMI, doing so nontrivially, by .086 of a point for each year of schooling. Thus, a college graduate will have BMI .688 lower than an immigrant who did not go beyond the eighth grade.

Finally, estimation of the regression equations including a binary variable for New York City does not in any specification produce a statistically discernible New York City effect. Thus, it appears that immigrants who settle there are neither thinner nor fatter than other immigrants.

5.4. Health Change in the United States

Our work thus far includes several results pertinent to health trajectory and the sources of health change. From the health selection equation, we already know that among immigrants already in the United States at the time of the first filing for legal permanent residence, the combined effects of migration stress and U.S. exposure are negative. Moreover, the health selection equation also provides evidence of visa stress, because the effect of adjusting from an illegal status is in all specifications larger than the effect of adjusting from a legal status (Tables 7 and 8). From the visa depression equation, we already know that adjustee men are more likely to become depressed due to the visa process than are new-arrival men, suggesting that visa stress is more manageable in the origin country, at least for men (Table 9). Finally, from the BMI equation we already know that time in the United States increases girth (Table 10).

To assess further the sources of health change, we estimate the determinants of the self-reported health change between the most recent arrival "to live" in the United States and the baseline interview. Recall that the vast majority of immigrants reported no health change—76 percent of new-arrival immigrants and 64 percent of adjustee immigrants—with the proportions whose health deteriorated registering 4 percent among new arrivals and 14 percent among adjustees. There are two possible reasons for the greater health deterioration among adjustees: 1) only the adjustees experienced visa stress in the interval, and 2) either/or both migration stress and U.S. exposure differ qualitatively for LPRs and non-LPRs (especially LPR applicants who may be in the United States illegally). To distinguish among these effects, the health change equation includes not only the two adjustee variables but also a variable for the time elapsed between admission to LPR and the baseline interview.

Table 11 reports the results of the ordered-logit specification. As shown, the two adjustee variables are jointly highly statistically significant among both women and men. The coefficients differ, however, in that while the effect of adjusting from a legal status is about the same for both sexes—negative and of similar magnitude—the effect of adjusting from an illegal status is negative for men but positive for women. Two possible interpretations are that the deleterious effect of illegal residence is larger for men than for women—consistent with the effects in the selection equation (Tables 7 and 8) and with the visa depression effects (Table 9)—and that women recover faster than men.

The effect of having a conditional visa is negative, as expected, for both women and men, but is not statistically significant, indicating that the effect is weak.

Finally, the effect of time since admission to LPR is positive, statistically significant, and of a nontrivial magnitude among men, but not statistically significant and close to zero among women. Men's health appears to increase with each passing day as an LPR, net of health effects prior to obtaining LPR. Health benefits from U.S. exposure outweigh the lingering or dwindling effects of migration stress. Put differently, if migration stress exerts a negative effect on health, then the pure effect of U.S. exposure must be positive. However, if the

TABLE 11

Ordered-Logit Estimates of Determinants of Health Change between Most Recent Arrival "to Live" and First Interview after Admission to Legal Permanent Residence: NIS-2003 Immigrants

	Specification		
Variable	All	Men	Women
Sex	-.0717	—	—
	(1.65)		
Age at Round 1 interview	.0001827	-.0310	-.00617
Age squared	-.492	.000260	.0000984
Age joint test chi^2 (2 df)	4.09	12.0	1.57
Adjustee, not illegal	-.312	-.318	-.303
Adjustee, illegal	-.0437	-.253	.145
Adjustee joint test chi^2 (2 df)	22.34	16.3	18.1
Conditional visa	-.0777	-.126	-.0238
	(.76)	(.79)	(.21)
Time since admission to legal	.207	.414	-.00243
permanent residence (years)	(1.49)	(2.40)	(.01)
Number of observations	7,660	3,988	4,232
Log pseudolikelihood	-6060.89	-3125.77	-3365.28

Source: New Immigrant Survey, 2003 Cohort, Round 1.

Notes: Standard errors are corrected for heteroskedasticity due to clustering by origin country; absolute values of asymptotic *t*-ratio appear in parentheses under parameter estimates for numeric and binary variables. Joint tests are reported for multiple-category categorical variables. Cut-points are not shown.

migration gains experienced by new LPRs (including the freedom gains) outweigh migration stress, then the effect of U.S. exposure could be negative (and outweighed by the net positive effect of migration "stress").

We also re-estimated the equations including a binary variable for the New York City immigrants. The coefficient is not statistically significant in any specification, though it is positive in all three.

6. Concluding Note

This paper explores immigrant health, emphasizing New York City and using for the first time a large database in the final stages of preparation for public release: Round 1 of the New Immigrant Survey's immigrant cohort of 2003. We formulated a health model based on two related insights: 1) if migration is stressful, then the appropriate time for assessing health selectivity is at the time of the migration decision rather than at the time of the actual migration, and 2) assessment of health change subsequent to immigration should take into account heterogeneity in the sources of health change and their timing. The model distinguishes between the permanent and transitory components of health and identifies three distinct sources of change in the transitory component: visa stress, migration stress, and U.S. exposure. Though not all the data required for a thorough empirical assessment have become available, we estimated several key components of the envisioned analyses.

To examine health selectivity, we relied on self-reported health at the time of the initial filing for an immigrant visa; we also looked at health during childhood (to guard against contamination of health at the initial filing by changes in health already in progress among immigrants residing in the United States at the time of the migration decision). Our results indicate that men are more positively selected for health than women (though we cannot yet rule out differential reporting styles by sex—future rounds of the longitudinal survey will enable controlling for the style of reporting via fixed-effects estimation). Diversity immigrants appear to be among the most positively selected for health. Among men, legalization immigrants are the most robust during childhood, but by the time of the first filing, they rank lower on health than many of their fellow immigrants. Health selectivity is responsive to skill prices in the country of origin, but results for the effects of distance are somewhat mixed.

Women are more likely than men to report experiencing sadness or depression because of the visa process, and the pattern of effects appears to differ across the sexes. Men with a spouse or parent who is a U.S. citizen are less likely to experience visa depression, but women do not appear to receive a similar benefit from their kin. Men adjusting to legal permanent residence in the United States are more likely to experience visa depression than new-arrival immigrant men, a finding that suggests that visa stress may be more manageable in the origin country, but only for men—women's propensity to visa depression is not responsive to location.

We also examined body-mass index. Among both women and men, time in the United States increases girth. It does so differentially, however, depending on legal status prior to admission to legal permanent residence. Among women, the effect of time spent illegally is double the effect of time spent legally, while for men the two effects are more similar, though the pattern is the opposite of that found among women, with time spent legally producing greater girth. This result suggests that among illegals in the United States, men may be more likely than women to be employed in high-exertion occupations. Women admitted to legal permanent residence as the spouses of U.S. citizens are substantially thinner than other immigrants, and women married for less than two years are even thinner, suggesting that female thinness is an asset not only in the marriage market but also in the early years of marriage.

The combined effects of migration stress and U.S. exposure are negative in the time before admission to legal permanent residence but non-negative afterwards and positive among men. It thus would appear that the pure effect of U.S. exposure is positive, at least after legal permanent residence and for men, but we cannot rule out the possibility that migration gains—such as freedom gains—are high, outweighing both migration stress and the possible negative effect of U.S. exposure.

Finally, those immigrants who claim New York City as their first home after admission to legal permanent residence are more highly positively selected on health than their fellow immigrants who settle elsewhere. Moreover, they are less likely to report having experienced visa depression than other immigrants. However, they are neither thinner nor fatter than the rest of the cohort.

These results are obtained from a survey conducted soon after admission to legal permanent residence. It will be important to track change in the health of surveyed individuals with the passage of time. Visa stress, already ended for most of the cohort, will end for all with the removal of conditionality restrictions. Migration stress presumably will run its course, if it has not already done so for some cohort members. The effects of U.S. exposure—positive or negative—will continue for those in the cohort who remain in the United States, and it will be possible to assess whether, and how, growth in U.S.-specific skills enables immigrants to extract greater health benefits and mitigate health hazards.

Endnotes

1. The abbreviation LPR denotes both legal permanent resident and legal permanent residence. The context should make clear whether reference is to a person or to a status.

2. Immigration figures refer to the total non-IRCA (Immigration Reform and Control Act) legalization number of new LPRs (see the Immigration and Naturalization Service's *2001 Yearbook*, Table 4; its earlier iterations; and 2004 data posted on the *Yearbook of Immigration Statistics* website).

3. New York State is the second-leading state of intended residence for new LPRs (after California) and the New York metropolitan area is the second-leading metro area (after the Los Angeles-Long Beach area). At the turn of the twentieth century, New York was the leading intended state of residence, followed by Pennsylvania, Illinois, and Massachusetts. (See the Immigration and Naturalization Service's/ Office of Immigration Statistics' *Statistical Yearbooks* for further detail and the Dillingham Commission Reports for historical information.)

4. Following official terminology, we use "immigrant" interchangeably with "legal immigrant" and "legal permanent resident alien." Legal immigrants have the right to reside permanently in the United States, to engage in most occupations, to sponsor the immigration of certain relatives, and, after completing a residency requirement, to become citizens of the United States. Besides legal immigrants, there is a large set of legal nonimmigrants who have temporary residence visas; legal temporary visas provide for legal residence for a temporary period and for a specific purpose. Examples of nonimmigrants include foreign students, tourists, and a variety of workers, including representatives of foreign news media, computer specialists, athletes, and entertainers. Additionally, there are individuals in the United States illegally who qualify for neither legal permanent residence nor legal temporary residence or who have violated the terms of a legal temporary visa. Both legal temporary residents and illegal migrants may be desirous of attaining legal permanent residence.

5. A few other classes of individuals are also exempt from numerical restriction, some as a permanent feature of U.S. law (such as American Indians born in Canada and children born abroad to alien residents), others under temporary provisions (such as the special three-year program in effect in 1992-94 for spouses of aliens legalized under the Immigration Reform and Control Act of 1986). Additionally, special legislation has permitted refugees previously admitted with temporary documents to adjust to permanent resident status outside the numerical limitations.

6. For a succinct description of U.S. visa allocation law, see the U.S. Citizenship and Immigration Services' and State Department's websites, in particular, the Office of Immigration Statistics' *Yearbook of Immigration Statistics* and the State Department's *Visa Bulletin*. For elaboration from a social science perspective, see Jasso, Rosenzweig, and Smith (2000).

7. The number of persons admitted as refugees is set annually by the President in consultation with Congress; the ceiling has fluctuated in the range of 75,000 to 100,000. The diversity lottery program was begun in fiscal year 1987 on a trial basis and made a part of U.S. immigration law under provisions of the Immigration Act of 1990.

8. Registry provisions allow for the adjustment to LPR of persons who have resided continuously in the United States since a given target date; currently, that date is set at January 1, 1972. Cancellation of removal, together with the kindred suspension of deportation provisions in effect before 1997, similarly provide for adjustment to LPR.

9. A small number of family-sponsored and employment-based immigrants may self-petition. These include, in the case of family visas, spouses and children of deceased or abusive U.S. citizens and legal permanent residents, and, in the case of employment visas, investors and individuals of great renown. For further detail, see the requisite forms: Forms I-130, I-140, I-360, and I-526, available on the U.S. Citizenship and Immigration Services' website.

10. Additional "joint" sponsors may be brought in if the visa sponsor cannot fulfill the support requirement alone. For details, see the I-864 affidavit of support package of forms on the U.S. Citizenship and Immigration Services' website.

11. Moreover, as we show, individuals subject to both visa stress and migration stress may experience them at different times. For example, consider adjustees who have spent many years in the United States as legal nonimmigrants before applying for LPR; migration stress for them may have ended long before the onset of visa stress.

12. Notice how such a study will require new vocabulary; the U.S. citizen "newcomers" are not "immigrants" as that term is almost universally used.

13. For a discussion of migration and visa stresses, see Kasl and Berkman (1983) and Vega and Amaro (1994). Illustration of these stresses is plentiful. For example, the website of an immigration law

firm begins with the following description of visa stress: "Immigrating to the United States is a complicated procedure that can cause tremendous stress for the individual wishing to immigrate. MacKenzie-Hughes, LLP is the area's premier immigration law firm, and we work hard to smooth the process and minimize the anxiety for our clients" (<http://www.imm-usa.com>). And the stresses may be even greater for illegal migrants, who must live partly in the shadows and face threats of deportation. Other components of visa stress include the constraints on international travel, which may cause family hardships (U.S. Immigration and Naturalization Service 1992).

14. As noted above, for some categories of immigrants, the trajectory would be somewhat different. For refugees, visa stress may end at the time of the temporary (nonimmigrant) admission, while for conditional immigrants (spouses of U.S. citizens who have been married for less than two years, and investors), visa stress may not end until removal of the conditionality restrictions two years later.

15. Among immigrants in the nationally representative New Immigrant Survey Pilot who were employed in the United States at the time of the baseline round and who had worked abroad within the past ten years, earnings gains were substantial: on average, they were $10,306 for men (a 68 percent increase) and $6,146 for women (a 62 percent increase). (Gains are denominated in dollars based on estimates of the country-specific purchasing power of the currencies from the Penn International Comparisons Project [Summers and Heston 1991].)

16. For elaboration of the relationship between income and health, see Smith (1999).

17. Note that recent changes in the law, as well as the new climate in the wake of the September 11 attacks, raise the possibility that visa stress does not end until naturalization. Indeed, even with naturalization, the immigrant is not completely safe, for unlike native-born citizens, an immigrant can be denaturalized and deported (for cause). Further thought is needed in order to modify the model presented in this paper to accommodate the possibility of lifelong, albeit possibly mild, visa stress.

18. Note that among illegal migrants, a net positive combined effect of migration stress and U.S. exposure would attenuate the decline, while a net negative effect would exacerbate it.

19. It is not possible to insert a full set of country-specific fixed effects, because a nontrivial number of countries (26 out of 168) are represented by a single immigrant. Our solution is to include the continent dummies plus ten country dummies.

20. Estimates of origin-country skill prices are based on recent work that uses information on immigrant earnings in the last origin-country job before immigration and in the first U.S. job after immigration, expressed in PPP-adjusted figures (Summers and Heston 1991), together with country characteristics such as schooling levels and school quality (based on Barro and Lee [1993]) and GDP (Jasso and Rosenzweig 2005).

21. All descriptive statistics are based on weighted data, adjusting for the over- and undersampling of the design.

22. Initial residence is the address to which new immigrants request that their green card be mailed.

23. Indeed, the proportion who suffered harm in the origin country was larger by almost 3 percentage points among men than among women—8.3 percent versus 5.5 percent.

24. Such a result would echo the findings of sociologists and psychologists a quarter-century ago on the multiple stresses associated with both entering puberty and shifting to a new school at the same time (Simmons and Blyth 1987).

25. It is illuminating to recall that Simmons and Blyth's (1987) insight into the effects of reaching puberty and transitioning to middle school at the same time was also gender-specific.

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Adriana Lleras-Muney

Commentary

Guillermina Jasso, Douglas S. Massey, Mark R. Rosenzweig, and James P. Smith use unique, newly collected data to look at the health of immigrants and how it changes from the time they decide to immigrate until they are established in the United States. The authors surveyed a sample of new legal immigrants in 2003 and collected detailed data on the legal type of immigration. The new data also contain several health indicators, including self-reported health status (SRHS) at various stages of the immigration process. Finally, the authors' data provide information on health changes during that process.

A number of very interesting conclusions emerge from the analysis. I will comment on several aspects of the paper, starting with issues related to the health measures employed, then moving on to the interpretation of the results, and ending with some questions about the broader implications of this research.

Although the new data improve greatly upon previous data, it is worth noting that the three health measures used in the paper—SRHS, body-mass index (BMI), and depression—have some limitations. For health status, questions are asked both about levels at various points in time and changes between time periods. All of these outcomes are self-reported at a single point in time, shortly after the person has obtained legal entry into the United States.

Self-reported health status can be problematic because it is a subjective measure. Even though it correlates well with more "objective" measures of health, it is probably subject to many cultural biases, which are likely to be important in this study, given that immigrants come from various countries. SRHS may be a better predictor of underlying health in some countries and for some subgroups. For example, in the United States SRHS is a better predictor of mortality for men than it is for women (Case and Paxson 2005).

Another issue is that these health questions are asked in the context of immigration. Several questions specifically ask the interviewee to rate their health at a given time in the immigration process. The depression question is asked with respect to the visa process itself. Immigrants may therefore be afraid of reporting themselves in poor health. Even if immigrants are not consciously or directly afraid of answering the health questions, their answers may be biased because of the context in which they are asked. For instance, question "D3" asks individuals whether their health has changed since coming to live in the United States. Among those who have recently been admitted to the country, this question is likely to focus attention on a "happy" event (successful immigration); thus, they may be more likely to report improvements in their health. Similar biases have been reported elsewhere, for example, when measuring well-being more generally (Kahneman, Diener, and Schwarz 2003, ch. 4). Finally, it is worth noting that even though the authors collected data on health at various points in time, this information is retrospective and thus subject to the usual recollection biases.

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Although the empirical estimation is clear, I question the authors' interpretation of the results. The first question of interest is the so-called health selection issue, namely, the question of whether immigrants are more or less healthy than the average person in their country of origin. It is not clear to me how one can infer the health of immigrants relative to that of their nonimmigrant counterparts without information on the health of those who did not immigrate.

For example, the authors conclude that men are more positively selected for health than are women. All the estimations compare the health of men and women who immigrated. What the results show is that immigrant men are healthier than immigrant women (according to self-reported health). But this finding does not imply that men are more positively selected on health than are women. For instance, it is well known that women are more likely to report themselves in worse health than men in the United States and elsewhere (see, for example, Case and Paxson [2005]). If in fact the health of men is better than that of women in the country of origin (suppose, for example, that men's distribution is shifted to the right), then immigrant women could be more positively selected than immigrant men and be in worse health than immigrant men. Similar arguments can be made when interpreting the results on the health selection of immigrants by type of visa.

There are additional difficulties in interpreting the findings, due to the fact that immigrants come from different countries and it is not possible to include country-fixed effects. To continue with the example above, we note that it is possible that men and women come from different countries and thus are drawn from different health distributions. Without further assumptions or additional data, it is unclear whether the findings in the paper can shed light on the health selection process.

At a broader level, it would be helpful to relate the specific questions investigated—that is, what is immigrant health? and how does it change over time?—to larger policy or academic questions of interest. For example, why is it important to know whether immigrants are more or less healthy than their nonimmigrant countrymen? Would the answer to this question, for instance, inform immigration policy? If so, how? There could be many reasons why the selection issue is of interest, but these are not stated.

Similarly, it would be interesting to know why it is important to understand the trajectory of immigrant health. One reason mentioned in the paper is that failure to understand the trajectory of health during migration may lead to erroneous conclusions about the health selection process: because of transitory shocks to health during the immigration process, measures of immigrant health at a given point in time may be biased. However, given that the survey collects data on health prior to immigration and is therefore subject to this bias, more needs to be said about why the health trajectory itself is of interest. For example, do we want to provide special health services to particular immigrants during the immigration period? Do we want to inform them about how their health may suffer throughout the process?

An interesting question that this work starts to address is the assimilation question, namely, does the health of immigrants improve or decline upon reaching the United States? The authors report that for all immigrants, BMI increases with time spent in the United States. But the implications of this finding are not clear. It is not possible to determine whether BMI is increasing because of the various changes in an immigrant's life, including changes in jobs and earnings (which may have been similar in the country of origin), or because of the environment in which the immigrant lives. The environment (which includes, for example, pollution and eating habits) may affect immigrants and natives alike. In order to understand better the mechanisms at work, one has to compare immigrants with natives.

Jasso et al. use new data to begin answering an ambitious set of questions associated with immigrant health. Our understanding of many of these questions will certainly improve because of the extraordinarily detailed data presented by the authors.

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Amy Ellen Schwartz and Leanna Stiefel

Public Education in the Dynamic City: Lessons from New York City

1. Introduction

The plight of urban schools and their failure to educate students adequately and efficiently have occupied the national discussion of public schools in America over the past quarter-century. While there is little doubt that failing schools exist in rural and suburban locations, the image of city school systems as underfinanced, inefficient, inequitable, and burdened by students with overwhelming needs is particularly well entrenched in the modern American psyche.

As the largest school district in the nation, New York City attracts particular attention to its problems. To some extent, this image reflects realities. New York City school children, like many urban students around the country, are more likely to be poor, nonwhite, and immigrant, with limited English skills and greater instability in their schooling. Moreover, the new waves of immigrants from around the world bring students with a formidable array of backgrounds, language skills, and special needs. The resulting changes in the student body pose special challenges for schools. At the same time, despite a decade of school finance litigation and reform, New York continues to have trouble affording the class sizes, highly qualified teachers, and other resources that its suburban neighbors enjoy. Finally, there is evidence of continuing segregation and disparities in performance between students of different races and ethnicities.

Nonetheless, not all the news is bad. As we describe in detail, our work on New York City's public schools—which includes extensive research on immigrant children—and our separate work on school reform offer several reasons for optimism. First, immigrant students, who might be viewed as among those most seriously at risk of failure, are doing quite well. Our research suggests that although immigrants are somewhat segregated from the native born, this factor has little impact on the resources available in the schools they attend. Even more, immigrants in elementary and middle schools earn higher scores on average than do the native-born students who are otherwise similar to them, and the "immigrant advantage" increases over time, perhaps following the students' acclimation or acquisition of English language skills.

Second, the school system is changing and not at all static. Each school year sees new schools open and old ones close, reorganization and reform of existing schools, and changes in curriculum, governance, and budgeting procedures, among other experiments. Whether these changes lead to improvements in test scores, more efficient use of resources, or greater equity is not always clear, but any notion that the system is intransigent and static seems inapt.

Third, advances in methods and the availability of data combined with increased public pressure for accountability have led to improvements in the quantity and quality of evaluations of the various reforms and a new emphasis on evidence to guide decision making. In some ways, New York City has been at the forefront of this movement by tracking expenditures at the school level, which allows for analysis of cost-effectiveness, and providing student-level data to researchers working to evaluate reforms in its schools.

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The views expressed are those of the authors and do not necessarily reflect the position of the Federal Reserve Bank of New York or the Federal Reserve System.

Finally, some reforms and experiments are yielding positive, if modest, results. For example, evidence suggests that the first wave of small high schools created in the mid-1990s has been more successful at getting students to graduation without a significantly higher cost per graduate. In addition, budgeting reform introduced by Rudy Crew, the former chancellor of New York City's public schools, and other whole-school reforms also seem to be yielding small positive effects on student test scores.

Our paper discusses all of these issues in greater detail, drawing lessons for urban schools in the conclusion.

2. New York City Public School Children

As the largest school district in the nation, New York City educates more than 1.1 million students in roughly 1,300 public schools, with a student population that is diverse and challenging. To illustrate, we present the third-grade class of 2000-01 (Table 1, panel A). This cohort included roughly 72,000 native-born students, more than 33 percent of whom are black, nearly 40 percent Hispanic, roughly 9 percent Asian, and 14 percent white. Poverty is alarmingly common. More than 75 percent of the students are poor (as measured by eligibility for free lunch) and another 8 percent are near poor (as measured by eligibility for reduced-price lunch). Further, more than 33 percent of the students come from homes in which English is not the primary language and 5 percent have sufficiently limited English skills to be eligible for English as a Second Language or bilingual-education services.

At the same time, this cohort includes more than 10,000 students born outside the United States (hereafter referred to as immigrant or foreign-born students). That is, roughly one out of every eight third graders was foreign born in 2000-01. (Note, however, that because many of the native-born students are themselves children of immigrants, these figures in some sense understate the impact of immigrants on the public schools.) Immigrants differ noticeably from the native born in racial composition: more than 25 percent are Asian, less than 20 percent are black, 36 percent are Hispanic, and 18 percent are white. An even greater share of the foreign born are poor or near poor—in fact, only about 10 percent of foreign-born students are *not* poor. As one might expect, immigrant students are far more likely to come from homes in which English is not the primary language (more than 75 percent) and to be limited-English-proficient, or LEP (more than 25 percent). New York City's immigrant population is extraordinarily diverse, hailing from more than 200 countries and speaking more than 160 languages and dialects. While some arrive with strong academic backgrounds, rich and stable home lives, and poised for success in American schools, others arrive less well prepared, needing remediation, supplemental support, and special attention.

Table 1
Selected Characteristics of Third-Grade Students by Nativity Status

	Native Born	Foreign Born
Panel A: 2000-01		
Percentage of students who are		
Asian	0.089	0.277
Black	0.369	0.184
Hispanic	0.399	0.359
White	0.142	0.180
Female	0.499	0.495
Non-English-speaking at home	0.363	0.778
Eligible for free lunch	0.775	0.825
Eligible for reduced-price lunch	0.080	0.074
Limited-English-proficient	0.056	0.269
Test data		
Reading		
Mean score	-0.014	0.143
Percentage taking test	0.917	0.664
Math		
Mean score	-0.012	0.118
Percentage taking test	0.938	0.765
Number of students	71,931	10,428
Panel B: 1995-96		
Percentage of students who are		
Asian	0.072	0.231
Black	0.382	0.188
Hispanic	0.374	0.389
White	0.171	0.192
Female	0.504	0.496
Non-English-speaking at home	0.371	0.739
Eligible for free lunch	0.776	0.812
Eligible for reduced-price lunch	0.069	0.073
Limited-English-proficient	0.099	0.354
Test data		
Reading		
Mean score	0.006	-0.040
Percentage taking test	0.981	0.786
Math		
Mean score	0.006	-0.035
Percentage taking test	0.985	0.874
Number of students	62,513	10,845

Source: Authors' calculations.

Notice, however, that many foreign-born students do quite well in school. Panel A of Table 1 reports the mean performance on standardized tests in reading and math. (For comparison purposes, these scores have been normalized for all students in a grade to produce a mean of zero and a standard deviation of 1.) Foreign-born students with sufficient English skills to take the standardized tests perform on average at a higher level than the native born. (Of course, many students do not take the tests, making it difficult to disentangle causality here. We return to this issue shortly.)

Finally, note that the student body changes over time, driven by differences in immigrants as well as in the native born. Consider the differences between this cohort and a similar cohort five years earlier. Panel B of Table 1 shows the characteristics of the third-grade cohort of 1995-96. Notice that there are considerably fewer native-born students in this cohort—nearly 9,000—but the number of immigrants is roughly constant. Thus, immigrants are even more important in this group. Further, the racial composition is different—fewer Asians, more Hispanics, more whites. While poverty rates are roughly similar, limited English proficiency is significantly more prevalent in both the native- and foreign-born populations in 1995-96. Finally, the proportion of students taking standardized tests is considerably higher in the earlier period, and the disparities in performance between the native- and foreign-born populations are almost zero.

This comparison of cohorts, however, ignores the change that occurs within a cohort over time, and our analysis suggests that this intra-cohort change is important. To illustrate, we consider the change in the third-grade cohort of 1995-96 by its eighth-grade year, 2000-01. As Table 2 shows, more than 20 percent of the students had left the New York City public school system (attritted) either to attend other public schools or private schools, and the attritters are significantly less likely to be black and more likely to be white. Further, the attritters are somewhat less likely to be poor, but more likely to be near poor, and they perform better on both reading and math tests than do continuing students.

Even more important than those who left are those who entered. Consider the eighth-grade cohort of 2000-01. Table 3 distinguishes between two groups of students in the cohort—those who entered in third grade or before and therefore were part of the third-grade cohort of 1995-96, and those who entered after third grade.[1] All told, nearly 33 percent of the eighth graders were not attending third grade in any public school in New York City five years earlier. The fraction entering after kindergarten is undoubtedly higher. Interestingly, while the differences between the attritters and continuing students are relatively modest, the differences between the early and late entrants are stark. Nearly 45 percent of students entering after third grade are foreign born, compared with 15 percent of the

Table 2

Mean Characteristics of Third-Grade Students by Attrition Status, 1995-96

	Continuing Students	Attritting Students
Percentage of students who are		
Asian	0.097	0.091
Black	0.360	0.326
Hispanic	0.376	0.376
White	0.166	0.204
Female	0.505	0.498
Non-English-speaking at home	0.424	0.429
Eligible for free lunch	0.789	0.740
Eligible for reduced-price lunch	0.068	0.076
Limited-English-proficient	0.135	0.139
Native born	0.861	0.828
Test data		
Mean score in reading	-0.015	0.076
Mean score in math	-0.010	0.053
Number of students	56,463	16,142
Percentage of all third graders in 1995-96	77.8	22.2

Source: Authors' calculations.

Notes: Continuing students are those registered in third grade in both 1995-96 and 2000-01. Students need not be continuously enrolled.

Table 3

Selected Means for Eighth-Grade Students by Entrance Status, 2000-01

	Entered by Third Grade	Entered after Third Grade
Percentage of students who are		
Asian	0.113	0.142
Black	0.342	0.354
Hispanic	0.354	0.374
White	0.189	0.126
Female	0.523	0.458
Non-English-speaking at home	0.426	0.535
Eligible for free lunch	0.725	0.821
Eligible for reduced-price lunch	0.097	0.077
Limited-English-proficient	0.027	0.245
Native born	0.854	0.553
Test data		
Mean score in reading	0.111	-0.361
Mean score in math	0.119	-0.340
Number of students	46,566	21,711
Percentage of all eighth graders in 2000-01	68.202	31.798

Source: Authors' calculations.

Notes: The table presents 2000-01 means for New Your City public school students enrolled in the eighth grade in 2000-01 and enrolled in the third grade in 1995-96. Students need not be continuously enrolled.

early entrants. Nearly 25 percent of the late entrants are limited-English-proficient in the eighth grade, compared with only 3 percent of the early entrants. Late entrants are significantly more likely to be poor and significantly less likely to be white. Finally, the late entrants score substantially lower on the standardized tests than do the early entrants.

The implications for policy are real. The success or failure of the public schools in delivering an eighth-grade class ready for high school hinges, in no small way, on the performance of students educated by schools outside the New York City public school system and, among those, a substantial number of schools in other countries. Put differently, this implies that there may be limits to the extent to which improving early childhood education, for example, can improve the high-school readiness of students at the end of middle school—an important goal for educators and parents. More generally, this turnover suggests that the implementation of school accountability for student performance may have to be done in a way that recognizes the particular difficulties of educating a student body that has high levels of turnover.

3. New York City Public Schools

Just as New York City's public school students are diverse, so too are the city's schools. To illustrate, we present descriptive statistics for 865 elementary and middle schools in 2000-01 (Table 4). The average elementary or middle school enrolled roughly 830 students and spent nearly $11,000 per pupil, about $6,200 of which was for expenses other than teachers (including administrators, support staff, books, and materials). The teacher-pupil ratio averaged .079, or roughly one teacher for every thirteen students. On average, about 80 percent of these teachers were licensed and permanently assigned, more than 70 percent had master's degrees, nearly 60 percent had more than two years in their current school, and more than 50 percent had more than five years of experience. At the same time, the standard deviations on nearly all of these variables are substantial. While some schools enroll more than 1,000 students, others have only a couple of hundred. In some schools, virtually all teachers are licensed, while others have relatively few with licenses. School spending varies widely, driven by differences in teachers and the needs of students, as we discuss in greater detail.

Equally important is the variation in the characteristics of students. While the average school is roughly 16 percent white, the standard deviation is 23. Similar variability is seen in the other race groups. New York City public schools run the spectrum of racial diversity—there are schools that are virtually homogenously black, for example, and others that have very few blacks. The same can be said for many groups.

Just as the student population is dynamic and changing, so too are the public schools. To some extent, these changes reflect policy or economic changes affecting a wide range of schools. Labor market returns to education are ever-increasing, heightening the pressure to prepare students for the labor market and college. There has been an increasing focus on test scores and accountability across the nation, exemplified by the terms of the federal No Child Left Behind Act, which requires the tracking of test scores and gains in various ways. New York State has imposed its own set of accountability reforms, including high-stakes tests in fourth grade and eighth grade and rising standards for Regents high-school diplomas. The possibility of significant changes in school finance looms, as the state negotiates the implications of the Campaign for Fiscal Equity lawsuit, and policymakers and educators consider where the money will come from and how to spend it.

Table 4
Mean Characteristics of Elementary and Middle Schools, 2000-01

Variable	Mean	Standard Deviation
Total per-pupil expenditures	$10,907	$3,169
Nonteacher per-pupil expenditures	$6,183	$2,102
Teacher-pupil ratio	0.079	0.020
Average school enrollment	829.7	402.3
Percentage of teachers		
Licensed and permanently assigned	80.9	17.8
With master's degree	72.6	15.7
With more than two years of experience	59.1	19.2
With more than five years of experience	51.5	15.1
Percentage of students in schools		
Female	49.2	3.2
White	16.5	23.1
Black	35.8	30.7
Hispanic	36.6	25.9
Asian and other	11.1	15.3
Eligible for free lunch	72.3	23.9
Eligible for reduced-price lunch	7.5	5.0
Native	86.0	10.0
Non-English-speaking at home	40.4	24.5

Source: Authors' calculations.

Notes: The sample is 865 schools with students in either fifth or eighth grade (573 have only fifth graders; 194 have only eighth graders; 98 have both fifth and eighth graders). Schools serving only special-education students are excluded. Eligibility for free lunch is calculated only for students with nonmissing data. Native students are those born on U.S. soil.

The various pressures from within and from outside have yielded many changes in the New York City schools. For example, consider recent governance changes. Just a couple of years ago, New York City Mayor Michael Bloomberg gained control over the school district, earning the power to appoint the chancellor and assuming the responsibility for the district's performance. Chancellor Joel Klein quickly implemented a reorganization of the governance of the schools. The thirty-two community school districts, which had primary responsibility for elementary and middle schools in the city, were reorganized into ten considerably larger instructional regions. Curriculum reform soon followed along with changes in third- and fifth-grade promotion policies. The effort to build new small schools continued, following the belief that small schools are more successful, funded in part by the Gates Foundation. These are just some examples of the many changes affecting public education in New York City. Others include charter schools, vouchers, reforms to the high-school articulation process, teacher certification, and principal training.

Change and reform, however, are not new. As shown in Table 5, the period between 1996-97 and 2002-03 witnessed quite a bit of turnover in the schools. Every year in that period saw a set of schools close and an even larger set of schools open. By the end of the period, there were roughly 10 percent *more* schools than there were six years earlier and, of the 1,160 schools operating in 2002-03, roughly 15 percent had opened in the past five years. (These statistics exclude adult-education schools and special-education schools, among others.) Whole-school reforms and governance reforms were implemented during the terms of many previous chancellors, including Crew and Harold Levy.

Table 5
Schools Opening and Closing by Year

	Closed	Opened	Operating Schools
1996-97	—	—	1,052
1997-98	9	30	1,073
1998-99	8	11	1,076
1999-2000	18	59	1,117
2000-01	9	23	1,131
2001-02	25	24	1,130
2002-03	13	43	1,160

Source: Authors' calculations.

Notes: Closed is defined as no longer operating during that year. Citywide special-education schools, schools in prisons, adult-education schools, nonpublic schools, and community-based-organization schools are excluded from the sample. Only schools with nonzero registration are included.

In general, the motivation for the various reforms and changes can be characterized as aiming to improve the efficiency of resource use and/or the performance either of students overall or particular groups of students. Of course, not all changes and reforms are effective, and it is crucial to consider whether these programs are efficient. Doing so, however, is far from straightforward.

4. Is Change Good?

Not all change is good, and distinguishing between which innovations are successful and worthy of replication and which are not is crucial to improving schools. Unfortunately, distinguishing between "what works" and "what doesn't work" in education is particularly complicated compared with doing so in other settings and, while there has been woefully little attention paid to this in the past, there is quite a bit of attention being paid right now. For example, the U.S. Department of Education created and funds the What Works Clearinghouse (WWC) to provide answers and disseminate findings by reviewing and vetting evaluations based upon their scientific validity and reliability.[2]

To the economist, the fundamental criteria for evaluating reforms center on their effect on equity and efficiency, which must be carefully defined to be useful. Even then, applying these criteria requires confronting and resolving a host of conceptual and practical difficulties. Efficiency requires that resources be deployed in such a fashion that the greatest amount of output is produced with the inputs used. Figuring out what works requires assessing whether a reform or innovation had an effect on outputs and figuring out what works best requires an understanding of the impact on cost. Thus, we need to define and measure carefully changes in outputs, changes in inputs, and ultimately the relationship between these—the production function for education. (See Stiefel et al. [2005] for more on measuring school efficiency.)

In an ideal world, there is broad consensus on the appropriate measures of efficiency as well as abundant data tracking these measures across students, schools, and school districts over time. In addition, new programs and reforms are best implemented using randomized experiments that allow us to disentangle easily the causal relationship in the data. Unfortunately, these conditions are rarely met. Data on school resources are rarely tracked at the school level. There is only grudging consent to the use of test scores to measure output and little consensus on which subjects and what types of scores to use. (While No Child Left Behind has put the federal emphasis on a set of tests and statistics, it is not at all clear that

these will be broadly accepted by state education departments and school districts around the country.) However, administrative data on individual students that can be used to track their performance over time are increasingly available, and there are some jurisdictions in which expenditures and other variables are measured at the school level. New York City is one of these.

While few reforms are intentionally adopted in a randomized fashion, the complexity of the New York City system has often meant that reforms are not universally implemented at one moment and there is often some randomness in timing and/or implementation of the reforms, creating opportunities to disentangle causality in the impact estimate.

Another important criterion for assessing reforms revolves around equity, and again there are both practical and conceptual issues. If we agree that our concern is the equitable treatment of students (compared with, say, teachers), then we need to resolve several issues. First, equitable treatment for which students—low-performing, poor, black, Hispanic, girls or boys, disabled, English language learners?—to name just a few. While the ideal reform affects all equally, it is rarely, if ever, the case.

Second, how do we measure improvement in equity? What sort of measure is appropriate? If greater equity is achieved when a reform reduces disparities in performance between two groups—say, between blacks and whites—then it is almost certainly the case that the reform delivers greater improvements in performance for one group than the other. Put differently, are we looking for equity in levels or in gains?

Third, we need to decide whether to focus attention on the equity in the distribution of resources (inputs measured in dollars, teacher counts, teacher qualifications, say) or in the distribution of outputs (such as test scores or graduation outcomes), as we have implicitly assumed in our earlier discussion. Finally, there are the usual difficulties inherent in distributional analyses—alternative measures are available and they are not always consistent. (See Berne and Stiefel [1984] for more on equity measurement in education.)

Despite these difficulties, recent experience indicates that progress is being made in evaluating school reforms, in assessing changes in both efficiency and equity. New York City in many ways is an excellent "laboratory" for studying schools—the student body is large and diverse; the many schools vary widely in size, composition, organization, and the like; and schools change over time. Further, the Department of Education collects (and has been willing to provide to researchers) detailed data on students, including test scores, socio-demographics, language skills, and nativity, along with comprehensive school-level expenditure data. Thus, we have been able to explore in some detail the treatment and experience of immigrant students in the New York City public schools and to assess the effects of recent reform efforts. We now turn to a brief discussion of some examples from our research on New York City's public school students.

5. The Education of Immigrant Students

How well immigrant students fare in New York City public schools reflects, in large part, how well the school system responds to change. New countries, new languages, and new challenges are the norm, rather than the exception. One particular concern regarding immigrants derives from their propensity to settle in communities with others from their own country. This strong link between residential location and elementary school attendance may well mean that immigrant children will go to segregated schools with few native-born students, which carries with it concerns about access to social networks, peers, English language acquisition, and, to the extent that immigrants are less active politically, about the prospect of creating school communities that are insufficiently funded.

Measures of exposure and isolation show that this concern may be misplaced (Table 6). In fact, immigrants are not very segregated at all. As of 1998-99, the typical elementary or middle-school student went to a school in which 76.3 percent of his or her schoolmates are native born. The isolation index of .237 is not very high either. To be sure, some specific groups of foreign born, such as those from the Dominican Republic, the former Soviet Union, or China, are more highly isolated—their own-group isolation indexes are 10.5 percent, 17.5 percent, and 13.4 percent, respectively. However, certainly compared with the racial segregation of nonwhite (at 90.4 percent) or free- and reduced-lunch-eligible (also 90.4 percent) students, this level of segregation is mild.

Of course, the native-born peers with whom immigrant students attend school may be children of immigrants themselves, leaving open the possibility that their schools will be less well supported than other schools. Immigrant advocates, for example, often do not distinguish between the foreign born and children of immigrant communities, and claim that immigrants do not receive their fair share of spending. At the same time, parents of native-born students wonder if immigrants are taking resources from their children. How do resources vary with the representation of immigrants?

Table 6

Exposure of New York City Public Elementary and Middle-School Students, Immigrant and Native Born, 1998-99

	Exposure to Native Born	Isolation Index	Percentage of Total Students
Native born	0.854	0.854	0.839
Foreign born	0.763	0.237	0.161
Recent immigrant	0.767	0.117	0.073
Limited English skills	0.750	0.106	0.050
Born in Dominican Republic	0.803	0.105	0.031
Born in Mexico, Central America, or Spanish South America	0.758	0.071	0.026
Born in other Caribbean	0.811	0.093	0.024
Born in former Soviet Union	0.669	0.175	0.017
Born in South Asia	0.723	0.066	0.016
Born in China, Taiwan, or Hong Kong	0.696	0.134	0.012
Nonwhite	0.841	0.904	0.844
Eligible for free or reduced-price lunch	0.836	0.904	0.866

Source: Ellen et al. (2002, Table 4).

Our examination of the distribution of spending suggests that immigrant students receive the same level of most school resources that native-born students receive. To be specific, we estimated school-level expenditure regressions for New York City elementary and middle schools in the late 1990s. In these models, we controlled for features of the school population that traditionally garner more resources for schools—the percentage of poor, special-education, LEP students, for example—and found that, *ceteris paribus*, the percentage of immigrants in the schools rarely affects the per-pupil amount devoted to students as a whole. The representation of immigrants was significant only for nonclassroom expenditures and the percentage of teachers who have permanent teaching certification, and these work in opposite directions. Put differently, immigrants seem to draw resources in just the same way that native-born students do—because of their poverty status, English proficiency status, and special-education needs. Thus, we conclude that there is no "smoking gun" suggesting that immigrants are treated inequitably.

Of course, this equity concern about resources is closely tied to the question of how immigrants perform in the New York City schools. That immigrants receive resources equal to those of similar, native-born students may or may not be an efficient use of resources, depending on how immigrants do in school. Performance significantly below that of the native born might suggest that resources would be more efficiently used by redistributing toward immigrants. Thus, we consider the academic performance of immigrant students; in brief, our findings suggest that this concern is unnecessary.

We estimate the nativity gap in performance—the difference in average test scores of foreign- and native-born students—for different grades and years in the late 1990s, using various specifications of a regression model to control for other differences between immigrant and native-born students. Table 7 presents representative results for fifth- and eighth-grade reading and math test scores. (As before, test scores have been normalized to a mean of zero and a standard deviation of 1.) Column 1 shows the unadjusted mean differences in performance; column 2 shows the size of the nativity gap once we control for the previous year's performance (a value-added specification); column 3 shows the estimated nativity gap once we include a full set of control variables. On the whole, the evidence suggests that foreign-born students outperform native-born students, *ceteris paribus*.

Of course, while foreign-born students might do better on the whole, there may well be significant differences among the immigrants masked in the overall category. As Table 8 shows, there are marked differences in the characteristics of students from different regions of the world. For example, while nearly all of the Dominican students are poor, poverty is less common among Europeans. Again, while 25 percent of the Dominican students are LEP, only 1 percent of Caribbean students require English remediation. Further, special-education rates differ significantly across regions. Finally, there are differences in the length of time students have attended the New York City public schools. While native-born students have been enrolled for nearly five years, which is consistent with kindergarten entry, foreign-born students average more than one year less in the schools. While students from some regions differ marginally from the native born, students from other regions are significantly more recent additions. Do these differences translate into differences in performance across regions? As Table 9 illustrates, we find that once we control for differences in the underlying characteristics of students, there are relatively few differences across regions, although Russian and Chinese students perform particularly well. (We present results for reading tests; similar results are obtained for math.)

Notice, however, that these cross-sectional snapshots may be misleading. Suarez-Orozco (2001) argues that "among immigrants today, length of residence in the United States seems associated with declining health, school achievement, and aspirations." This argument is shared by other researchers. While the hypothesis that the superior academic performance

Table 7

Selected Regression Results for Reading and Math Tests, Foreign-Born Students by Grade and Year

	Reading			Math		
	(1)	(2)	(3)	(4)	(5)	(6)
Fifth grade, 1997-98						
Foreign born	0.122***	0.126***	0.070***	0.061***	0.105***	0.050***
	(0.019)	(0.010)	(0.010)	(0.022)	(0.010)	(0.009)
Number of observations	64,971	64,971	64,971	66,629	66,629	66,629
R^2	0.00	0.54	0.57	0.00	0.58	0.60
Fifth grade, 2000-01						
Foreign born	0.083***	0.089***	0.020	0.115***	0.108***	0.043***
	(0.018)	(0.010)	(0.018)	(0.021)	(0.012)	(0.014)
Number of observations	71,141	71,141	71,141	72,509	72,509	72,509
R^2	0.00	0.47	0.45	0.00	0.55	0.55
Eighth grade, 1997-98						
Foreign born	-0.004	0.037***	0.023*	-0.029	0.062***	0.026*
	(0.024)	(0.010)	(0.014)	(0.028)	(0.012)	(0.014)
Number of observations	57,465	57,465	57,465	59,749	59,749	59,749
R^2	0.00	0.58	0.60	0.00	0.56	0.58
Eighth grade, 2000-01						
Foreign born	0.014	0.058***	0.035***	0.099***	0.148***	0.065***
	(0.027)	(0.013)	(0.013)	(0.027)	(0.013)	(0.013)
Number of observations	57,152	57,152	57,152	59,024	59,024	59,024
R^2	0.00	0.54	0.59	0.00	0.59	0.62
Prior-year test score	No	Yes	Yes	No	Yes	Yes
Additional variables	No	No	Yes	No	No	Yes

Sources: Schwartz and Stiefel (forthcoming, Table 5); authors' calculations.

Notes: The sample is New York City public school students who took a reading or math test. Robust standard errors are in parentheses. Demographic characteristics include age and a set of dummies indicating eligibility for free lunch, eligibility for reduced-price lunch, sex, race, and the existence of missing data. Educational characteristics are language other than English frequently spoken at home, took the language assessment battery (LAB), percentile on the LAB, scored at or below the 40th percentile on the LAB, part-time special-education participation, prior-year test score, and whether the student took the test in the prior year. School resources are nonteacher expenditures (in thousands of dollars), teacher-pupil ratio, percentage of teachers with more than five years of experience, percentage of teachers with more than two years in the school, percentage of teachers licensed and permanently assigned, percentage of teachers with a master's degree, enrollment (in hundreds), and dummy variables indicating that teacher characteristic and expenditure data are nonmissing. Cohort variables are dummies for the number of years in the New York City public schools. The teacher-pupil ratio is instrumented with the prior-year enrollment and enrollment squared.

*Statistically significant at the 10 percent level.
**Statistically significant at the 5 percent level.
***Statistically significant at the 1 percent level.

Table 8

Characteristics of Fifth- and Eighth-Grade Students by Region, 1997-98

Region	Number of Students	Percentage Eligible for Free Lunch	Percentage Eligible for Reduced-Price Lunch	Percentage Limited-English-Proficient	Percentage Special Education	Percentage Female	Years in New York City Public Schools
Panel A: Fifth grade							
Africa	206	77.7	7.3	6.3	4.9	51.0	2.7
Caribbean	1,911	83.5	6.4	1.0	5.5	54.0	3.1
China	459	69.1	10.2	6.5	3.3	50.1	4.1
Dominican Republic	1,409	94.7	2.3	25.1	5.3	49.7	4.4
East Asia	471	45.2	21.0	2.8	4.0	50.5	3.9
Eastern Europe	329	59.0	14.9	6.1	3.0	51.7	3.7
Guyana	729	84.1	8.2	0.0	6.6	52.8	3.1
Latin America	1,296	86.1	5.6	18.5	6.9	46.6	4.4
Russia	1,127	56.8	10.6	2.0	4.7	49.1	3.9
South Asia	638	71.3	10.2	5.8	5.8	45.9	4.0
West Asia	219	68.0	7.3	3.2	8.2	51.1	4.3
Western Europe	252	56.3	12.7	3.6	6.7	46.0	3.8
All foreign born	9,046	76.6	8.1	8.2	5.5	50.2	3.8
All native born	55,925	73.5	7.0	4.3	9.7	51.1	4.9
Panel B: Eighth grade							
Africa	224	70.1	8.9	6.3	2.2	49.6	3.4
Caribbean	2,890	74.7	7.4	2.0	4.6	52.7	4.2
China	678	66.4	12.4	10.8	3.7	49.0	6.0
Dominican Republic	1,667	92.2	2.1	35.5	4.4	49.2	6.0
East Asia	665	46.6	17.4	7.4	2.4	52.3	5.3
Eastern Europe	382	61.3	12.6	6.0	3.4	52.9	5.2
Guyana	956	77.2	7.6	0.5	4.0	53.2	4.3
Latin America	1,784	84.1	5.5	21.2	5.3	46.9	6.3
Russia	1,230	49.8	13.4	2.0	2.5	48.9	4.7
South Asia	693	70.9	11.4	8.1	2.0	47.0	5.5
West Asia	257	68.5	5.4	5.1	4.7	37.0	5.9
Western Europe	266	59.4	10.2	4.1	6.4	55.6	5.7
All foreign born	11,692	72.9	8.3	10.9	4.0	50.1	5.2
All native born	45,773	66.8	7.9	3.1	8.6	50.9	7.7

Source: Schwartz and Stiefel (forthcoming, Table 8).

Table 9

Regional Regression Results for Reading

Education Production Functions, Foreign-Born Students

	Fifth Graders		Eighth Graders	
	1997-98	2000-01	1997-98	2000-01
Russia	0.135***	-0.116	0.157***	0.315***
	(0.037)	(0.119)	(0.045)	(0.073)
Eastern Europe	0.082*	0.017	0.116***	0.151***
	(0.043)	(0.055)	(0.038)	(0.057)
Western Europe	0.123**	0.044	0.058	0.087*
	(0.048)	(0.048)	(0.041)	(0.051)
China	0.161***	0.143***	0.097***	0.080
	(0.042)	(0.044)	(0.034)	(0.051)
East Asia	0.083***	0.068	0.090***	-0.042
	(0.030)	(0.043)	(0.028)	(0.036)
South Asia	0.045*	-0.039	-0.023	0.034
	(0.027)	(0.033)	(0.038)	(0.039)
West Asia	0.100**	0.079	-0.026	-0.084*
	(0.046)	(0.053)	(0.038)	(0.045)
Africa	0.082	0.190***	0.043	0.079
	(0.051)	(0.053)	(0.050)	(0.054)
Dominican Republic	0.121***	0.065***	0.053**	0.071***
	(0.021)	(0.024)	(0.021)	(0.020)
Caribbean	0.033*	-0.016	-0.006	-0.057***
	(0.018)	(0.030)	(0.020)	(0.019)
Guyana	-0.155***	-0.037	-0.135***	-0.102***
	(0.029)	(0.035)	(0.043)	(0.038)
Latin America	0.106***	0.067***	0.015	-0.004
	(0.019)	(0.024)	(0.018)	(0.021)
Constant	0.109	-0.379	1.124**	1.876***
	(0.081)	(0.494)	(0.445)	(0.582)
Number of observations	64,971	71,141	57,465	57,152
R^2	0.57	0.45	0.60	0.57

Source: Authors' calculations.

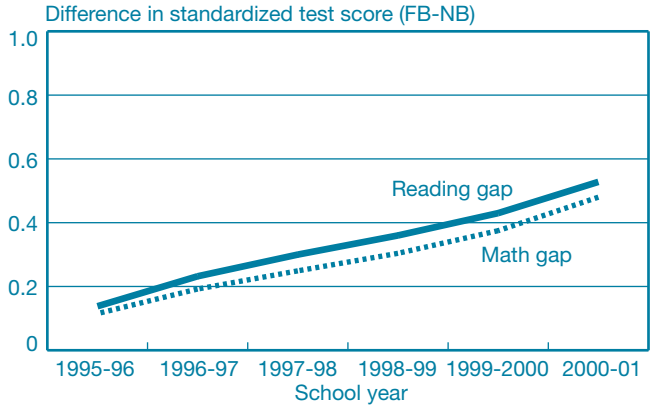
Notes: The model includes controls for free-lunch eligibility, reduced-price-lunch eligibility, gender, age, ethnicity/race, English proficiency, language assessment battery scores, special-education status, prior-year reading and math scores, teacher-pupil ratio, teacher experience, teacher tenure, teacher licensing, teacher education, and school enrollment. Cohort dummies control for the number of years in the New York City public schools. Students who have zero to one year in the New York City public schools entered the system in the 1997-98 school year. Specifically, they entered on or after November 1, 1996. Students who have at least one but less than two years entered between November 1, 1995, and October 31, 1996. Fifth graders with five or more years in the New York City public schools entered on or before October 31, 1992. The teacher-pupil ratio is instrumented with the prior-year enrollment and enrollment squared.

*Statistically significant at the 10 percent level.
**Statistically significant at the 5 percent level.
***Statistically significant at the 1 percent level.

of immigrant students "disappears" with time in the United States (that is, performance converges to the lower performance of native-born students) has intuitive appeal and surface validity, there is relatively little statistical evidence to support it. To address this concern, we investigate the evolution of performance of a cohort of students attending New York City schools from third through eighth grades, using a regression model to control for a range of time-varying characteristics and student-fixed effects to capture unobserved time-invariant characteristics. We find that the performance of immigrants *diverges* from that of native-born students (Chart 1). Separate analysis by race group suggests that the time path differs across groups (Chart 2). White immigrants diverge the most from their white native-born counterparts, while Hispanic immigrants show some early divergence but then begin to converge back in later grades. Overall, we find little evidence for convergence.

We have examined several dimensions of the treatment of immigrant students in the New York City public schools—a group that presents special challenges because of the students' late entry into the schools, limited English proficiency, and the like, and that may well be at particular risk because of the group's potentially low level of political clout. Our results are encouraging. Segregation is relatively mild, resource allocation seems equitable, and, perhaps most importantly, immigrant student performance is good and trending upward. In the end, it seems that immigrants may well be *good* for the New York City public schools.

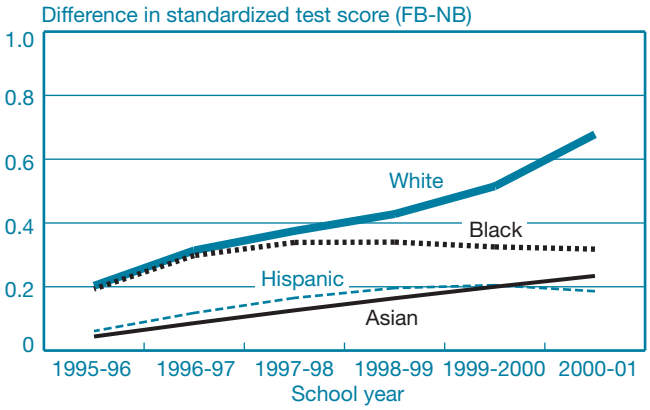
Chart 1
Regression-Adjusted Nativity Gap by Year
Standard Academic Progress Cohort; Calendar Time



Source: Schwartz and Stiefel (2005, Figure 3).

Notes: The standard academic progress cohort includes students originally enrolled in the third grade in 1995-96 who remained enrolled every year through the 2000-01 school year and it progresses one grade each year. The nativity gap is defined as the difference between the average z-score of foreign-born (FB) and native-born (NB) students. It is interpreted as the number of standard deviations by which foreign-born students outperform native-born students. The performance of students tested outside the indicated year and grade is not included. Models include student-fixed effects.

Chart 2
Regression-Adjusted Nativity Gap by Year and Race
Standard Academic Progress Cohort; Calendar Time; Reading Scores



Source: Schwartz and Stiefel (2005, Figure 7).

Notes: The standard academic progress cohort includes students originally enrolled in the third grade in 1995-96 who remained enrolled every year through the 2000-01 school year and it progresses one grade each year. The nativity gap is defined as the difference between the average z-score of foreign-born (FB) and native-born (NB) students. It is interpreted as the number of standard deviations by which foreign-born students outperform native-born students. The performance of students tested outside the indicated year and grade is not included. Models include student-fixed effects.

6. Evaluating School Reforms in New York City: Some Examples

The dynamic nature of New York City's public schools provides a natural laboratory for new educational policies and reforms. How well do these work? We examine three recent reforms, using data provided by the New York City Department of Education. The first, the Performance-Driven Budgeting (PDB) initiative, changed the way that resources are allocated within schools. The second, the New York Networks for School Renewal (NYNSR) project, is an example of whole-school reform, not unlike others implemented elsewhere, such as Success for All. The third is the small-schools initiative,

which continues as new small schools are opening each year in New York City and elsewhere. The methodology is relatively straightforward and replicable and, because it relies upon administrative data, it is relatively inexpensive. The implication is that evaluation is both possible and affordable and needs to be integral to policymaking. As we observed, our findings are generally positive. Reforms yield positive, if small, effects on student outcomes.

6.1 Performance-Driven Budgeting

In 1996, New York City Schools Chancellor Rudy Crew initiated an effort to move budgeting decisions toward school-level decision makers and to tie the new budgeting practice to school performance. Termed Performance-Driven Budgeting, the underlying logic was that decision makers closer to the student are better able to align resources with academic needs.

The centerpiece of our analysis of this reform is a school-level production function linking student performance on fourth- and fifth-grade tests to school inputs (teacher resources and expenditures). The effect of the PDB reform was identified as the difference in school performance before and after the PDB intervention, relative to the schools that did not implement PDB—in essence, a difference-in-difference design. As shown in Table 10, the coefficients on the "implemented PDB" variable indicate a positive, albeit small, effect of around .06 standard deviations in reading and math (in fourth-grade) test scores. To put this effect size in context, we note that educators as a rule-of-thumb aspire to sizes of .25 when initiating specific curriculum reforms; racial test-score gaps between white and black or Hispanic students are around .7. Thus, .06 is indeed small, but it is also positive.

6.2 The New York Networks for School Renewal

The New York Networks for School Renewal project had a somewhat different genesis, beginning in 1995-96 with eighty founding schools. Representing a model of whole-school reform, which involves voluntary networks and small school sizes, the project was initiated with a $25 million, five-year grant from the Annenberg Foundation.[3] Our analysis of NYNSR uses student-level data to estimate the effect of the reform on students attending fourth, fifth, or sixth grade in 1995-96, as well as an "intent-to-treat design" to disentangle the effect of the reform from all other changes. Table 11 illustrates our results, showing two- or three-year (long-term) changes in reading and math test scores in two differently specified models. On the whole, the impact estimates are positive, with many statistically different from zero, and no evidence exists of any negative effect. In addition, the size of the effects, when significant and positive, is between .16 and .25, considerably higher than those found for the PDB reforms.

TABLE 10

The Effect of PDB Participation on Standardized Tests

	Fourth Grade		Fifth Grade	
Dependent variables	Reading	Math	Reading	Math
Participation variable				
Implemented PDB in 1997-98	0.0557**	0.0599**	0.0568**	0.0187
	(0.0254)	(0.0269)	(0.0247)	(0.0263)
Number of observations	2,436	2,436	2,436	2,436
R^2	0.9234	0.9290	0.9252	0.9304

Source: Stiefel et al. (2003, Table 5).

Notes: PBD is the Performance-Driven Budgeting initiative. All regressions are weighted by enrollment share. All dependent variables are measured in z-scores. Test scores in all years are from the CTB (reading) or CAT (math) normal curve equivalents, except for 1998-99 fourth-grade reading and math scores. Fourth-grade students were given new state reading and math tests in 1998-99, and the Board of Education reports their scaled test scores. Regression equations include a set of teacher characteristics (percentage licensed, with more than five years of experience, with more than two years of experience, with a master's degree; average number of days absent per year) and a set of school characteristics (percentage students female, Asian and other, black, Hispanic; average daily attendance; percentage eligible for free lunch, limited-English-proficient, resource room participant, special-education, recent immigrant) as well as school- and year-fixed effects and a group of missing value indicators, the log of expenditures, and enrollment and a constant term. Standard errors are in parentheses.

*p<.10.
**p<.05.
***p< .01.

6.3 Small-Schools Initiative

In the mid-1990s, reformers turned their attention to improving the performance of American high-school students. While various initiatives have been attempted—including offering child care on school sites and imposing graduation test requirements—one of the most enduring, visible, and well-funded initiatives is the "small-schools" movement. Headlines have trumpeted New York City's (and Chicago's) efforts to

Table 11

Long-Term-Impact Analysis of NYNSR Participation on Standardized Reading and Math Scores, by Cohort

	Fourth-Grade Cohort 1998-99 (Grade 7)	Fifth-Grade Cohort 1998-99 (Grade 8)	Sixth-Grade Cohort 1997-98 (Grade 8)
Baseline reading regressions			
NYNSR	0.161***	0.165***	0.064
	(0.036)	(0.063)	(0.044)
R^2	0.627	0.634	0.646
Including school characteristics[a]			
NYNSR	0.155**	0.029	0.062
	(0.063)	(0.065)	(0.043)
R^2	0.636	0.655	0.658
Number of observations in all models	4,947	4,842	5,981
Baseline math regressions			
NYNSR	0.251***	0.039	0.047
	(0.045)	(0.048)	(0.040)
R^2	0.666	0.678	0.645
Including school characteristics[a]			
NYNSR	0.229***	-0.113*	0.001
	(0.056)	(0.062)	(0.077)
R^2	0.680	0.699	0.667
Number of observations in all models	5,024	4,977	6,153

Source: Schwartz, Stiefel, and Kim (2004, Table 4).

Notes: NYNSR is the New York Networks for School Renewal project. Test scores are measured in z-scores transformed from normal curve equivalents for the CTB (reading) or CAT (math) exams, except for the DRP reading test scores in 1994-95 and state reading (ELA) and math test scores for the eighth grade in 1998-99. Huber's robust standard errors are reported in parentheses. All regressions include 1994-95 and 1995-96 test scores. Dummies are used for students who are female; exposed to a language other than English; Asian, Hispanic, black, and recent immigrant; and, for each year, attendance rates, language assessment battery percentiles, free- or reduced-price-lunch eligibility, resource room participation, grade retention, and advancement to a grade higher than typical; and a set of missing-value indicators. Regressions with school variables include the number of consecutive years a student has been in the same school. "Recent immigrant" and "advancement to a grade higher than typical" are dropped from the 1998-99 regressions. As of 1998-99, no recent immigrant student in 1995-96 retained that status. None of the fourth- and fifth-grade-cohort students who advanced to a higher grade than typical in 1998-99 had valid reading or math test scores for that year.

[a]Year-specific school controls are total enrollment; number of teachers per 100 students; teachers' average number of days absent; the percentage of students who are black, Hispanic, Asian, free-lunch-eligible, limited-English-proficient, recent immigrants, special education, and resource room participants; and the percentage of teachers fully licensed and permanently assigned, with a master's degree, with more than five years of experience, and working more than two years in the same school.

*Statistically significant at the 10 percent level.
**Statistically significant at the 5 percent level.
***Statistically significant at the 1 percent level.

convert large comprehensive high schools with up to 5,000 students into small schools with 500 or fewer students. Whether the small-schools initiative succeeds depends on its effectiveness with its own students, the impact on district costs associated with smaller units and more of them, and the effects on the larger high schools that remain. Our analysis of the small schools created in the early phases of the initiative attempts to address the first issue, using data on school expenditures and cohort graduation rates in New York City high schools. The use of cohort graduation rates is key. The New York City Department of Education tracks students for up to seven years, beginning in ninth grade—recording whether they graduate, transfer to another school or system, drop out, or continue past four years. Thus, we can construct, for each school, the budget per graduate and examine the way it varies with school size. The findings are compelling. The small academic high schools,

most like the ones being replicated now, have a better performance record, deliver a higher cohort graduation rate, and in the end have similar per-pupil expenditures as the large schools. Put differently, the small high schools have higher graduation rates to balance their higher expenditures per pupil.

7. Lessons

New York City, like cities around the United States and the world, faces particular difficulties providing public education efficiently and equitably. The student body is heterogeneous and dynamic. Poverty is common, and limited proficiency in English challenges many. Further, turnover is high. Each year, thousands of new students enter the New York City public schools midway through their school career, many of them from schools outside the United States. New York City schools include substantial numbers of students from dozens of countries, speaking many languages. Together, these factors pose a formidable challenge to the school system. That said, we still find much cause for optimism. Our research shows that, other things equal, immigrant students fare reasonably well. Their performance on standardized tests is good, their schools receive resources in the same measure as schools with more native-born students, and their performance seems to improve over time as they adjust to their schools and new homes. Thus, the programs and interventions that the New York City school system has in place to address the difficulties faced by immigrant students seem to be working.

Further, the school system itself seems quite dynamic. Each year brings a wide range of reforms—in curriculum, school organization, governance, testing, and accountability—and, while not all of them work, our research on earlier reforms suggests that it is possible to use evaluation to disentangle those programs that work from those that do not. Administrative data are increasingly available, allowing relatively low-cost evaluations. Even more important, advances in econometric methods are facilitating efforts to disentangle causality and distinguish good programs and good schools from bad ones.

At the same time, there is much room for improvement. While evaluation is possible, it is still far from universal. Too many reforms are implemented and declared successes or failures without any investigation, and the largest and most sweeping reforms are rarely subject to careful evaluation.[4] Further, evaluation can be simplified. We make too little use of randomization and access to data, and the ease of using and interpreting the data is more limited than it should be. Finally, there are many inequities and inefficiencies that continue. For instance, disparities persist between blacks, Hispanics, whites, and Asians, as well as in the allocation of teachers and resources across schools, despite significant efforts to close these gaps. Much more work remains to be done.

Endnotes

1. Notice that the group of students who entered by third grade is a subset of the continuing students in Table 2 because only a fraction, roughly 82 percent, of the continuing students from the third-grade cohort of 1995-96 were in eighth grade (others were in seventh grade, in special education, or elsewhere).

2. The WWC was established in 2002 by the U.S. Department of Education's Institute of Education Sciences to provide educators, policymakers, researchers, and the public with a central and trusted source of scientific evidence of "what works" in education. It aims to promote informed decision making on education through a set of easily accessible databases and user-friendly reports that provide consumers with ongoing, high-quality reviews of the effectiveness of replicable educational interventions (programs, products, practices, and policies) that aim to improve student outcomes. The WWC is administered by the Institute of Education Sciences through a contract to a joint venture of the American Institutes for Research and the Campbell Collaboration. Both organizations are nationally recognized leaders in education research and rigorous reviews of scientific evidence. Subcontractors to the project are Aspen Systems Corporation, Caliber Associates, Duke University, and the University of Pennsylvania. (See <http://www.whatworks.ed.gov/whoweare/overview.html#key>.)

3. Other examples of whole-school reform are Success for All, Accelerated Schools, Edison Schools, Comer Schools, and New American Schools. All of these reforms aim to change many parts of the school at once (some combination of components such as curriculum, teacher attitudes, time devoted to subjects, use of technology).

4. The New York City Department of Education has requested proposals from outside evaluators for reform of its promotion/retention policy.

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Dalton Conley

Commentary

1. Overview

The New York City public school system serves as an amazing laboratory to study issues of immigration and integration through the educational system. A full one-eighth of the third-grade cohort that Amy Ellen Schwartz and Leanna Stiefel study are foreign born; add to that a significant number who arrive after third grade as well as a large number of students who were born here to non-native parents and the influence of immigration on the city's classrooms is enormous. Schwartz and Stiefel's paper provides a rich and textured portrait of these students as well as a thorough comparison with their native-born counterparts.

The authors, in fact, present us with a paradox of sorts. However, it is one that should be familiar to scholars of immigration: despite more disadvantageous family backgrounds (in terms of income, at least), immigrant children—at least those who take standardized tests—outperform native-born students. (Never mind, for the moment, that important differences exist within the immigrant community between, for example, early and late entrants or by national origin.) Is this immigrant advantage an accurate reflection of the performance of young immigrant children, or is it all selection into who takes the tests? If it is not artifactual, how is it possible that the immigrant success story starts as early as third grade (or perhaps even earlier; third grade is merely the first opportunity New York provides to assess its student population in a standardized way)? And how do these immigrant children affect their native-born classmates? Do they cause positive peer effects because of their superior performance? Or rather, do they place unique strains on the system and therefore create negative externalities for nonimmigrant students?

The New York school system is the largest—and arguably the most complex—school system in the country. This means that in addition to managing a high proportion of immigrant children, the system deals with an incredible amount in absolute terms. It also means that there is incredible diversity across schools, largely reflecting New York's diverse neighborhoods. For example, the average share of white children in the system is 16 percent. However, the standard deviation for this mean is 23 percent. Likewise, in some schools almost all the teachers are certified and in others only a handful are. Some schools have thousands of students while others only a couple of hundred. Financing also varies dramatically across schools—as does, in fact, almost every measurable characteristic. (Ironically, immigrants are fairly well distributed across most of the schools in the system—a fact that stands in stark contrast to black-white segregation or isolation by free-lunch status.)

Another result of the size and complexity of the school system is the fact that one or another reform effort is almost constantly under way. Most of these reforms are not applied uniformly or universally because of the unwieldy nature of the

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task. For economists, however, this is a blessing, since it allows for a quasi-experimental design to track the reforms' effects (since most are operationalized in a rather random, unsystematic manner). Indeed, Schwartz and Stiefel take advantage of this fact to assess the effect of various reforms on immigrant students in particular.

2. Which Immigrants Are Thriving?

After demonstrating that there do not appear to be significant financing differences between schools with greater or smaller proportions of non-native students (although there perhaps should be, because of differing levels of academic need), Schwartz and Stiefel proceed to the main part of their analysis, which documents, *ceteris paribus*, which immigrant groups are performing the best. Most of the differences the study documents can be attributed to demographic background factors such as poverty rates or length of time in the school system. However, even when the authors control for a wide range of background variables, they find that immigrant students of Russian or Chinese backgrounds perform especially well.

The authors then tease out this analysis by looking at changes over time in student performance using student-fixed effects. Contrary to the notion that immigrants and native-born students "converge" in their performance, the authors find that immigrants as a whole start with a slight advantage in third grade, which only swells as they move up through the system. Of course, this does not take into account the students who attrite (or those who enter late). The more troublesome piece of the puzzle is the fact that while all racial groups of immigrants seem to start off with similar slopes of relative improvement over their native counterparts, as black and Latino immigrants move into middle school their advantages taper off (and perhaps even reverse slightly). This suggests that ethnographic evidence on the effect of race trumping nativity status observed in the sociological literature on identity (see, for example, Waters [1999]) may have real impacts on learning curves (and therefore on downstream outcomes as well). This is a troubling note in an otherwise optimistic report on the progress of immigrant children as they make their way through the Byzantine public school system. It appears—at first blush at least—that the authors' worries about these vulnerable students are misplaced. Immigrant students seem to be thriving despite having parents who generally enjoy low levels of political clout and perhaps limited social and cultural capital.

However, the authors' last line in section 5 still appears unwarranted: they conclude that "In the end, it seems that immigrants may well be *good* [emphasis theirs] for the New York City public schools." Schwartz and Stiefel do not perform an analysis of the peer effects of immigrants on their native-born counterparts, so they really should not make these claims. I would have loved to have seen just this analysis. For example, using school-fixed effects, how does the percentage of foreign-born students affect the performance of native students? This is a big lacuna in the analysis that is sorely needed to determine whether the authors' ultimate statement is accurate. It could be, of course, that immigrants are thriving at the expense of the rest of the students in the system.

Slowing down even more, one may question even the conclusion that immigrants themselves are thriving (with the caveat of the aforementioned within-group differences). The authors undertake their analysis as if the public schools form a closed educational system. However, just as a full third of non-native-born students in eighth grade entered the system post third grade, we know very little about those native-born students who are leaving the sample. While there are relatively few financing distinctions across the public schools, the real story in New York is the public-private divide. Many elite (that is, high socioeconomic status) parents tolerate the public system for a while during elementary school and then move their children into private schools as they progress through the ranks. A particularly large exodus may occur in the transition to middle school. So, in other words, the swelling immigrant advantage may, in fact, be selection effect on the native-born population: those least able to escape the system for financial or ability reasons may be left as the dwindling comparison group. The authors try to assuage such fears by offering us a means comparison for "continuing students" (that is, those who stay in the sample) versus "attriting students." They show, however, that the attriters are more likely to be native born and more likely to have higher test scores at baseline. Therefore, this only worries me more. What we really need is to see the two groups broken down by immigrant status to determine the difference-in-difference in test scores between attriters and stayers in the groups.

3. School Reform

The latter part of the paper addresses three school reforms: the Performance-Driven Budgeting initiative, the New York Networks for School Renewal project, and the small-schools initiative. The paper's results show, on the whole, modest, positive effects of reform on measurable student outcomes. The problem, however, is the strong possibility that these reforms may be endogenous to school quality. Especially in a

system in which schools are opening and closing at such a frequent rate (in some years, in excess of 5 percent of schools have closed or opened for business), the notion that these reforms are distributed randomly is not entirely credible. This notion is furthered by the authors' own findings that the reform that seems to matter least is Performance-Driven Budgeting—the one that I would argue is most exogenous to administrator quality. The school renewal project and the small-schools initiative both appeared to require considerable entrepreneurship on the part of the school's leadership team in order to be enacted. Thus, the results may not entirely be driven by treatment effects of these reforms, but rather by the underlying characteristics of the institutions (such as staff, administration, and PTA, not to mention community and family characteristics) at the schools that adopt such reforms. At the very least, I would have liked to have seen Schwartz and Stiefel provide comparisons on the measurables between the treatment and control groups; at the very best, I would have liked to have seen documentation that the reforms were implemented in a truly random fashion. This is just a final, cautionary note on what is otherwise a very informative paper.

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