

# The Changing FACE of Massachusetts



A PROJECT OF THE NEW SKILLS FOR A NEW ECONOMY AWARENESS AND ACTION CAMPAIGN BY:

**MassINC**

THE MASSACHUSETTS INSTITUTE FOR A NEW COMMONWEALTH  
Publisher of *CommonWealth* magazine

**CENTER FOR LABOR**

**MARKET STUDIES**

SPONSORED BY:



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### **MassINC's Mission**

The mission of MassINC is to develop a public agenda for Massachusetts that promotes the growth and vitality of the middle class. We envision a growing, dynamic middle class as the cornerstone of a new commonwealth in which every citizen can live the American Dream. Our governing philosophy is rooted in the ideals embodied by the American Dream: equality of opportunity, personal responsibility, and a strong commonwealth.

MassINC is a non-partisan, evidence-based organization. We reject rigid ideologies that are out of touch with the times and we deplore the too-common practice of partisanship for its own sake. We follow the facts wherever they lead us. The complex challenges of a new century require a new approach that transcends the traditional political boundaries.

MassINC is a different kind of organization, combining the intellectual rigor of a think tank with the vigorous civic activism of an advocacy campaign. Our work is organized within four Initiatives that use research, journalism, and public education to address the most important forces shaping the lives of middle-class citizens:

- Economic Prosperity—Expanding economic growth and opportunity
- Lifelong Learning—Building a ladder of opportunity through the continuum of learning
- Safe Neighborhoods—Creating crime-free communities for all
- Civic Renewal—Restoring a sense of “commonwealth”

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### **The Mission of the New Skills for a New Economy Campaign**

Our mission is to create opportunities for workers to acquire the skills necessary to be productive contributors to the economic vitality of Massachusetts. By mobilizing state leaders—both public and private—we aim to safeguard the Commonwealth's competitive position in the global economy. We will promote workforce development policies, resources, and practices that have demonstrated effectiveness in preparing workers for the challenges of the 21st century workforce and seek the reforms necessary to maintain our competitive edge.

### **About the Authors:**

Andrew Sum is a Professor in the Department of Economics and the Director of the Center for Labor Market Studies at Northeastern University. He has written numerous books and reports on the economy of the Northeast region, New England, and Massachusetts. Johan Uvin heads up the Center for Research and Evaluation at Commonwealth Corporation. The mission of this center is to determine the effectiveness of public workforce development programs in Massachusetts. He holds a doctorate in education (Administration, Planning and Social Policy) from the Harvard Graduate School of Education. Ishwar Khatiwada is a research associate at the Center for Labor Market Studies at Northeastern University. Dana Ansel is the Research Director at MassINC.

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# The Changing FACE of Massachusetts

PREPARED BY:

**Andrew M. Sum, Johan Uvin,  
Ishwar Khatiwada, Dana Ansel**

WITH:

**Paulo Tobar, Frimpomaa Ampaw,  
Sheila Palma, Greg Leiserson**

June 2005

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Dear Friend:

MassINC is proud to present *The Changing Face of Massachusetts*. This joint project with the Center for Labor Market Studies was made possible by the generous support of a number of sponsors, including the Nellie Mae Education Foundation, Verizon, Citizens Bank, Polaroid, and Bank of America's Frank W. and Carl S. Adams Memorial Fund.

The demographics of Massachusetts are changing, and they are changing rapidly. As of 2004, 1 in 7 Massachusetts residents was born in another country. The impact of immigrants on the Massachusetts economy is significant. Over the last 25 years, the share of immigrants in our workforce has nearly *doubled*. Today, 17 percent of our workforce are immigrants—up from roughly 9 percent in 1980. Moreover, over the last few years, it appears that the rate of increase is accelerating.

There has also been a major shift in the countries of origin among immigrants arriving in Massachusetts. Nearly half of all new immigrants hail from Latin America and the Caribbean, and another 23 percent come from Asia. Consider that from 2000 to 2003, nearly 1 out of every 5 immigrants entering the state was Brazilian. Increasingly, immigrants are coming from countries where English is not the primary language. Thus, while immigrants have become our state's principal source of new labor, growing numbers are arriving with limited English-speaking skills and a substantial number lack a high school diploma.

Immigrants with limited English skills are clustered in the state's larger cities. In some cities, such as Lawrence and New Bedford, a substantial portion of the city's overall population does not speak English at all or does not speak it well. These facts add up to a serious human capital challenge for local leaders and our state as a whole.

For MassINC, *The Changing Face of Massachusetts* has been a particularly exciting project. It builds on *The Changing Workforce*, previous research with the Center for Labor Market Studies and Citizens Bank. It is also an outcome of our New Skills for a New Economy Awareness and Action Campaign. The New Skills campaign recognizes that the Bay State's basic comparative advantage is having the most skilled workforce in the nation and focuses on preparing that workforce for the new economy ahead. Speaking English is a key part of this challenge as this new research bears out. We hope and expect it will be a valuable resource for all those who care about the future of the Massachusetts workforce.

We are extraordinarily grateful to our partners: Andrew Sum, Johan Uvin, Ishwar Khatiwada and their colleagues. This project, which began as a brief inquiry, has culminated in a comprehensive report that allows us to answer critical questions about how our immigrant population is changing and the implications for the state's economy. On the MassINC team, Dana Ansel, John Schneider, Rachel Deyette Werkema, and Greg Leiserson helped shepherd this project to completion. We would also like to thank the many reviewers whose critical insights have strengthened the final report.

Finally, we would like to thank all of our sponsors who have been generous and enthusiastic partners throughout the development of this project. They have been ideal sponsors—encouraging the authors to go where the data led them. MassINC aims to inject solid, objective research into today's public policy debates, and to that end, we hope that you find *The Changing Face of Massachusetts* a provocative and timely resource. We invite you to become more involved in MassINC, and we welcome your feedback.

Sincerely,



Ian Bowles  
*President & CEO*



Gloria Cordes Larson  
*Co-Chair*



Peter Meade  
*Co-Chair*



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**T**he face of Massachusetts is changing. Today, 1 in 7 Bay State residents (907,000) was born in another country. In less than 15 years, the number of immigrants living in our state has increased by nearly 40 percent. Immigrants have changed the social fabric and culture of our state. They also have played a critical role in our state's economy. Over the last 25 years, the share of immigrants in the Massachusetts workforce has nearly doubled. In 2004, immigrants accounted for 17 percent of the state's labor force.

Based on the most up-to-date information, this research provides a comprehensive picture of the state's immigrant population.<sup>1</sup> It documents immigrants' continued demographic and economic contributions while also uncovering serious challenges facing our state. This research identifies what countries our immigrants come from and how their national origins have changed over time, where they live in Massachusetts, and their education and language skills. It also evaluates their ability to succeed in the Massachusetts labor market.

The economic importance of a college education is now common knowledge. MassINC has a long track record in analyzing the changing economy and the education and skills required by the knowledge economy. As the earnings premium from additional years of schooling has grown, the Massachusetts economy has become less forgiving for those with limited education and skills. Immigrants play by the same rules, but many also face an additional challenge—the need to speak English well. This research breaks new ground in quantifying the economic importance of the ability to speak English.<sup>2</sup> A good education alone is not enough. The ability to speak English well has become a key ingredient for economic success.

While immigrants live in every city and town, they are concentrated in the state's cities, especially the cities in the eastern part of the state. Many urban immigrants have a limited ability to speak English. For some cities, this translates into a high fraction of the total population who cannot

speak English well. In Lawrence, nearly 12 percent of the population has limited English-speaking skills, and in the state's largest city, Boston, 7 percent of the residents do not speak English at all or do not speak it well. Thus, the challenge of preparing immigrants to participate in and contribute to the economy is enormous. Teaching immigrants to speak English proficiently is central to an urban economic revitalization strategy.

## THE SHARE OF IMMIGRANTS IN THE MASSACHUSETTS WORKFORCE HAS NEARLY DOUBLED.

Immigrant workers have become our state's principal source of new labor. Yet, many immigrants have limited education and increasing numbers are arriving with limited English-speaking skills. The immigrants who joined the Massachusetts labor force in the 1990s were almost 3 times as likely as native-born adults to lack a high school diploma. In addition, about 1 in 4 of the new immigrant workers (45,000 workers) had limited English-speaking skills. Going forward, our state faces a serious human capital challenge. Immigrant workers have become indispensable to the Massachusetts economy. But, at the same time that the education and skills required for success are increasing, large numbers of immigrants lack a high school diploma and have limited English-speaking skills.

### **Immigrants and Population Growth**

Over the last several decades, the population of Massachusetts has been growing but only very slowly. The U.S. Census Bureau estimated that Massachusetts actually lost population in 2004, earning us the dubious distinction of being the only state in the country to shrink in size. The slow growth in the number of residents is largely due to the fact that every year large numbers of people leave Massachusetts for other states. Recent MassINC research, *Mass.Migration*, found



that between 1990 and 2002, excluding international immigrants, more people moved out of Massachusetts than moved into the state, even during the economic boom years. Immigrants have quietly played a key role in offsetting the loss of these domestic out-migrants.

In the 1980s, without new immigrants, the state's population would have likely not grown at all, and in the 1990s, it could have shrunk. Our dependence on immigrants appears to have increased in the first half of this decade. From 2000

## INTEGRATING IMMIGRANTS INTO OUR WORKFORCE REQUIRES A PUBLIC/PRIVATE STRATEGY.

to 2004, Massachusetts gained 172,054 immigrants, and without these new immigrants, the state's population would have shrunk.<sup>3</sup> New York was the only other state in the country to be completely dependent on immigrants for its population growth from 2000 to 2004. The future appears to hold more of the same. The Census Bureau has recently projected that Massachusetts will remain totally dependent on immigrants for all of its population growth over the remainder of

this decade. Integrating immigrants into our workforce is a long-term issue facing the state that requires a comprehensive public/private strategy.

### Immigrants and the Massachusetts Labor Force

Massachusetts has built its economic success on the brains and skills of its workers. Human capital is our most important economic resource. Yet, our state has one of the lowest rates of labor force growth. In the 1990s, our labor force grew by only 2 percent—the fifth lowest rate in the nation. Since 2000, the state's labor force is estimated to have grown by less than one percent. The absence of labor force growth poses a serious threat to the state's ability to sustain a healthy economy. A lack of available workers can discourage companies from locating in Massachusetts or prevent existing companies from expanding their operations here in the Commonwealth.

New immigrants have become a critical source of labor, and over the last 25 years, they have become an increasing share of the workforce. As previous MassINC research, *The Changing Workforce*, documented, our strong reliance on immigrants began in the mid-1980s, and this trend has continued in recent years. While the nation has

### KEY FACTS:

- As of 2004, 14.3% of Massachusetts residents (906,866) were born in another country, a large increase from 1980 when 9.4% of the population was foreign-born.
- From 2000 to 2004, 172,054 new immigrants entered the Bay State. Without these immigrants, the population of Massachusetts would have shrunk.
- Between 1980 and 2004, the share of immigrants in our labor force nearly doubled from 8.8% to 17.0%.
- Since 2000, the state's labor force is estimated to have grown by less than 1%. Without immigrants, the state's labor force would have shrunk.
- Of the immigrants who arrived between 2000 and 2004, 47.3% were from Latin America and the Caribbean and another 23.1% were from Asia. From 2000 to 2003, nearly 1 out of 5 immigrants (19%) was Brazilian.
- Of the immigrant workers who arrived in the 1990s, 1 in 4 (45,000 workers) had limited English-speaking skills.
- Since 1980, the overall share of immigrants who only speak English at home decreased from 35.1% to 20.6%, while the share with limited English-speaking skills increased from 17.5% to 21.5%. From 1980 to 2000, the number of immigrants with limited English skills increased by almost 92,000 people.



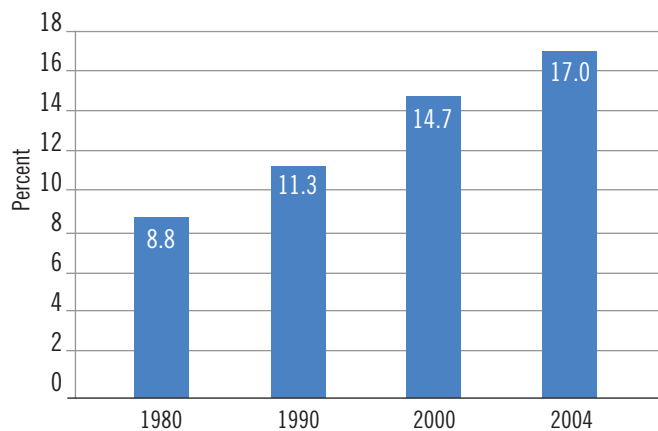
become increasingly dependent on immigrants —with nearly two-thirds of its labor force growth coming from immigrants—Massachusetts remains even more dependent with all of the state’s modest labor force growth from 2000 to 2004 due to immigrants. Without immigrants, the state’s labor force would have shrunk. By 2004, immigrants accounted for 17.0 percent of the state’s workforce, a sharp increase from 1980 when immigrants were only 8.8 percent of the workforce (Figure ES1).

### The New Faces of Massachusetts

As anyone who has traveled the state knows, the immigrant population is incredibly diverse. In the 1990s, 83 countries sent 500 or more immigrants to Massachusetts. But, at the same time, a relatively small number of countries (9) and Puerto Rico accounted for half of all the new immigrants that arrived during the decade. These countries are Brazil, the Dominican Republic, China, India, Vietnam, Russia, Haiti, El Salvador, and Colombia. Brazil has become the single largest source of immigrants: from 2000 to 2003, almost one out of every five immigrants entering the state was Brazilian (Table ES1).

**FIGURE ES1:**

Foreign-Born Share of the Labor Force in Massachusetts, 1980-2004



Source: Authors’ calculations using U.S. Census, 1980, 1990, and 2000; Current Population Survey, 2004

In 2000, immigrants from Puerto Rico accounted for nearly 12 percent of all immigrants in Massachusetts (Table ES2). After Puerto Rico, Portugal, the Dominican Republic, Canada, and China were the most common countries of origin for immigrants.<sup>4</sup> Brazilians accounted for 4.2 percent of all immigrants, but with the recent inflow, the share of Brazilian immigrants is increasing.

More generally, there has been a fundamental shift in the countries of origin of immigrants over the last few decades. Immigrants arriving after

- On average, an immigrant who only spoke English at home earned 2.5 times as much as an immigrant who did not speak English well (\$38,526 vs. \$14,221).
- Nearly 30% of adult immigrants have at least a college degree. But, immigrants are more than three times as likely as native-born adults to lack a high school diploma (29% vs. 8%).
- The average earnings of an immigrant college graduate are \$40,179 compared with \$14,687 for immigrant high school dropouts.
- Seventy-one percent of adult immigrants in Massachusetts are not prepared for the knowledge economy. 245,161 immigrants either lack a high school diploma or have limited English-speaking skills. Another 221,986 immigrants lack the literacy skills needed in today’s economy.
- Nearly one-quarter of all immigrants live in Suffolk County, although the county accounts for only 11% of the state’s population. About 1 in 4 Boston residents are immigrants. At 36%, Chelsea has the largest share of immigrants in the state.
- In 11 of the 20 largest cities, at least 1 out of every 4 immigrants has limited English-speaking skills. And in New Bedford, Fall River, Lawrence, and Lynn, 1 in 3 immigrants has limited English-speaking skills.
- Chelsea leads the state with 14% of its residents having limited English-speaking skills. In Lawrence, nearly 12% of the city’s population does not speak English at all or does not speak it well. And, in Boston, 7% of the population has limited English-speaking skills.

**TABLE ES1:**

Top Eleven Countries of Origin of New Immigrants to Massachusetts, 2000 to 2003

COUNTRY	PERCENT OF NEW IMMIGRANTS
Brazil	19.1
El Salvador	8.6
India	5.8
Japan	5.2
Haiti	4.7
Dominican Republic	3.3
Vietnam	3.2
Germany	3.2
China	3.0
Canada	2.8
Russia	2.8
Total, Top Eleven	61.6
Total Number of New Immigrants	115,482

Source: Authors' calculations using Current Population Survey, 2003

1990 were much more likely to have come from Latin America, the Caribbean, and Asia than those immigrants who arrived before 1980. Prior to 1980, immigrants were overwhelmingly from Europe, Canada, or Puerto Rico. In recent years the numbers coming from Europe and Canada have declined substantially.

This shift in the countries of origin has changed the overall composition of immigrants

## NEARLY 1 OUT OF EVERY 5 NEW IMMIGRANTS WAS BRAZILIAN.

in our state. In 1980, more than half of all immigrants in Massachusetts (53%) were from Europe. By 2000, that number had decreased to 28 percent. The fraction of immigrants from Canada also dropped dramatically from 14 percent to 5 percent. In contrast, during this same period, the share of immigrants from Latin America and the Caribbean almost tripled from 9 percent to 26 per-

**TABLE ES2:**

Top Ten Countries of Origin of All Immigrants Living in Massachusetts, 2000

COUNTRY	PERCENT OF IMMIGRANTS
Puerto Rico	11.7
Portugal*	7.6
Dominican Republic	5.3
Canada	4.6
China	4.5
Brazil	4.2
Haiti	3.9
Vietnam	3.5
Italy	3.2
India	3.2
Total, Top Ten	51.7
Total Number of Immigrants	877,655

\* Since Cape Verde became independent from Portugal in 1975, this figure likely includes some but not all Cape Verdeans living in Massachusetts.

Source: Authors' calculations using U.S. Census, 2000

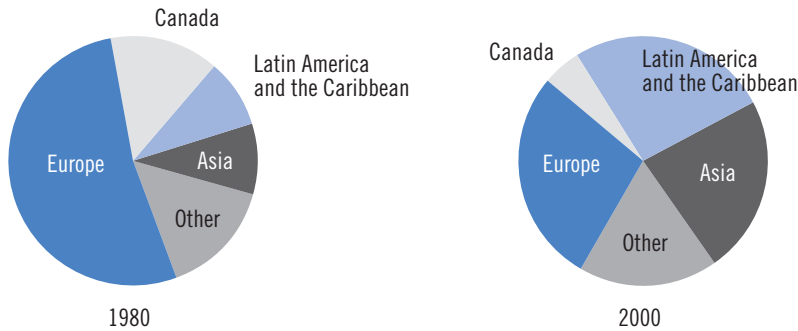
cent, and the share from Asia increased from 9 percent to 23 percent (Figure ES2). The shift toward these regions of the world is even more dramatic among the newest immigrants. Of all immigrants entering Massachusetts between 2000 and 2004, nearly half were from Latin America and the Caribbean and another 23 percent were from Asia (Figure ES3). If these trends persist, the demographic face of Massachusetts will continue to change well into the future.

### Immigrants and the Educational Divide

Massachusetts attracts large numbers of both highly educated immigrants and immigrants with limited schooling. On the one hand, adult immigrants in Massachusetts were more than three times as likely to lack a high school diploma as native-born residents (29% vs. 8%). On the other hand, a large share of immigrants had at least a college degree. Still, immigrants are less likely than native-born residents to have at least a four-

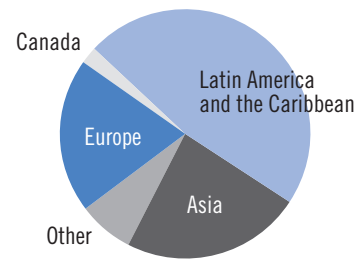
**FIGURE ES2:**

Massachusetts Immigrant Population by Region of Birth, 1980-2000



**FIGURE ES3:**

New Immigrants by Region of Birth, 2000-2004



Note: Europe includes the former Soviet Union in all three periods. Source: Authors' calculations using U.S. Census, 1980 and 2000; Current Population Surveys, 2004

year college degree (29% vs. 36%) (Figure ES4).

The educational level of immigrants varies considerably across regions of the world and countries of origin. For instance, more than 60 percent of the new immigrant workers from Central America lacked a high school diploma, while only 15 percent of those from Asia lacked one. At the other end of the educational spectrum, more than 60 percent of the new immigrant workers from Asia had a college education, while only 7 percent of those from Central America were four-year college graduates.

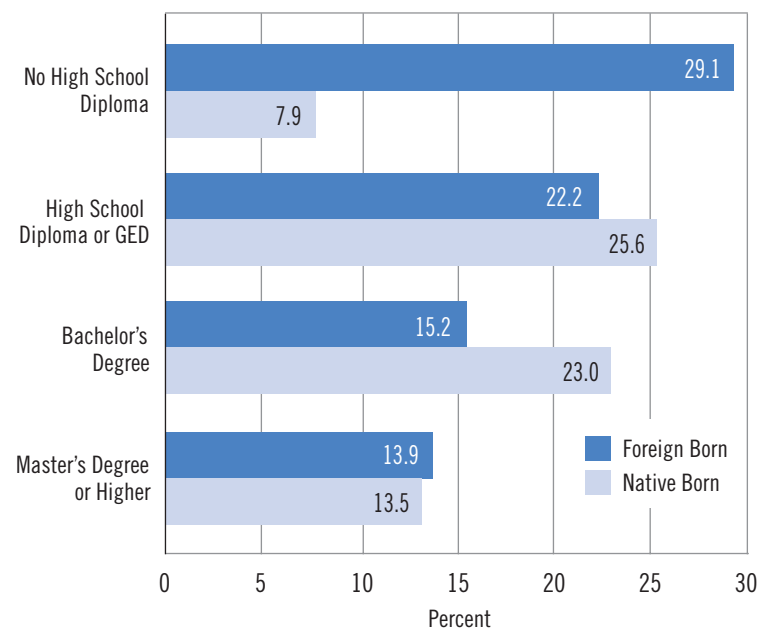
The economic benefits of a strong education for immigrants are quite clear. Those immigrants with more years of schooling were much more likely to participate in the labor market and more likely to be employed. While 9 percent of immigrant high school dropouts were unemployed in 2000, only 3 percent of immigrant college graduates were. Further, immigrant college graduates were much more likely to work in high-end jobs. More than half of all immigrant college graduates were professionals, managers, or technical workers but only 4 percent of immigrant high school dropouts held these types of jobs. Correspondingly, the average annual earnings of immigrants holding a college degree were \$40,179 compared with \$14,687 for immigrant high school dropouts, a relative difference of nearly 3 to 1 (Figure ES 5).

Using statistical methods, we isolated the inde-

pendent impact of education on the earnings of immigrants by controlling for other differences such as a person's work experience, length of time in the United States, race and ethnic origin, marital status, and the ability to speak English. The results are striking and unambiguous: An immigrant college graduate can be expected to have earnings that are 66 percent greater than an immigrant with similar characteristics who is a high

**FIGURE ES4:**

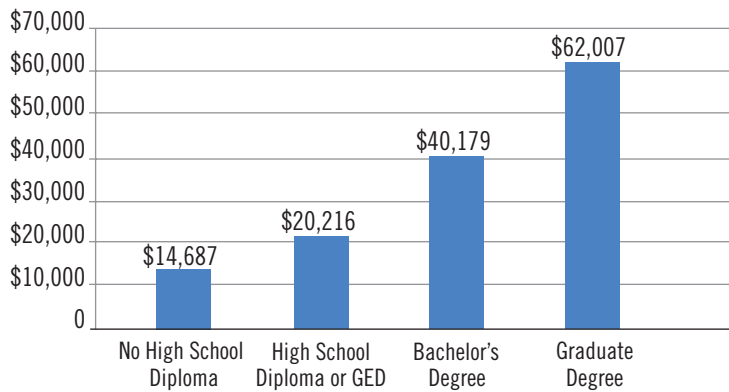
Educational Attainment of the Adult Population in Massachusetts, 2000



Note: Shares represent the individuals for which the given level is the highest level of formal education achieved. Source: Authors' calculations using U.S. Census, 2000

**FIGURE ES5:**

Average Annual Earnings of Immigrants (20-64 Years Old) in Massachusetts by Educational Attainment, 1999



Source: Authors' calculations using U.S. Census, 2000

school graduate.<sup>5</sup> The earnings of an immigrant with a professional degree are estimated to be 149 percent greater than those of an immigrant high school graduate. At the other end of the educational scale, the annual earnings of a high school dropout can be expected to be 10 percent less than those of an immigrant high school graduate. Overall, an immigrant's education level is quite significant in determining a person's ability to succeed in the Massachusetts economy.

## AN INCREASING NUMBER OF NEW IMMIGRANTS DO NOT SPEAK ENGLISH WELL.

**The New Fault Line: The Ability to Speak English**  
Education by itself does not guarantee economic success for immigrants or for native-born workers. The ability to speak English proficiently has also become a dividing line, separating those who succeed from those who struggle in the labor market. The number of immigrants with limited English-speaking skills has increased over the last 20 years, while the number of immigrants who only speak English at home has declined. In 1980, 35 percent of all immigrants in Massachusetts only spoke English at home. By 2000, that number had dropped to 21 percent. That is, 79 percent of

immigrants spoke another language besides English at home.

Increasingly, immigrants are coming from countries where English is not the primary language. Consequently, an increasing number of the new immigrants do not speak English well. In the 1990s, about 1 in 4 of the new immigrant workers had limited English-speaking skills. From 1980 to 2000, the number and share of immigrants with limited English-speaking skills increased considerably from 17 percent to 22 percent. From 1980 to 2000, the sheer number of immigrants with limited English skills increased by almost 92,000 people.

Like their education levels, the English-speaking skills of immigrants varied by their region and country of origin. Half of the new immigrant workers from Central America did not speak English at all or did not speak it well, while only 14 percent of the new immigrant workers from Europe had limited English-speaking skills.

The link between a person's ability to speak English and their ability to succeed in the Massachusetts economy is clear and indisputable. First, it is simply difficult to fully participate in the formal labor market without speaking English. Of those immigrants who only speak English, 77 percent are active members of the state's labor force compared with only 59 percent of the immigrants who do not speak English well. The type of jobs that immigrants hold is also related to their ability to speak English. Less than 8 percent of immigrants who do not speak English well are professionals, managers, or technical workers, while 35 percent of immigrants who only speak English hold these high level jobs.

The ability to speak English strongly influences a person's earnings. In 1999, an immigrant who only spoke English earned, on average, 2.5 times as much as an immigrant who did not speak English well (\$38,526 vs. \$14,221) (Figure ES6). Using statistical methods to isolate the effect of a person's ability to speak English, this

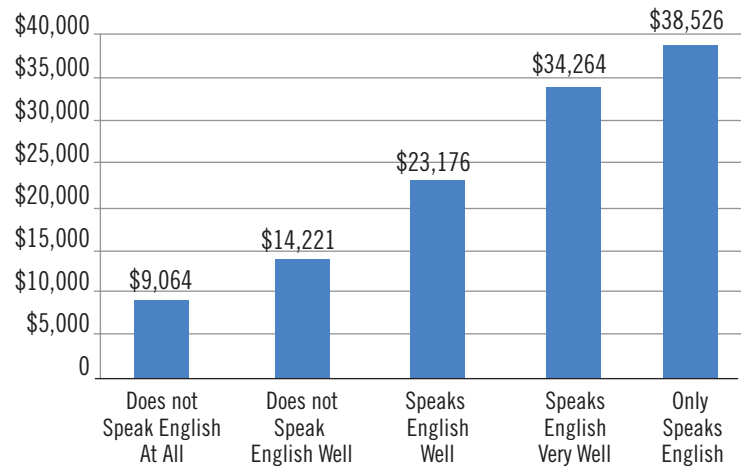
research finds that immigrants with limited English-speaking skills earned 28 percent less than those immigrants with similar characteristics who only spoke English, and immigrants who speak English well earned 16 percent less than immigrants who only speak English. In the Massachusetts economy, strong English-speaking skills are key to economic success.

Since both education and the ability to speak English well are important, not surprisingly, those immigrants who had both a high level of education and strong English-speaking skills had the highest earnings. While these two traits often go together, that is not always the case. What becomes clear, however, is the importance of being able to speak English proficiently—even for immigrants with high levels of education. Consider that the average earnings of an immigrant college graduate who speaks English well is about \$20,000 less than those of an immigrant college graduate who only speaks English at home. Having a good education does not substitute for strong English-speaking skills. The Massachusetts economy requires both a strong education and strong English-speaking skills.

The opportunity to achieve a middle-class standard of living is also strongly related to a person’s English-speaking skills.<sup>6</sup> Overall, immigrants are less likely than native-born residents to be in the middle class. Of all immigrant adults in Massachusetts, 38 percent had achieved at least a middle-class standard of living, compared with 59 percent of native-born residents. More than half of the immigrants who only spoke English (53%) were in the middle class or higher, but only 11 percent of the immigrant families who did not speak English were in the middle class. Of course, the immigrants who were most likely to succeed were those with strong English skills and high levels of education. Nearly 70 percent of immigrant college graduates who only spoke English achieved at least a middle-class standard of living.

**FIGURE ES6:**

Average Annual Earnings of Immigrants (20-64 Years Old) in Massachusetts by English-Speaking Ability, 1999



Source: Authors’ calculations using U.S. Census, 2000

### Immigrants and the New Economy

The skills demanded by the Massachusetts economy are high, and the economic penalties for those who lack them are substantial. Previous MassINC research, *New Skills for a New Economy*, identified three specific skills needed to succeed in the knowledge economy: a minimum of a high school diploma, the ability to speak English proficiently, and strong literacy and numeracy skills, including the ability to successfully complete tasks such as comparing two bar graphs or calculating the interest owed on a hypothetical loan.<sup>7</sup> In contrast to *New Skills for a New Economy*, this research focuses only on immigrants, asking: How many adult immigrants in Massachusetts are not prepared for the new economy?<sup>8</sup>

A very large fraction of adult immigrants faces at least one of these three skill challenges. In 2000, there were 658,002 adult immigrants (ages 20 to 64) living in Massachusetts. Of these adult immigrants, 191,502 lacked a high school diploma, thus facing an Education Challenge. In addition, 136,890 immigrants faced a Language Challenge—meaning they either did not speak English at all or did not speak it well.<sup>9</sup> There is considerable

overlap between these two groups in that 83,231 immigrants both lacked a high school diploma and had limited English-speaking skills. If we do not double-count those immigrants who faced both challenges, we end up with 245,161 immigrants. Thus, more than one-third of all adult immigrants in Massachusetts (37%) either lack a high school diploma or have limited English-speaking skills (Table ES3).

In addition, a significant number of high school graduate immigrants who speak English still lack the literacy skills required in today's knowledge economy. They are not illiterate in the traditional sense of being unable to read or write, but rather they have limited reading, math, and analytical skills. This higher standard of literacy reflects the demands of the twenty-first century. We estimate that an additional 221,986 immigrants face what we call the "New Literacy Challenge." Thus, the combined, unduplicated number of adult immigrants who are not adequately prepared for the knowledge-based economy is 467,147 or 71 percent of all adult immigrants in Massachusetts.

The Massachusetts economy has increasingly become dependent on immigrants for its work-

force, and the future appears to hold more of the same. Some immigrants are highly skilled and are able to thrive, fully participating in and contributing to the knowledge economy. At the same time, large numbers of immigrants lack one or more of the skills needed to succeed. There are some positive signs, however. First, the average education level and English-speaking skills of Massachusetts immigrants are higher than those of their national counterparts. In addition, joining the workforce and working continuously does pay off over time. In the early years after their arrival in the United States, each year of work experience adds about 3 percent to their annual earnings, holding all other determinants of earnings constant. Ten years of work experience translates into at least a 20 percent increase in earnings. If immigrants can also obtain more education and improve their English speaking and writing skills while working, the earnings gains are even higher.

#### The Workforce of Tomorrow

The ability to speak English well and educational outcomes are closely linked for young adult immigrants. Nearly half (47%) of all young immigrants in Massachusetts between the ages of 16 and 24

**TABLE ES3:**

Distribution of Education, Language, and New Literacy Challenges in the Massachusetts Adult Immigrant Population, 2000

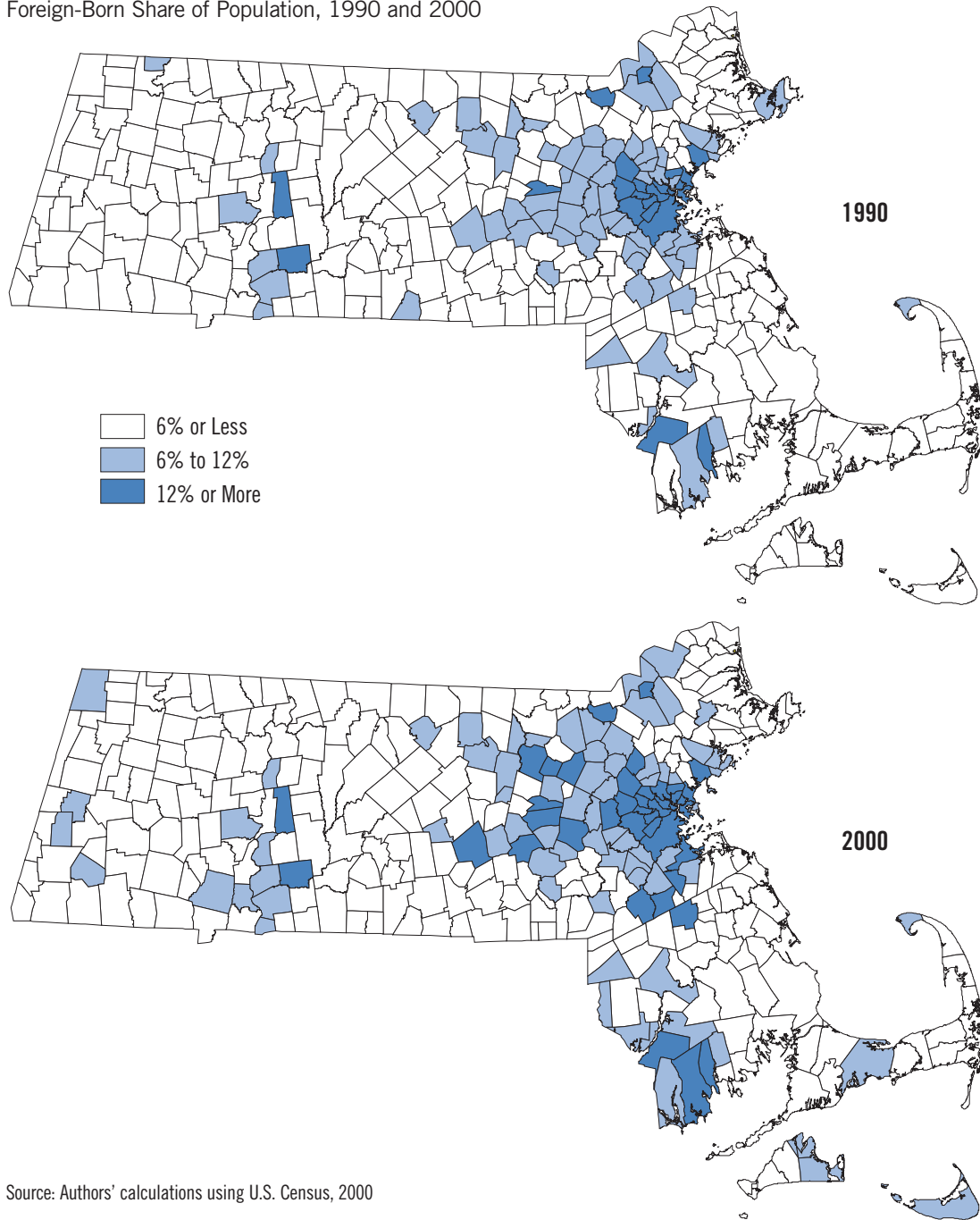
GROUP	NUMBER	PERCENT OF 20-64 YEAR OLDS
Lacks high school diploma/GED	191,502	29.1%
Limited English-speaking skills	136,890	20.8%
Both lacks a high school diploma and has limited English-speaking skills	83,231	12.6%
Unduplicated count of Education and Language Challenges	245,161	37.3%
• Lacks diploma but no Language Challenge	108,271	16.5%
• Lacks diploma and has Language Challenge	83,231	12.6%
• Has a diploma but has limited English-speaking skills	53,659	8.2%
Estimated number of immigrants with at least a high school diploma and no Language Challenge who lack level three literacy skills	221,986	33.7%
Total number of immigrants with a Language, Education, or New Literacy Challenge	467,147	71.0%

Source: Authors' calculations using U.S. Census, 2000; International Adult Literacy Survey



**FIGURE ES7:**

Foreign-Born Share of Population, 1990 and 2000



Source: Authors' calculations using U.S. Census, 2000

who did not speak English well or at all were high school dropouts, compared with only 8 percent of young immigrants who only spoke English. (Many of these high school dropouts did not attend school in the United States.) In addition, those young immigrants who only spoke English were more than 4 times as likely as those with limited English skills to be enrolled in college.

Thirty-nine percent of young immigrants who only spoke English are college students, compared with only 9 percent of those who did not speak English well or at all. Because the limited ability to speak English often combines with limited schooling, these young immigrants will face formidable challenges to success in the Massachusetts economy.



### **The Geography of Immigrants in Massachusetts**

While immigrants live in all parts of the state, the immigrant population is concentrated in the Greater Boston, Northeast, and Southeast regions of the state (Figure ES7). There is also a large concentration in the Springfield/Chicopee area. In 2000, nearly one-quarter of all the state's immigrants lived in Suffolk County, even though the county accounted for only 11 percent of the state's population. Immigrants tend to live in many of the state's large urban centers, such as Boston, Lowell, Lawrence, New Bedford, and Springfield, and the state's larger cities have become completely dependent on immigrants to spur their population growth. In the 1990s, the state's 23 largest cities grew by only 45,000 people but welcomed 210,000 new immigrants.

About 1 of 4 residents in Boston, Brookline, Cambridge, and Malden are immigrants. Chelsea has the largest share of immigrants in the state. Thirty-six percent of its residents are foreign born and the number of immigrants living in the city more than doubled in the 1990s. Lawrence and Somerville follow Chelsea as the cities with the highest fraction of immigrants, although their

## **ALL OF THE TOP TEN IMMIGRANT CITIES ARE IN EASTERN MASSACHUSETTS.**

growth rates in the 1990s were much less than that of Chelsea. Of the ten cities with the highest share of immigrants, Chelsea, Malden, and Everett added new immigrants over the last decade at the fastest rate. All of the top ten immigrant cities are in Eastern Massachusetts.

The majority of the immigrants who live in the state's large cities speak a language other than English at home. In 19 of the 20 largest cities, three-quarters of the immigrants spoke a language other than English at home. The ability of these urban immigrants to speak English varied considerably across cities. In 11 of the 20 largest cities, at

least 1 out of every 4 immigrants has limited English-speaking skills. And, in four cities—New Bedford, Fall River, Lawrence, and Lynn—1 in 3 immigrants has limited English-speaking skills.

Chelsea and Lawrence have the greatest shares of residents with limited English-speaking skills in the state. In Chelsea, 14 percent of the city's population does not speak English well or at all. Lawrence follows Chelsea with 12 percent of its residents with limited English-speaking skills. In the City of Boston, 7 percent of the residents have limited English-speaking skills (Figure ES8). Immigrants bring a rich mix of skills and resources to a community, and expanding opportunities for immigrants to learn to speak English well must be at the top of the economic development agenda of the state's urban leaders.

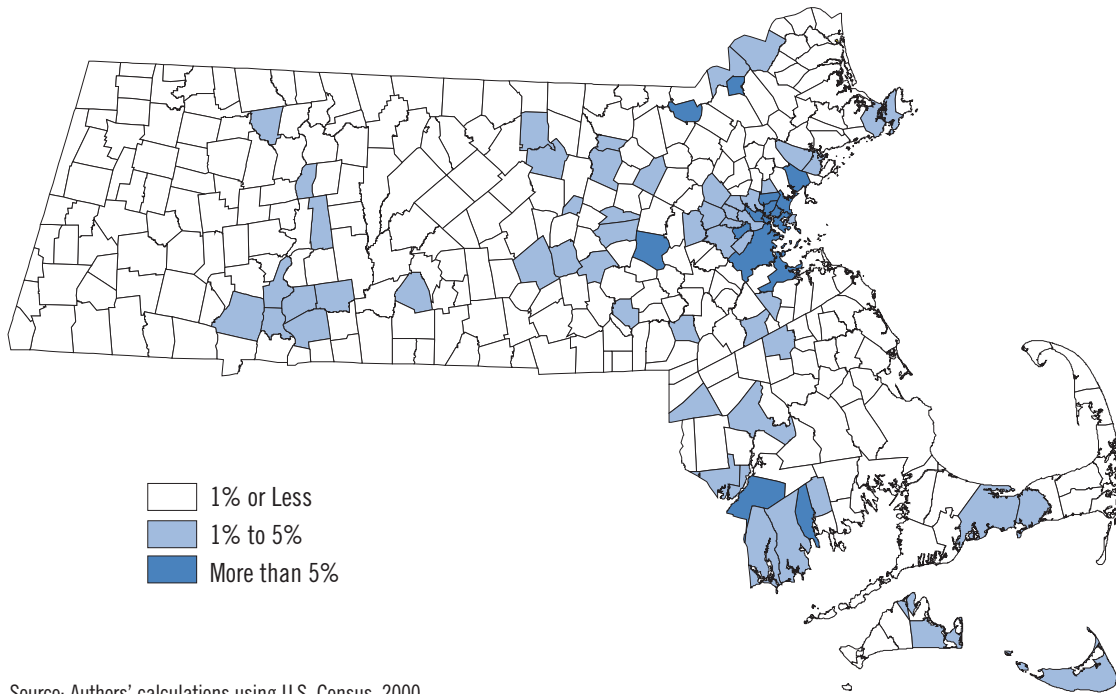
### **Building Capacity: Teaching Immigrants to Speak English**

There are a variety of ways that immigrants can learn to speak English. Public money through the Department of Education supports a diverse network of community programs. These classes have accomplished some success in teaching immigrants to speak English. Previous MassINC research found that more hours of instruction translates into more learning, and a primary goal must be to get students to stay in class for more hours.<sup>10</sup> The average number of hours of instruction that students receive has increased from 97 hours in 1998 to 128 hours in 2004. This increase is clearly a big improvement, but at the same time, the averages can conceal the fact that too many students still drop out too soon.

In addition, the state's ESOL classes reach only a small fraction of the immigrants in need of English instruction. They serve about 18,000 immigrants per year with 20,000 people on waiting lists, and in recent years, the waiting lists have grown considerably. The waiting lists are the longest in urban centers where the need is most critical. Moreover, from 2000 to 2004, during the

**FIGURE ES8:**

Foreign-Born Population with Limited English Skills as Share of Total Population, 2000



Source: Authors' calculations using U.S. Census, 2000

economic downturn, state funding for Adult Basic Education classes, which includes ESOL classes, declined from \$30.2 to \$27.8 million. During this time, federal funding has remained roughly the same. Additional public investment in adult English language classes is needed, but the dollars should be targeted to the urban areas with the greatest need and also targeted to programs that can document positive outcomes and that are closely integrated with the state's workforce development priorities.

Given the dependence of the state's labor force on immigrants, public investors, private foundations and nonprofits should tie investments in education and workforce programs to the needs of employers and to the skills required in the workplace. Labor unions, the Massachusetts Department of Education, and the Massachusetts Department of Workforce Development have played a key role in initiating some efforts in this direction, and more should be done. More workplace-based language classes should be supported,

and the link between English classes and workforce development programs should be strengthened because there is evidence that the combination of basic skills and job training are associated with greater earnings gains.<sup>11</sup>

An increased focus on workplace literacy programs could help address the challenge of improving immigrants' English language skills while also boosting their job performance and employment success. The Workforce Training Fund should continue supporting English language classes. In general, preference should be given for programs in which employers are involved in program design. There are greater economic payoffs to workers when employers are involved in literacy training. Employer involvement would also have a ripple effect in terms of employers becoming more knowledgeable about the publicly funded education and workforce programs. Moreover, employers would develop confidence about whether classes meet their needs as well as the needs of their employees. Employers who are willing to

offset some of the costs of workplace-based language classes should receive priority for state workforce and economic development funds.

In order to stretch limited dollars to serve more clients, the state should experiment with charging a sliding fee for ESOL students, particularly those in higher-level classes. The state should pilot such a program. Those students who can afford to at least partly pay for instruction will contribute, and more students overall can potentially benefit from the state's ESOL classes. Community colleges should expand classes that combine English instruction with technology or business-related instruction, especially targeted at immigrant entrepreneurs or immigrants ready to transition to college-level work.

## THE STATE SHOULD EXPERIMENT WITH CHARGING A SLIDING FEE FOR ESOL STUDENTS.

As taxpayers invest in ESOL classes, it is important to ask: What does the state get for the money it spends? A standards-based approach that measures learning gains will better help us measure outcomes, and introducing a basic skills credential can be part of the solution. This credential would measure a person's English-speaking and literacy skills. It gives the student a specific goal while also helping employers to evaluate the skills of potential employees. Further, it would also help to measure the outcomes of specific adult basic education classes and workforce development programs. The state should systematically track the "return on investment" of publicly supported programs, including the learning gains, increases in enrollment in postsecondary education, and increases in earnings and other employment gains.

There are important ways in which the state can reform and expand ESOL classes, but meeting the challenges that we have identified will require more than simply increased government

spending on ESOL classes. Previous MassINC research, *Getting the Job Done*, called for increasing the capacity of ESOL programs to serve more students, but government cannot solve this problem alone.<sup>12</sup> Addressing this challenge also requires bringing to scale efforts to teach English. Foundations should encourage and fund, perhaps in partnership with the state, innovation grants that develop new ways to bring such efforts to scale. For instance, while there have been some demonstration efforts that use technology, we have not really figured out how to best leverage technology to dramatically expand the number of students. There have also been some new public-private partnerships, such as Literacy Works and SkillWorks, that operate locally to expand class offerings by mobilizing public, private, and community leaders to prioritize literacy efforts.<sup>13</sup> Although there are currently a large number of English language classes outside of the publicly funded classes, we believe there is room for more private entrepreneurship. There is likely a viable market for more English language classes. Some companies are already offering private classes, but there are likely additional opportunities for expanding market-based English classes, especially in our cities.

### Concluding Thoughts

Immigrants have changed and will continue to change the face of Massachusetts. They are a critical and growing part of our communities and our workforce. They work in all sectors of the economy, including many of the state's key industries. Many of the most successful growth sectors of the economy—life sciences, health care, and software—have prospered, in part, because of the immigrant leadership and workforce. Increasingly, our state's future economic health is linked to the immigrants who live here and the new immigrants entering our state. However, the state faces a serious economic challenge: The skills demanded for the new jobs in the Massachusetts econo-

my continue to increase. Yet, more and more of our principal source of labor—foreign immigrants—has limited education and/or limited English-speaking skills.

Like their native-born peers, the economic cost for those immigrants who lack an education is steep. Our economy continues to sort workers based on their educational level and literacy skills. As the skill requirements of jobs increase, the options for success have narrowed. The number of high-paying jobs for high school dropouts and even for high school graduates with no post-secondary schooling has declined considerably. While our state attracts many highly educated immigrants, it is also true that immigrants are more than three times as likely as native-born adults to lack a high school diploma.

Many immigrants face an additional challenge: The need to speak English proficiently. The ability to speak English proficiently has become another fault line, dividing those who enjoy economic success from those who do not. On average, an immigrant college graduate who speaks English well earns about \$20,000 less than an immigrant college graduate who only speaks English. Thus, the ability to speak English is critical, even for those immigrants with a strong educational background. The Massachusetts economy demands both a high level of education and strong English-speaking skills.

In addition, the likelihood of an immigrant becoming a U.S. citizen is strongly associated with that person's educational attainment and ability to speak English. Previous national research also finds that strong literacy skills are related to the civic behavior of immigrants.<sup>14</sup> Immigrants with strong literacy skills are more actively involved in their communities, including volunteering, taking part in civic affairs, and voting.

In 2000, more than 1 out of 5 immigrants had limited English-speaking skills. As an increasing number of immigrants are coming from countries where English is not their primary language,

the numbers of immigrants with limited English-speaking skills are growing. From 1980 to 2000, the number of immigrants who either did not speak English at all or did not speak it well increased by nearly 92,000 people.

Immigrants with limited English skills are clustered in the state's larger cities. In some cities, such as Lawrence and New Bedford, a substantial portion of the city's overall population does not speak English at all or does not speak it well. Local leaders must make expanded opportunities for immigrants to learn to speak English and gain additional schooling a central element of their economic development strategies. Teaching immigrants English benefits both the individual and the community. In addition, public and private leaders should consider adjusting existing state grant and aid programs to compensate those urban areas most highly impacted by immigrants.

There are also a growing number of undocumented immigrants in Massachusetts, estimated to be somewhere between 100,000 and 175,000 people.<sup>15</sup> Many of them have lived in Massachusetts for a long time, and some children have essentially lived their whole lives here. While the sociodemographic characteristics of undocumented immigrants are unknown, past evidence suggests that many of them are likely young, and have

## **INCREASINGLY, OUR STATE'S FUTURE ECONOMIC HEALTH IS LINKED TO IMMIGRANTS.**

limited education and limited English-speaking skills. At the same time, their ability to access jobs, educational, health, and workforce development services are limited. These are no longer only issues for the border states to be concerned about. While immigration policy is largely formulated at the federal level, state leaders should actively engage in federal immigration policy debates.

As the state economy's fortunes are increasingly linked to the education and skills of immi-

grants entering our state, everyone has a stake in addressing the challenges uncovered in this research. Government alone cannot solve this problem. Finding effective solutions poses a challenge to state and local leaders in the public, private, and nonprofit sectors to initiate new models to increase the state's capacity to teach English to immigrants. The long-term civic and economic health of our state depends on our success in meeting this challenge.

## ENDNOTES

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- 1 The data in this report primarily come from the 2000 Census of Population and Housing, the 5% Public Use Microdata Sample (PUMS) from the Census long form, and the monthly Current Population Surveys of the U.S. Census Bureau. It includes both legal and undocumented immigrants. A “foreign immigrant” is defined as someone born outside of the 50 states and the District of Columbia and who was not born to American parents abroad. People born in Puerto Rico and other U.S. territories are considered to be immigrants. Since English is not the primary language of many people from these territories, they often face the same challenges that immigrants face. However, in our analyses of counties and cities, we primarily rely on the Census Bureau’s definition of an immigrant, which excludes people born in U.S. territories.
- 2 Our analysis of the ability of immigrants to speak English is based on data collected with the long-form of the U.S. Census. There are five categories that are used to record a person’s self-reported ability to speak English—only speaks English at home and speaks English very well, well, not well, or not at all. We include people who do not speak English at all or do not speak it well (the bottom two categories) as those who have limited English-speaking skills. This estimate is conservative because many of the people who say they speak English well (the middle category) do not speak English well by objective measures.
- 3 These estimates assume that the migration behavior of native-born people is independent of the number of new immigrants.
- 4 Cape Verde became independent from Portugal in 1975. As a result, when completing Census forms some immigrants from Cape Verde likely reported Portugal as their place of birth while others likely reported Cape Verde. Unfortunately, there is no way to know the exact counts for each nation.
- 5 For these estimates, we constructed a set of multivariate models using the natural log of the annual earnings of 20-64 year old employed immigrants during 1999 as the dependent variable. All of the coefficients for the educational attainment variables were significant at the .01 level. More details about the regression analyses are available in the full report.
- 6 We use a family income that is four times the poverty line as a proxy for a middle-class living standard. The actual income needed to achieve this standard depends on the number of people in the family. For a two-person family, the income would be at least \$44,856, which is at the 43rd percentile of all families. The incomes required range from the 40th to the 58th percentile and are squarely within the middle class.
- 7 The literacy skills are based on the National Adult Literacy Survey. The National Governors Association and other literacy analysts use the Level 3 proficiency as the minimum criterion needed for success in today’s economy. This research uses the findings from the International Adult Literacy Survey as the basis for the state estimate. It also uses a Level 3 proficiency as the criterion. See Appendix B in the full report for more information about the methodology.
- 8 The numbers in this report and those in *New Skills for a New Economy* are not strictly comparable. In *New Skills*, we include all working-age adults—immigrants and native-born. In this estimate, we include only adult immigrants. In addition, the methods in the two reports differ slightly. In this report, we focus on all 20-64 year-old immigrants regardless of their labor market status. In *New Skills*, we focused on 16-64 year-old people who were mostly connected to the labor market. In *New Skills*, we defined the Language Challenge as those adults who did not speak English at all, did not speak English well, or spoke English well. In this research, we deliberately limit our focus to those with the most limited language skills and thus define the Language Challenge to include immigrant adults who do not speak English at all or who do not speak it well.
- 9 This is a conservative estimate of the number of immigrants who face a Language Challenge. These numbers are based on self-reported assessment of one’s ability to speak English, and other research documents that many of the people who say they speak English “well” do not actually speak it well by objective measures.
- 10 See Chapter 6 of *New Skills for a New Economy* for a detailed analysis of the effect of increased hours of instruction.
- 11 See the MassINC white paper *Getting the Job Done: Advancing the New Skills Agenda*, 2003.

- 12 Michael Stoll, Steven Raphael, et al. *The Impact of Participation in Employment and Training Programs on the Earnings and Employment of Low-Income Adults: An Evaluation of Massachusetts Workforce Development Programs*. Commonwealth Corporation, November 2003.
- 13 Literacy Works is a collaboration among MassINC, the Commonwealth Corporation, and the Massachusetts Department of Education. Currently, it is located in Lawrence and Hampden County. SkillWorks is a mutli-funder initiative and the largest workforce development program in Boston's history. An example of a program funded by SkillWorks is the Hotel Career Center, a partnership between the Hilton Hotels, International Institute, and the Vietnamese American Civic Association that helps limited English speaking workers advance in the hotel industry.
- 14 Andrew Sum, Irwin Kirsch, and Kentaro Yamamoto. *A Human Capital Concern: The Literacy Proficiency of U.S. Immigrants*. Educational Testing Service, Princeton, N.J., 2004.
- 15 Jeffrey Passel, "Undocumented Immigrants: Facts and Figures," The Urban Institute, Washington, D.C., 2004.



## THE CHANGING FACE OF MASSACHUSETTS

Foreign immigration in the U.S. during recent years has markedly changed both the size and the demographic composition of the population of the nation.<sup>1</sup> During the decade of the 1990s, new foreign immigration into the nation contributed more than 40 percent of the growth of the population. The population impacts of immigration, however, varied quite widely by geographic area. In some regions of the country, such as the Northeast region (which is comprised of the six New England states, New Jersey, New York, and Pennsylvania), all of the growth of the population was generated by new foreign immigration.<sup>2</sup> In Massachusetts, new inflows of immigrants have accounted for all of the state's population growth in the past two decades, and, as will be revealed below, the modest rise in the state's resident population over the past few years (2000-2003) was completely attributable to a new influx of foreign immigrants.<sup>3</sup> High levels of domestic out-migration since the end of the state's economic boom in 2000 has made the state totally dependent on new immigrant inflows to achieve any growth in its resident population. During calendar year 2003, nearly 1 of every 7 residents of the state was foreign-born. Massachusetts ranked 11th highest in the nation on this measure and was

only modestly outpaced by its two southern neighbors, Connecticut and Rhode Island, that ranked 10th and 9th highest, respectively.<sup>4</sup>

The immigrant population in the nation and the state is not a homogeneous one. The composition of this immigrant population by national origin, age, educational attainment, and English-speaking proficiency has changed in a number of substantive ways over the past two decades. A very high and rising fraction of the new immigrants in Massachusetts over the past few decades have come from non-English-speaking countries, and many enter the U.S. with relatively limited English-speaking proficiencies. The changing national origins of these new immigrants together with their highly diverse English-speaking abilities and formal educational backgrounds complicate the task of assimilating them into the state's labor markets and civic/ political institutions. Immigrants with limited schooling and English-speaking proficiencies are much less likely to become U.S. citizens. National research also reveals that immigrants with limited literacy and numeracy proficiencies are also less likely to vote, to follow national and local political news and activities, or to participate in local community and civic activities.<sup>5</sup>

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1 For a review of the impacts of foreign immigration on the size and demographic/socioeconomic composition of the U.S. population, See: (i) Vernon Briggs, *Immigration and the National Interest*, M.E. Sharpe, Armonk, New York, 2003; (ii) James P. Smith and Barry Edmonston (Editors), *The New Americans: Economic, Demographic, and Fiscal Effects of Immigration*, National Academy Press, Washington, D.C., 1997; (iii) Andrew Sum, Ishwar Khatiwada, Nathan Pond, and Jacqui Motroni, *The New Great Wave: Foreign Immigration in Massachusetts and the U.S. During the Decade of the 1990's*, Paper Prepared for the Teresa and H. John Heinz III Foundation, Washington, D.C., 2002.

2 The contributions of foreign immigration to population growth in the Northeast and New England during the 1990s and the early years of the current decade are assessed in the following publications: (i) *Connection: The Journal of the New England Board of Higher Education*, Vol. 17, No. 2, Fall 2002; (ii) Andrew Sum, Ishwar Khatiwada, et.al., *Moving Out and Moving In: Out-Migration and Foreign Immigration in the Northeast Region and New England During the 1990s*, Report Prepared by the Center for Labor Market Studies, Northeastern University for the Teresa and H. John Heinz III Foundation, Washington, D.C., June 2002; (iii) Andrew Sum, Ishwar Khatiwada, and Kamen Madjarov, et.al., *The Impacts of Foreign Immigration on Population Growth, the Demographic Composition of the Population, Labor Force Growth and the Labor Markets of the Northeast Region During the Decade of the 1990s*, Center for Labor Market Studies, Northeastern University, Prepared for Fleet Bank, Boston, October 2003.

3 Immigration's impacts on population growth in Massachusetts during the past few decades are described in the following studies: (i) Andrew Sum, W. Neal Fogg, et.al., *The Changing Workforce: Immigrants and the New Economy in Massachusetts*, Citizen's Bank and The Massachusetts Institute for A New Commonwealth, Boston, 1999; (ii) Andrew Sum, Ishwar Khatiwada, Nathan Pond, and Jacqui Motroni, *The New Great Wave*.

4 California ranked highest on this measure with 27 percent of its resident population estimated to be foreign born in 2003. All of these estimates of the share of a state's population that was foreign born are based on the findings of the monthly CPS household surveys for calendar year 2003. The estimates are based on tabulations by the authors of this monograph.

5 See: Andrew Sum, Irwin Kirsch, and Kentaro Yamamoto, *A Human Capital Concern: The Literacy Skills of U.S. Immigrants*, Center for Global Assessment, Educational Testing Service, Princeton, 2004.

Foreign immigrants have become an even more important contributor to the growth of the nation's, the New England region's, and the state's civilian labor force over the past few decades. Nationally, new immigrants (those arriving in the U.S. from 1990 onward) contributed over one-half of the growth in the nation's civilian labor force during the decade of the 1990s.<sup>6</sup> This particular result is due to the fact that a substantially above average share of new immigrants are of working-age (16+), many are both relatively young (16-34) and male, and a high share of the male immigrants are active in the civilian labor force. Similar to the findings for population growth, the contributions of new foreign immigration to labor force growth also vary markedly by geographic region, state, and areas within states.<sup>7</sup> The Northeast region was completely dependent on new foreign immigration for its labor force growth in the 1990s, especially among males. The number of native-born males in the labor force declined sharply in the Northeast region and Massachusetts during the 1990s. The surge of new immigrant males helped offset to a considerable degree though not fully the steep drop in the number of native-born male workers. In Massachusetts, new immigrant workers accounted for all of the growth in the state's resident labor force during the 1990s and helped offset the steep reduction in the number of native-born male workers in the past decade.<sup>8</sup> New immigrants also increased their numbers in the ranks of the employed since 2000 while the number of native-born workers and established immigrants declined. It is quite likely that the state will continue to be heavily dependent on new immigrants for its labor force growth over the remainder of the current decade, par-

ticularly given the aging of the state's labor force and continued out-migration of its young resident workers to other states. Massachusetts, however, will be competing with other states and nations to attract and retain well-educated and highly skilled immigrants.

The changing demographic and human capital traits of new immigrants into Massachusetts have a number of important implications for the state's labor markets and its educational and workforce development agencies. As will be indicated below, the educational attainment and English-speaking proficiencies of new immigrants into the state are highly diverse. Above average fractions of these new immigrants lack high school diplomas, and many of them have limited English-speaking proficiencies. At the end of calendar year 2000, the Massachusetts Institute for a New Commonwealth issued a policy research report on the role of adult basic education in addressing a number of important educational and literacy challenges facing the state. This report titled *New Skills for A New Economy* identified the educational, literacy, and English-speaking challenges that the state will have to meet in the current decade and estimated the number of adults (16-64) who confronted one of these three challenges.<sup>9</sup>

This study is designed to update and expand upon findings from two previous MassINC studies: the *New Skills for A New Economy* report and the 1999 study on the demographic and economic contributions of immigration in the state titled *The Changing Workforce: Immigrants and the New Economy in Massachusetts*. The study will examine foreign immigration's impacts on population, labor force and employment growth in Massachusetts during the 1990s and the first

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6 See: (i) Steven A. Camarota, *Immigration in a Time of Recession: An Examination of Trends Since 2000*, Center for Immigration Studies, Washington, D.C., November 2003; (ii) Andrew Sum, Paul Harrington, and Neeta Fogg, *Immigrant Workers and the Great American Job Machine, The Contributions of New Foreign Immigration to National and Regional Labor Force Growth in the 1990s*, Report Prepared for the Business Roundtable, Washington, D.C., August 2002.

7 Immigration's contributions to labor force growth in the Northeast region and New England are discussed in the following papers and monographs: (i) Andrew Sum, Neeta Fogg, et.al., *The Northeast Region's Economy on the Eve of the Twenty-first Century*, Teresa and H. John Heinz III Foundation, Washington, D.C., 2002; (ii) Andrew Sum, Ishwar Khatiwada, Kamen Madjarov, et.al., *The Impacts of Foreign Immigration on Population Growth, the Demographic Composition of the Population, Labor Force Growth and the Labor Markets of the Northeast Region During the Decade of the 1990s*.

8 Massachusetts' growing dependence on foreign immigration for its labor force growth since 1980 can be viewed in the following publications: (i) Andrew M. Sum and W. Neal Fogg, *The Changing Workforce: Immigrants and the New Economy in Massachusetts*; (ii) Andrew Sum, Mykhaylo Trubs'kyy, Ishwar Khatiwada and Sheila Palma, *Foreign Immigration and Its Contribution to Population and Labor Force Growth in Massachusetts and the U.S.*, Center for Labor Market Studies, Northeastern University, Boston, December 2001.

9 See: John Comings, Andrew Sum, Johan Uvin, et.al., *New Skills for a New Economy: Adult Education's Key Role in Sustaining Economic Growth and Expanding Opportunity*, MassINC, Boston, 2000.

three years of the twenty-first century 2000–2003. The educational backgrounds and English-speaking proficiencies of the state’s entire foreign-born population and its newer immigrants will be critically assessed, and the educational and literacy needs of the state’s foreign-born adult population will be identified. The importance of formal education and English-speaking proficiencies for assimilation into Massachusetts labor markets and civic life and for entry into the middle class will be carefully documented.

## OVERVIEW OF THE REPORT

The empirical portion of the study will begin with a brief overview of foreign immigration’s contributions to population growth in the Commonwealth from 1980 to 2003. Definitions of the “foreign-born” population and the “new immigrant” population will be presented, and the sources of data for the estimates appearing in this report will be identified. The countries of origin of new immigrants arriving in Massachusetts during the decade of the 1990s and during the 2000-2003 period will be examined and compared. The analysis of immigrant contributions to population growth in the state will be supplemented by an overview of immigration’s impacts on the growth and demographic/human capital characteristics of the state’s civilian labor force over the 1980-2003 period.<sup>10</sup>

One of the major objectives of the study is to carefully examine the English-speaking proficiencies and educational backgrounds of the state’s immigrant population. The analysis will begin with an overview of the English-speaking proficiencies of the state’s foreign-born population 5 and older in 2000, with comparisons with the English-speaking proficiencies of the U.S. foreign-born population. Findings for the 5 and older population will be supplemented with a more detailed analysis of both the English-speaking proficiencies

and the educational backgrounds of the state’s adult immigrant population (20-64). Links between the educational attainment and English-speaking proficiencies of the adult immigrant population also will be explored. A set of estimates of the unduplicated count of adult immigrants in Massachusetts facing one of the following three educational challenges will be presented: lacks a high school diploma/GED, has a severe English-speaking deficit, and has a composite literacy proficiency below Level 3 on the NALS literacy scale.<sup>11</sup>

A second key set of objectives for the study is to examine the statistical links between the English-speaking proficiencies and educational attainment of adult immigrants and a wide array of personal labor market behaviors and outcomes, educational attainment and school enrollment behavior, and the citizenship status of immigrants at the time of the 2000 Census. The statistical analyses will include simple cross-tabulations, multiple cross-tabulations, and multivariate statistical analyses.<sup>12</sup> The first set of labor market analyses will examine the associations between the English-speaking proficiencies and educational attainment of immigrants and their labor force participation behavior, unemployment status, and employment status at the time of the 2000 Census (the early spring of 2000). These findings will be followed by an examination of the statistical links between the human capital traits of adult immigrants (20-64) and the occupational characteristics of the jobs they obtained, their employment status during the prior calendar year (1999), the intensity of their annual work hours, and their annual earnings from employment during 1999.

The labor market findings will be followed by an examination of the associations between the English-speaking proficiencies/educational attainment of immigrants and their poverty status, low income status, and ability to achieve a middle income or higher standard of living. The associations between the English-speaking proficiencies of young adults

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10 Since new immigrants are more likely than the native-born population to be of working-age and relatively young and given the relatively high labor force participation rate of immigrant males, the foreign born population is a higher share of the state’s resident civilian labor force than it is of the entire resident population. For example, in 2003, we estimate that the foreign born population accounted for 16 percent of the state’s civilian labor force but only 13 percent of its resident civilian, non-institutional population.

11 These three educational challenges were first presented in the following MassINC publication: John Comings, Andrew Sum, and Johan Uvin, *New Skills for A New Economy*.

12 The multivariate statistical analyses employing logit and ordinary least squares regression models will examine the determinants of the employment status of immigrants, their ability to gain access to high skilled professional, managerial, and technical occupations, and their annual earnings from employment. Multivariate statistical models also will be used to analyze the factors influencing the poverty and low income status of adult immigrants and the citizenship status of adult immigrants 20 and older.

(16-24) and older adults (20-64) and their school enrollment behavior will then be reviewed. The citizenship status of adult immigrants will then be examined, and a multivariate statistical analysis of the influence of the demographic, socioeconomic, and human capital traits of immigrants on their citizenship status will be conducted. The final section of the monograph will be devoted to a brief review of key research findings and their potential public policy implications for the Commonwealth in the areas of primary and secondary education, adult basic education, workforce development programs, workplace literacy, and citizenship training.

## KEY DEFINITIONS AND DATA SOURCES

This monograph is primarily focused on the educational backgrounds and English-speaking proficiencies of the immigrant population in Massachusetts and their consequences for their labor market, educational, and civic behavior and the future economic fortunes of the state. The definition of a “foreign immigrant” in this paper is an individual who was born outside of the 50 states and the District of Columbia.<sup>13</sup> In accord with this definition, persons born in one of the territories of the United States (U.S. Virgin Islands, Puerto Rico, Guam) are considered to be “foreign-born”. A person who emigrates from Puerto Rico to Massachusetts adds to the population of both the state and the nation in the same manner as an immigrant from Canada, Mexico, or Brazil. Besides, previous analyses of the demographic/socioeconomic characteristics and labor market, income, and poverty problems of immigrants from the U.S. territories have revealed that they are quite similar to those of many other immigrants from Central and South America and the Caribbean Basin.<sup>14</sup> The

report also at time refers to “new immigrants”. The definition of a “new immigrant” depends on the specific time period being analyzed. When the analysis is focused on the 1990-2000 period, a “new immigrant” is defined as a person who arrived in the U.S. between 1990 and the time of the 2000 Census (early spring 2000). In a few instances, the 2000-2003 time period will be examined. A “new immigrant” for this analysis is someone who arrived in the U.S. between 2000 and the time of the monthly CPS household surveys in calendar year 2003.<sup>15</sup>

The bulk of the estimates of the numbers, demographic and socioeconomic characteristics, countries of origin, educational experiences, and labor market experiences of Massachusetts immigrants are based on the findings of the 2000 Census of Population and Housing. In some cases, comparisons are also made with findings of the 1990 Census. The 5% Public Use Microdata Sample (PUMS) data files provided by the U.S. Census Bureau are the basis for our estimates of the numbers, characteristics, and labor market behaviors of the immigrant population residing in Massachusetts in 2000. The monthly CPS public use files for calendar year 2003 are the basis for our estimates of the numbers, characteristics, and labor force status of new immigrants residing in Massachusetts in 2003.

## IMMIGRANTS AND POPULATION GROWTH

During the past few decades, the Commonwealth of Massachusetts has become extraordinarily dependent on foreign immigration to achieve its population growth.<sup>16</sup> High levels of domestic out-migration to other states in New England and to other regions of the nation have offset all of the expect-

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13 Persons who were born outside the U.S. but to U.S. parents temporarily living abroad are classified as native-born individuals in this paper.

14 See: Andrew M. Sum, W. Neal Fogg, et.al., *The Changing Workforce: Immigrants and the New Economy in Massachusetts*.

15 The CPS household survey is a national labor force survey of approximately 60,000 households that is conducted monthly by the U.S. Census Bureau for the U.S. Bureau of Labor Statistics. Typically 1,200 to 1,300 households are surveyed per month in Massachusetts. For details on the purposes and design features of the CPS survey, See: U.S. Bureau of Labor Statistics, *Employment and Earnings*, January 2004, “Appendix A”, Washington, D.C., 2004.

16 For a review of the influence of foreign immigration on population growth in the Commonwealth for selected time periods from 1970 to 2003, See: (i) Andrew M. Sum and W. Neal Fogg, *The Changing Workforce: Immigrants and the New Economy in Massachusetts*, The Massachusetts Institute for A New Commonwealth and Citizens Bank, Boston, 1999; (ii) Andrew Sum, Ishwar Khatiwada, Kamen Madjarov, et.al., *The Impacts of Foreign Immigration on Population Growth, the Demographic Composition of the Population, Labor Force Growth, and the Labor Markets of the Northeast Region During the Decade of the 1990s*, Prepared for Fleet Bank, October 2003; (iii) Andrew Sum, Ishwar Khatiwada, Mykhaylo Trubs'kyi, et.al., *Foreign Immigration Developments in Massachusetts, 1990-2003: Their Impacts on Population and Labor Force Growth in the Commonwealth*, A Report Prepared for the Commonwealth Corporation, Boston, March 2004.

ed growth in the population from natural increases (births exceeding deaths).<sup>17</sup> Inflows of new immigrants from an increasingly diverse array of countries around the world have been the source of all of the net population growth in the Commonwealth since 1980.

**Contributions of Immigration to Population Growth, 1980-1990**

Between 1980 and 1990, the resident population of Massachusetts increased by nearly 280,000 (Table 1). During the same decade, the estimated number of new foreign immigrants arriving in the state and living here at the time of the 1990 Census was equal to 285,034; thus, this high inflow of new foreign immigrants accounted for all of the net growth in the state’s resident population over the decade (Table 1). During the 1990s, the resident population of the state increased from 6.016 million to 6.349 million, a gain of nearly 333,000. Again, however, new foreign immigrants (those arriving between 1990 and 2000) generated all of the growth in the state’s population. The number of new immigrants residing in the state at the time of the 2000 Census, accounted for 105 percent of the net increase in the state’s resident population.

Who were these new immigrants arriving in the Commonwealth between 1990 and 2000? The long form questionnaire that was used in conducting the 2000 Census captured information on the nativity status of each respondent, the country of their birth, and the timing of their arrival in the U.S. This information was used to identify the countries of birth of all new foreign immigrants residing in Massachusetts at the time of the 2000 Census, and they were ranked in order from highest to lowest by the number of new immigrants from their country. A total of 83 different countries (territories) sent 500 or more immigrants to Massachusetts over the decade of the 1990s. The ten countries/island territories accounting for the largest number of new foreign immigrants are displayed in Table 2. The number of new immigrants from these ten countries/territories ranged from a high of nearly 38,000 in Puerto Rico to a low of nearly 8,700 in Colombia. These ten countries sent a total of 182,163 immigrants, accounting for nearly 52 percent of all of the new immigrants who were residing in our state at

**TABLE 1:**

Trends in the Growth of the Resident Population of Massachusetts Between 1980-1990 and 1990-2000 and the Contributions of New Foreign Immigration

TIME PERIOD	POPULATION GROWTH	NEW FOREIGN IMMIGRANTS	NEW FOREIGN IMMIGRANTS AS PERCENT OF GROWTH
1980-1990	279,388	285,034	102
1990-2000	332,672	350,209	105

Source: 1980, 1990, and 2000 Censuses of Population and Housing, Massachusetts. Note: Foreign immigration totals include persons born in Puerto Rico and the other outlying territories of the United States.

**TABLE 2:**

The Ten Countries/Territories Accounting for the Largest Number of New Foreign Immigrants in Massachusetts in 2000

COUNTRY/TERRITORY	NUMBER
Puerto Rico	37,943
Brazil	26,144
Dominican Republic	21,884
China	19,696
India	18,170
Vietnam	13,510
Russia	12,732
Haiti	12,571
El Salvador	10,841
Colombia	8,672
Total, Above Ten	182,163
Percent of All New Immigrants, Above Ten	51.9

Source: 2000 Census of Population and Housing, PUMS files, tabulations by authors.

the time of the 2000 Census. Three of these countries (Dominican Republic, Haiti, Puerto Rico) were from the Caribbean, three were from Central and South America (Brazil, Colombia, El Salvador), and three were from Asia. Only one European nation (Russia) was among the top ten senders of immigrants, and in not one of these ten countries was English the official language of the nation. Many of the well-educated immigrants from India, China, and Russia, however, had received some English instruction in their home countries.

17 For a recent review of domestic in and out migration from Massachusetts, See: Robert Nakosteen, Michael Goodman, Dana Ansel, et.al, *Mass.Migration*; Mass Housing, MassINC, and the University of Massachusetts, Donahue Institute, Boston, 2003.



### Contributions of Immigration to Population Growth, 2000-2003

The Massachusetts economy's strong performance from the mid-1990s through the end of the decade helped to substantially reduce domestic out-migration and boost the growth of the resident population.<sup>18</sup> The labor market boom, however, came to an abrupt end in early 2001, and the state has shed a very large number of wage and salary jobs over the past three years (2001-2003). How has the resident population of the state been affected by these economic developments? Annual updates of the resident populations of individual states are generated by the U.S. Census Bureau. Estimates of Massachusetts' resident population in July 2003 and the sources of growth or decline in that population over the past three years were published by the U.S. Census Bureau in late December 2003. Between April 2000 and July 2003, the resident population of Massachusetts was estimated to have grown from 6.349 million to 6.433 million, a gain of slightly more than 84,000 or 1.3 percent (Table 3). This population growth rate of the state was only 40 percent as high as the 3.3 percent population growth rate for the nation as a whole over the same time period. The population of Massachusetts grew more slowly than every other New England state between 2000 and 2003 and tied for ninth lowest among the 50 states with Kansas, Mississippi, and South Dakota.

The major factor holding down the growth of the Massachusetts population over the past three years was a high level of domestic out-migration. A natural increase of 80,300 in the state's resident population due to an excess of births over deaths was more than offset by domestic out-migration. According to the U.S. Census Bureau, nearly 103,000 more individuals left the state to move to other states between 2000 and 2003 than came here from other states (Table 3). Out-migration appears to have accelerated more recently as the state economy continued to remain in a severe slump, with declining wage and salary employment and rising unemployment. Between July 2002 and July 2003, net domestic out-migration from Massachusetts was estimated to be 45,100.

As was true of our experience in both the 1980s and the 1990s, the growth of the state's population over the past three years was entirely dependent on an influx of new for-

**TABLE 3:**

Estimates of Sources of Population Change in Massachusetts, 2000-2003

POPULATION VARIABLE	VALUE
Population, April 2000	6,349,097
Population, July 1, 2003	6,433,422
Population Change, 2000-2003	+84,325
• Natural Increase	80,315
• Births	265,871
• Deaths	185,556
• Net Domestic Migration	-102,905
• Net International Migration	108,737
Percent of Population Change Due to Net International Migration	129%

Source: U.S. Census Bureau, [www.census.gov](http://www.census.gov).

ign immigrants. Net international migration (immigrants minus emigrants abroad) into the state between 2000 and 2003 was estimated to be 108,737. This level of net new foreign immigration was equivalent to 129 percent of the increase in the state's resident population over this three year period. In the absence of this new wave of foreign immigrants, the state's population would have declined by nearly 23,000.

Who were these new immigrant arrivals in the state over the past three years? To answer this question, we analyzed the monthly CPS public use files for Massachusetts for all twelve months in calendar year 2003. The monthly CPS questionnaire collects data on the nativity status of each respondent, their country of birth, and the timing of their arrival in the United States. We identified the countries of origin of all foreign-born residents of the state in 2003 who reported that they had arrived in the U.S. between 2000 and 2003. Of the approximately 115,500 new foreign immigrants residing in Massachusetts in 2003, eleven countries accounted for 63 percent of them (Table 4). Brazil was the largest single source of these new immigrants, accounting for nearly 1 of every 5 new immigrants. El Salvador was the second largest source of new immigrants, with 9 percent of new immigrants

18 See: Robert Nakosteen, Michael Goodman, Dana Ansel, et. al., *Mass.Migration*.

reporting that they had been born in this Central American country. Four Asian countries (India, Japan, Vietnam, and China) also made the top 11 list. Only two European countries (Germany and Russia) made the top eleven list. Two Caribbean countries (Haiti and the Dominican Republic) also made the top 11 list. It is interesting to note that Puerto Rico, the single largest source of new immigrants in the 1990s, did not make the top ten list for the 2000-2003 period. Fewer than two percent of new immigrants into Massachusetts in the most recent three year period cited Puerto Rico as their country of birth. Only one country in the top eleven (Canada) was an English-speaking country, and Canada only ranked 10th highest, contributing only 3 percent of the new immigrants coming to Massachusetts over the past three years.

#### IMMIGRANTS AND LABOR FORCE GROWTH

Nationally, foreign immigration has played an increasingly important role in generating both labor force and employment growth over the past few decades. During the 1990s, over 40 percent of the net increase in the nation's civilian labor force was generated by new immigrants.<sup>19</sup> Similar to the experiences of other New England states (Connecticut, Rhode Island) and New York and New Jersey, Massachusetts has become far more dependent than the typical state on new foreign immigration to achieve its labor force growth in recent years. During the decade of the 1980s, the state experienced strong labor force growth. Nearly 430,000 additional residents were participating in the labor force in 1990 than in 1980 (Table 5). New foreign immigrants contributed 35 percent of the growth in the state's resident labor force in the 1980s.

During the 1990s, however, the state was characterized by extraordinarily low growth in its resident labor force. The labor force increased by only 81,000 or less than three percent. A variety of demographic forces and changes in labor force participation behavior underlie this very limited growth in the state's resident labor force.<sup>20</sup> The state's working-age population (16 and older) grew very slowly during

**TABLE 4:**

Top Eleven Countries of Origin of New Immigrants in Massachusetts, 2000-2003

COUNTRY	PERCENT OF NEW IMMIGRANTS
Brazil	19.1
El Salvador	8.6
India	5.8
Japan	5.2
Haiti	4.7
Dominican Republic	3.3
Vietnam	3.2
Germany	3.2
China	3.0
Canada	2.8
Russia	2.8
Total, Top Eleven	61.6
Number of New Immigrants	115,482

Source: Monthly CPS public use files, 2003, tabulations by authors.

**TABLE 5:**

Growth in the Resident Civilian Labor Force of Massachusetts 1980-1990, 1990-2000, and 2000-2003 and the Contributions of New Immigration to Labor Force Growth

TIME PERIOD	GROWTH IN CIVILIAN LABOR FORCE	NUMBER OF NEW IMMIGRANTS IN CIVILIAN LABOR FORCE AT END OF PERIOD	NEW IMMIGRATION'S CONTRIBUTION TO LABOR FORCE GROWTH
1980-1990	429,600	151,000	35%
1990-2000	80,672	179,960	223%
2000-2003	103,000	63,646	62%

Data Sources: 1980, 1990, and 2000 Censuses of Population and Housing; 2000 and 2003 monthly CPS public use files, tabulations by authors.

the 1990s, the labor force participation rate of women failed to increase as it did in preceding decades, and the number of native-born males in the labor force declined considerably as a consequence of out-migration and a depressed rate of labor

19 See: Andrew Sum, Paul Harrington, Neeta Fogg, et.al, *Immigrant Workers and the Great American Job Machine*, Report Prepared for the Business Roundtable, Washington, D.C., 2002.

20 See: Andrew Sum and Ishwar Khatiwada, *Labor Force Developments in Massachusetts During the Decade of the 1990s*, Research Paper Prepared for the Commonwealth Corporation, Boston, 2004.



force participation. While the total resident labor force grew by slightly under 81,000 between 1990 and 2000, the number of new immigrants in the labor force expanded by 180,000 or 2.23 times the net increase in the overall civilian labor force. In the absence of these new foreign immigrants, the state's resident labor force would have declined by nearly 100,000 over the past decade.<sup>21</sup>

Since 2000, the Massachusetts labor force has experienced growth despite a substantially weakened labor market.<sup>22</sup> Between 2000 and 2003, the state's resident civilian labor force is estimated by the Massachusetts Division of Unemployment Assistance to have grown by 103,000 or slightly more than three percent, outpacing the growth of the state's resident labor force over the entire decade of the 1990s. Of this 103,000 increase in the labor force of the state, 62 percent is estimated to have been generated by new immigrant arrivals; i.e., those arriving in the state since 2000. A steep rise in unemployment in the state between 2000 and 2003 reduced the number of residents who were employed, especially among the native-born. However, the number of employed new immigrants in Massachusetts rose by somewhere between 50,000 and 55,000 over this three year period. Similar developments have taken place across the country, with gains taking place in employment among newly arrived immigrants and declines occurring among native-born and established immigrant workers.

### **Countries and Regions of Origin, and Schooling and English-Speaking Backgrounds of New Immigrant Labor Force Participants**

As noted earlier, all of the net growth in the state's resident labor force over the decade of the 1990s took place among new foreign immigrants, i.e., those arriving in the U.S. bet-

ween 1990 and 2000. Knowledge of the countries of origin of these new immigrants, their educational backgrounds, and their English-speaking skills would be helpful in determining the potential need for adult basic education, English-as-a-second language, and other types of educational investments among these newer immigrant arrivals.

The countries of origin of the new immigrant arrivals who were actively participating in the labor force of the state at the time of the 2000 Census were identified, and these countries were ranked in order from highest to lowest in terms of their number of new immigrant labor force members. The top fifteen sending nations are listed in Table 6. Each of these 15 nations generated at least 2,800 new immigrant members of the Massachusetts labor force, with Brazil accounting for the largest number (16,694) of these new immigrants, or nearly 10 percent of the total number of immigrant labor force participants from these 15 countries.<sup>23</sup> A substantial majority of these new immigrant workers were coming from countries where English was not the official language.

The formal educational backgrounds of those immigrant labor force participants who arrived in the U.S. at some time between 1990 and 2000 are portrayed in Figure 1. Similar to findings from earlier studies of the immigrant workforce in the Commonwealth, the formal educational backgrounds of these new immigrant workers were quite varied, with above average shares of workers having either very limited schooling or being four year college graduates.<sup>24</sup> One of four of these new immigrant workers lacked a high school diploma or its equivalent (a GED credential) while 36 percent reported that they held a bachelor's or higher degree. These new immigrants were nearly three times more likely than native-born workers to lack a high school diploma, but they were also more likely than native-born workers to possess a bachelor's or

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21 For previous analyses of the contributions of new foreign immigration to labor force growth in Massachusetts since 1970, See: (i) Andrew M. Sum and W. Neal Fogg, *The Changing Workforce and the Labor Markets of the Northeast Region During the Decade of the 1990s* (ii) Andrew Sum, Ishwar Khatiwada, Kamen Madjarov, et.al., *The Impacts of Foreign Immigration on Population Growth, the Demographic Composition of the Population, Labor Force Growth and the Labor Markets of the Northeast Region During the Decade of the 1990s* (iii) Andrew Sum, Ishwar Khatiwada, Mykhaylo Trubs'kyi, et.al., *Foreign Immigration Developments in Massachusetts, 1990-2003*.

22 There is some concern over inflated population figures underlying the labor force growth estimates for the state since 2000. The U.S. Census Bureau's population estimates for the state between 2000 and 2003 show weaker growth than the population estimates used by the U.S. Bureau of Labor Statistics to convert the CPS sample survey results into population estimates.

23 While Hindi is the official language of India, many of the highly educated residents of the country receive instruction in the English language. This is especially true of those highly educated individuals who migrate to the U.S.

24 See: Andrew Sum, W. Neal Fogg, et. al., *The Changing Workforce: Immigrants and the New Economy in Massachusetts*.

higher academic degree.<sup>25</sup>

The new immigrants who were active in the labor force of the state in the spring of 2000 were classified by the major region of their country of birth (Asia, Europe, Africa, Central America, South America, etc.) and their educational attainment. Estimates of the share of new immigrant workers in Massachusetts who lacked a high school diploma by key regions and nations across the world are displayed in Figures 2 and 3. The share of new immigrant workers lacking a high school diploma varied quite considerably across regions and countries. Over 61 percent of the new immigrant workers from Central America did not hold a high school diploma, and nearly 40 percent of those from the Caribbean area lacked a high school diploma.<sup>26</sup> At the other end of the spectrum, we find that only 12 percent of the new immigrants from Europe and only 7 percent of those from Canada lacked a high school diploma. The ten countries accounting for the largest number of new immigrant workers during the 1990s were ranked from highest to lowest by the share of their workers lacking a high school diploma. El Salvador ranked highest with nearly 3 of every 4 new immigrants from this country lacking a high school diploma, and the Dominican Republic came in second place with a 46 percent share of their workers lacking a diploma. The two countries with the lowest dropout shares were India (6 percent) and Russia (5 percent). The relative size of the gap in school dropout shares between the highest and lowest ranked nations was 14 to 1.

Regions of the world and the top ten sending nations were also ranked by the share of new immigrant workers holding a bachelor's or higher academic degree. (Figures 4 and 5). A majority of the new immigrant workers from Europe (51 percent), Asia (61 percent), and Canada (67 percent) held bachelor or higher academic degrees. In sharp contrast, fewer than 7 percent of those from Central America (including Mexico) and only 9 percent of those from the Caribbean were college graduates. Immigrants from South America and the U.S. Island Areas (Puerto Rico, American Virgin Islands, Guam) also ranked low in terms of their share of college grad-

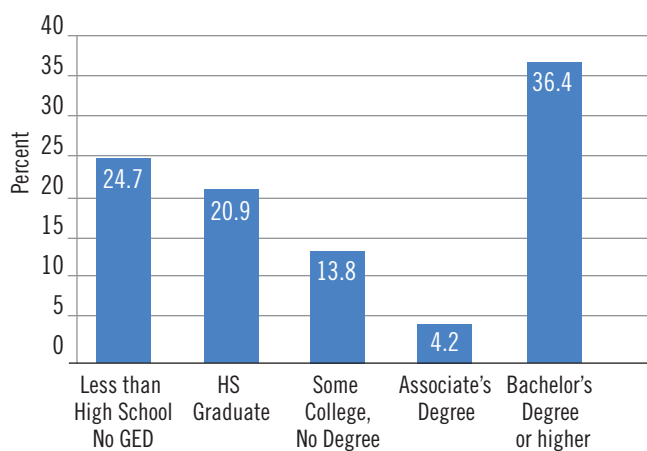
**TABLE 6:**

Top Fifteen Countries of Birth of the Massachusetts Immigrant Labor Force Who Arrived in the U.S. Between 1990 and 2000

COUNTRY	NEW IMMIGRANT LABOR FORCE	PERCENT
Brazil	16,694	9.3
Puerto Rico	12,150	6.8
India	11,572	6.5
China	10,582	5.9
Dominican Republic	10,087	5.6
Russia	6,893	3.6
El Salvador	6,367	3.6
Vietnam	5,914	3.3
Haiti	5,817	3.3
Canada	4,838	2.7
Colombia	4,064	2.3
Guatemala	3,976	2.2
Ireland	3,950	2.2
Portugal	2,887	1.6
England	2,822	1.6
Total Top Fifteen	108,613	60.5
Entire New Immigrant Labor Force	178,720	100.0

**FIGURE 1:**

Educational Attainment of New Immigrant Labor Force Members Who Arrived in Massachusetts Between 1990 and 2000

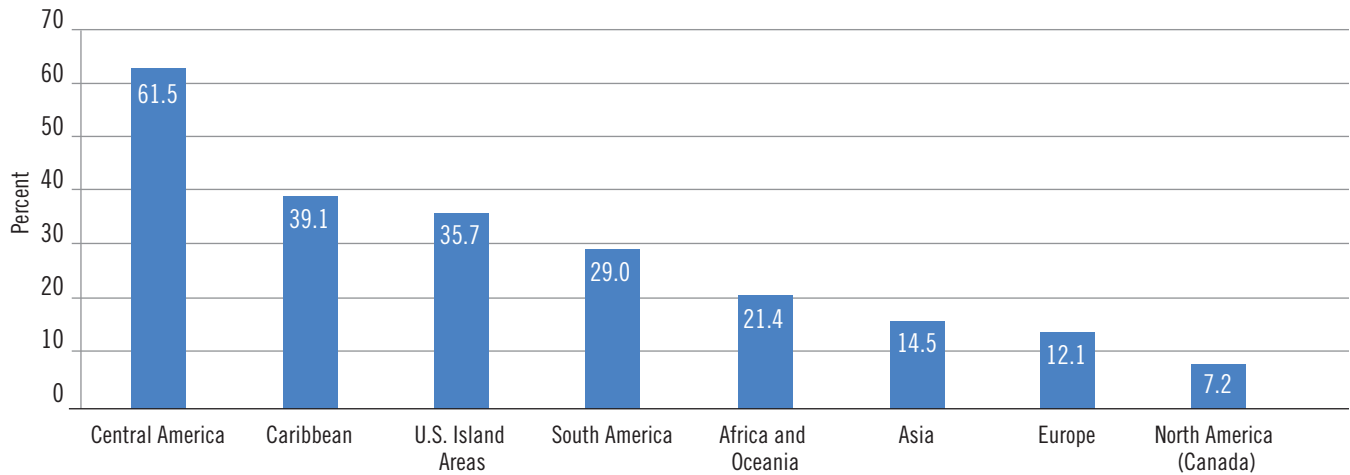


25 Among all working-age native-born labor force participants in the spring of 2000, only 9 percent lacked a high school diploma or a GED certificate. This group includes a few students still enrolled in high school.

26 In this analysis, Mexico was combined with other Central American countries rather than with Canada, given the large differences in the language proficiencies and educational backgrounds of immigrants from these two countries.

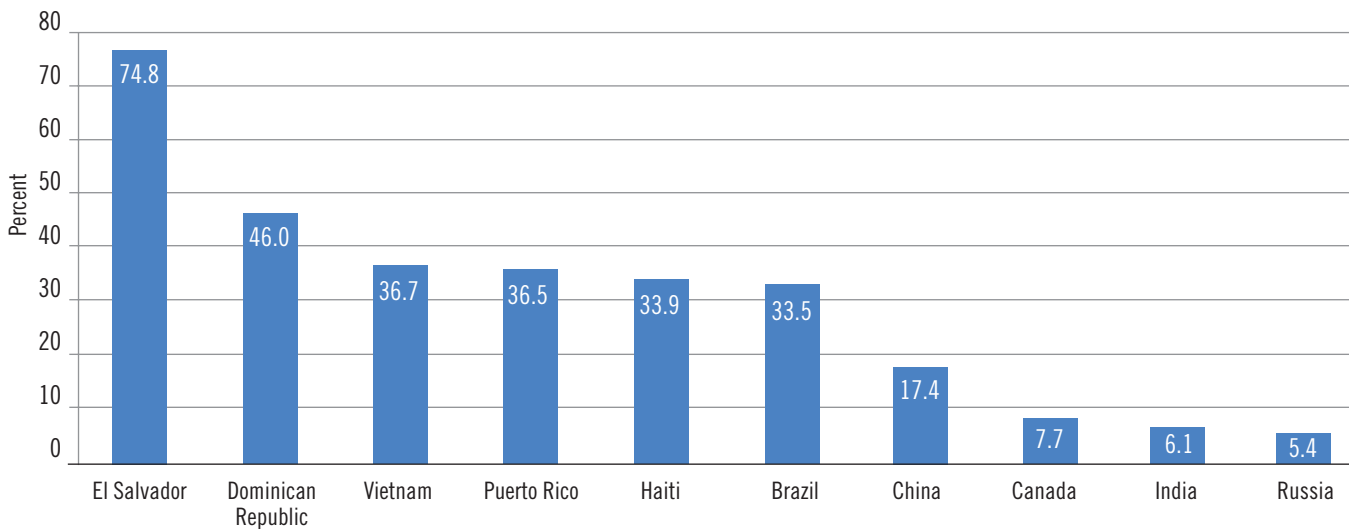
**FIGURE 2:**

Percent of the New Immigrant Labor Force in Massachusetts Without a High School Diploma by Region of Birth, 2000



**FIGURE 3:**

Percent of New Immigrant Labor Force Members Without a High School Diploma From the Ten Countries with the Highest Number of New Immigrants in Massachusetts, 2000



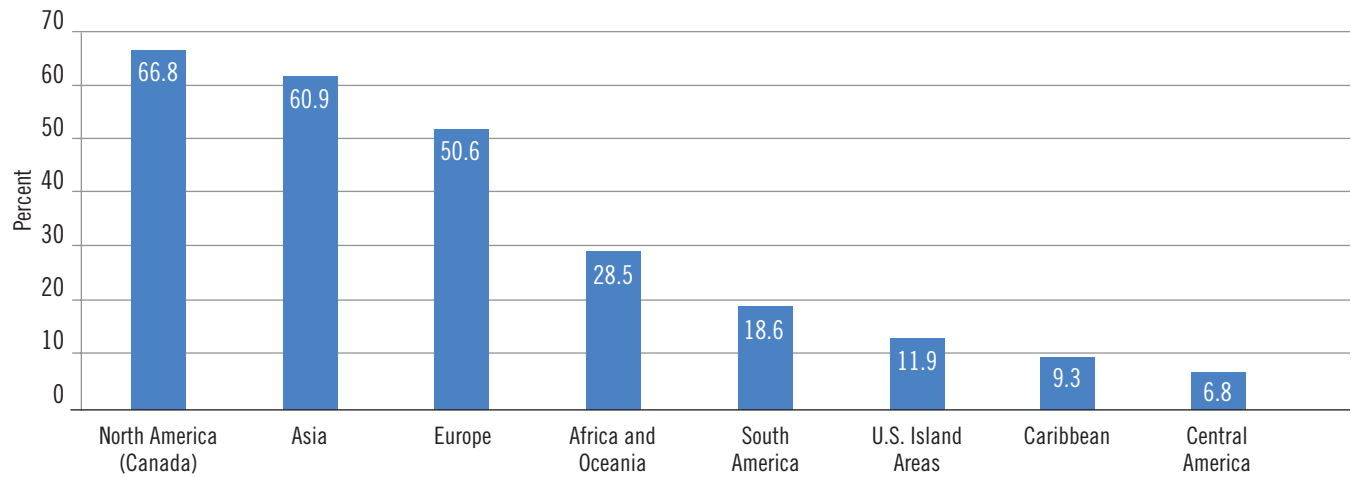
uates. The variations in college graduate shares of the new immigrant work force were quite substantial across the ten countries sending the largest numbers of new immigrants to Massachusetts. More than two-thirds of the immigrant workers from Canada and Russia were college graduates as were 85 percent of those from India. At the lower end of the distribution were Haiti (8 percent), the Dominican Republic (7 percent), and El Salvador (2 percent).

The countries and regions of the world with the highest dropout shares among new immigrants were also non-English-

speaking countries. Language and educational deficits among these immigrants combined to produce large shares of workers with substantial English-speaking and literacy deficits. For all new immigrant workers living in Massachusetts in 2000, 25 percent either could not speak English or could not speak it well. (Figure 6). The shares of new immigrant workers with a serious English-language deficit ranged from highs of 50 percent in Central America, 42 percent in South America, and 32 percent in the Caribbean to lows of 19 percent in Asia, 14 percent in Europe, and only 1 percent in Canada. As will be

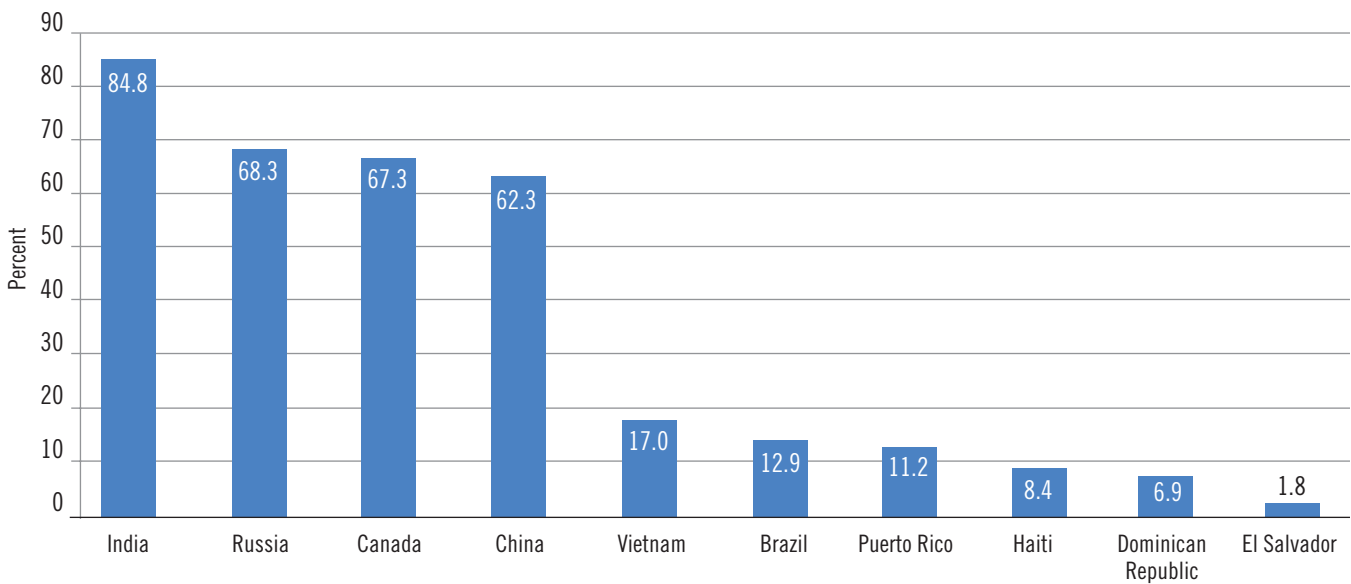
**FIGURE 4:**

Percent of the New Immigrant Labor Force in the Massachusetts With a Bachelor's or Higher Degree by Region of Birth, 2000



**FIGURE 5:**

Percent of the New Immigrant Labor Force Members With a Bachelor's or Higher Degree From the Ten Countries with the Highest Number of New Immigrants in the U.S., 2000



revealed in following sections, the combination of limited formal schooling and weak English-speaking proficiencies has many adverse impacts on the labor force attachment, the employability, occupational attachment, and annual earnings of working-age immigrants in Massachusetts.

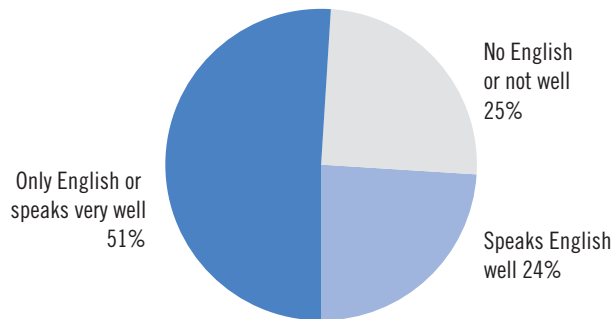
#### **LANGUAGE SKILLS AND EDUCATIONAL ATTAINMENT OF IMMIGRANTS**

The long form questionnaire that was used in conducting the 2000 Census collected information on the educational attain-

ment backgrounds, school enrollment status, and English-speaking proficiencies of the resident population of each state, county, and city/town. Each household completing the long form questionnaire (including native-born residents) was asked whether a language other than English was spoken in the home. If no other language was spoken in the home, then all members of that household were classified as “speaks English only”. If a language other than English was spoken in the home, the respondent was asked to identify how well each household member ages 5 and older was able to speak

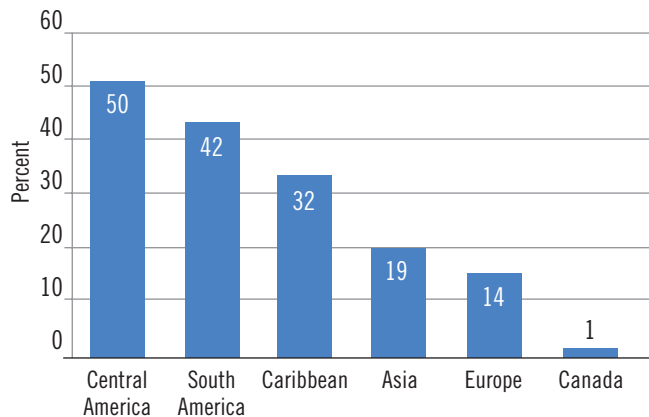
**FIGURE 6:**

The Percentage Distribution of New Immigrant Labor Force Participants by Their Self-Reported English-Speaking Proficiency, Massachusetts: 2000



**FIGURE 7:**

The Percent of New Immigrant Labor Force Participants Who Either Do Not Speak English or Do Not Speak it Well by Selected Regions of the World, 2000



English. Responses to this question could be assigned to one of the following four categories:

- Speaks English very well
- Speaks English well
- Speaks English not well
- Does not speak English at all

It should be noted that all of the answers to this question are based on the self-reports of the adult family member who completed the long form questionnaire. These responses are not based on any objective test of the English-speaking or reading abilities of household members.<sup>27</sup> We have developed several schemes for classifying the self-reported English-speaking proficiencies of foreign immigrants in Massachusetts and the U.S. Under the first category, we classify as “highly deficient in English-speaking skills” all those individuals who were reported as unable to speak English or as not being able to speak English well. Under the second category, we classify as “deficient in English-speaking skills” all those individuals who were unable to speak English, could not speak English well, or could only speak English “well”. This last group of individuals has been found in previous empirical studies of the labor market and civic experiences of immigrants to fare significantly less well than their counterparts with higher reported levels of English-speaking skills.<sup>28</sup>

Our inclusion in the deficient English-speaking skills category of those immigrants who were reported to “speak English well” also is justified by a comparison of the findings of the 2000 Census with respect to the self-reported English-speaking proficiencies of the nation’s 20-64 year old foreign-born population and the findings of the 1994 International Adult Literacy Survey in the U.S. Thirty one percent of all 20-64 year old foreign-born residents of the U.S. in 2000

27 National literacy assessments, including the National Adult Literacy Survey of 1992 and the 1994 International Adult Literacy Survey (IALS), reveal that self-rated English-reading and writing skills are positively correlated with objective measures of their literacy proficiencies. The correlations, however, are far from perfect. See: Andrew Sum, Irwin Kirsch, and Kentaro Yamamoto, *A Human Capital Concern: The Literacy Skills of U.S. Immigrants*, Center for Global Assessment, Educational Testing Service, Princeton, 2004.

28 See: (i) Barry R. Chiswick and Paul W. Miller, “English Language Fluency Among Immigrants in the United States,” *Research in Labor Economics*, Volume 17, 1998; (ii) John Comings, Andrew Sum, Johan Uvin, et. al., *New Skills for A New Economy: Adult Education’s Role In Sustaining Economic Growth and Expanding Opportunity*, Massachusetts Institute for A New Commonwealth, Boston, 2000; (iii) Julia Kroshko, *The Impact of Human Capital Investments on the Earnings of Immigrants and Native Born Women in the Northeast Region*, M.A. Workshop Paper, Department of Economics, Northeastern University, Boston, Spring 2001; (iv) Kamen Madjarov, *The Determinants of Immigrant Worker Earnings in the Northeast Region of the U.S.*, M.S. Workshop Paper, Department of Economics, Northeastern University, Boston, Summer 2003.

were reported to either not speak English at all or to not speak it well. When those immigrants who were reported to speak English “well” were included in the total, the share rose to 53 percent. This ratio is exactly the same as the estimated share of 16-65 year old immigrant adults in the U.S. with only a Level One composite literacy proficiency in 1994.<sup>29</sup> A person with a Level One proficiency has extremely limited prose, reading, and document skills in English.<sup>30</sup> They are performing at a level somewhat below that of a native-born adult who dropped out of high school before obtaining a regular diploma (or later in life a GED certificate).

**Self-Reported English-Speaking Proficiencies of the Foreign-Born Population Ages Five and Older**

At the time of the 2000 Census, there were nearly 864,000 foreign-born individuals ages 5 and older living in the Commonwealth of Massachusetts (Table 7). The distribution of these foreign-born immigrants by their self-reported English-speaking proficiency is presented in Table 7. Slightly more than one-fifth of these immigrants were reported to only speak English in the home, and another 36 percent claimed that they spoke English very well.<sup>31</sup> In the middle of this distribution are nearly 188,000 foreign-born individuals who spoke English well. At the bottom of the distribution are nearly 135,000 immigrants who reportedly did not speak English well and 51,000 who could not speak English at all.

The number of foreign-born persons with a severe English-speaking deficiency was just under 186,000 or nearly 22 percent of the total immigrant population in 2000. If those immigrants with a modest English-speaking ability are added to the first group, then the combined number of immigrants with a modest to severe English-speaking deficit was 373,422, representing 43 percent of the immigrant population of the state (Table 7).

As the number of immigrants in the resident population

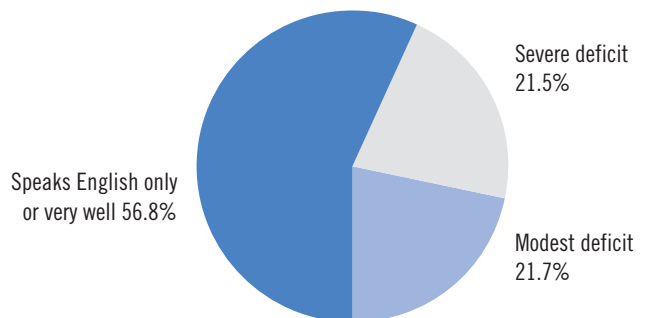
**TABLE 7:**  
Number and Percent of Foreign Immigrants Ages 5 and Older in Massachusetts in Each English-Speaking Proficiency Category, 2000

ENGLISH-SPEAKING PROFICIENCY	NUMBER	PERCENT
Only speaks English	178,143	20.6
Speaks English very well	312,235	36.1
Speaks English well	187,657	21.7
Does not speak English well	134,744	15.6
Does not speak English	51,021	5.9
• Severe English-speaking deficit	185,765	21.5
• Modest to severe English-speaking deficit	373,422	43.2

Source: 2000 Census of Population and Housing, 5 percent PUMS files, Massachusetts, tabulations by authors.

Note: Table includes persons born in Puerto Rico, the U.S. Virgin Islands, Guam, and other island territories of the U.S.

**FIGURE 8:**  
The Percentage Distribution of Foreign-Born Persons 5 and Older in Massachusetts by Their English-Speaking Proficiency, 2000



of the state increased between 1990 and 2000, how did their distribution by English-speaking proficiency change? To answer this question, we compared the findings of the 1990 Census for Massachusetts on the English-speaking proficien-

29 Slightly over 70 percent of immigrant adults had a Level One or Two composite proficiency on the IALS assessment versus 42 percent of the native-born. See: Andrew Sum, Irwin Kirsch, and Kentaro Yamamoto, *A Human Capital Concern: The Literacy Skills of U.S. Immigrants*.

30 For a review of the types of literacy tasks and their difficulty levels across the five proficiency levels on the NALS assessment, See: Irwin Kirsch, Ann Jungeblut, Lynn Jenkins, and Andrew Kolstad, *Adult Literacy in America: A First Look at the National Adult Literacy Survey*, U.S. Department of Education, Washington, D.C., 1993.

31 The fact that they only spoke English in the home does not automatically imply that they either spoke, read, or wrote English very well. As will be noted in following sections of this paper, immigrants who were reported to speak English “very well” often outperformed in the labor market their peers who spoke only English.



**TABLE 8:**

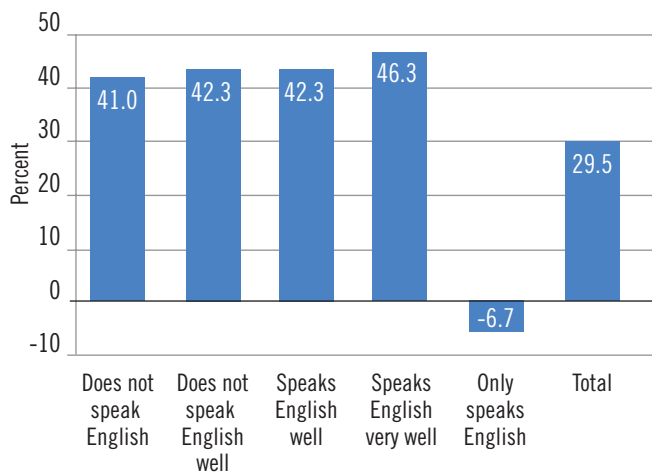
Trends in the Number of Foreign-Born Persons 5 Years and Older in Massachusetts by Their Self-Reported English-Speaking Proficiency, 1990 and 2000

ENGLISH-SPEAKING PROFICIENCY	1990	2000	ABSOLUTE CHANGE	RELATIVE CHANGE
Does not speak English	36,227	51,021	14,794	40.8
Does not speak English well	94,682	134,744	40,062	42.3
Speaks English well	131,829	187,657	55,828	42.3
Speaks English very well	213,487	312,325	98,838	46.3
Only speaks English	190,938	178,143	-12,795	-6.7
Total	667,163	863,890	196,727	29.5

Note: Tables include persons born in Puerto Rico, the U.S. Virgin Islands, Guam, and other outlying territories of the U.S.

**FIGURE 9:**

Percent Change in the Number of Foreign-Born Persons by English-Speaking Ability from 1990 to 2000 in Massachusetts



cies of immigrants ages 5 and older with those from the 2000 Census. Key findings of this comparative analysis are displayed in Table 8 and Figure 9.

Between 1990 and 2000, the number of foreign-born individuals ages 5 and older residing in Massachusetts increased from slightly over 667,000 to nearly 864,000, an increase of 197,000 or 30 percent. This rate of increase in the immigrant population was six times higher than the growth rate of the

state's entire resident population over the decade of the 1990s, and as noted earlier, new immigrants accounted for all of the net change in the state's population. The vast majority of these newer immigrants were from countries where English was not the official language, and many of the newer immigrants from Central America, South America, and the Caribbean also had limited formal schooling in their own countries, increasing the likelihood that they did not obtain instruction in English-speaking skills.

Between 1990 and 2000, the number of immigrants in Massachusetts who only spoke English in the home declined by nearly 13,000 or 7 percent (Table 8 and Figure 9). In contrast, the number of immigrants in each of the other four English-speaking groups (speak English very well to "does not speak English") increased by 41 to 46 percent. The total number of immigrants ages 5 and older with modest to severe English-speaking deficits increased by 111,000 or 42 percent over the past decade. Among many immigrant adults in this age group, the problems of limited English-speaking proficiencies are compounded by their limited schooling. This group of immigrants is at great risk of long-term employability and earnings problems in the absence of further human capital investments.

#### English-Speaking Proficiencies of the Immigrant Populations of the U.S. and Massachusetts

How do the English-speaking proficiencies of the foreign-born in Massachusetts compare to those for immigrants in the nation as a whole? To answer this question, we analyzed the findings of the 2000 Census long form questionnaires for both the state and the nation. Comparisons of the percentage distribution of the foreign-born (5 and older) by their self-reported, English-speaking proficiency in 2000 are presented in Table 9 and Figure 10.<sup>32</sup> Overall, Massachusetts fares somewhat better than the nation as a whole. While nearly 30 percent of the foreign-born in the U.S. have a severe English-speaking deficit, only 21 percent of the foreign-born in the Commonwealth did so. A slight majority (51 percent) of the foreign-born in the U.S. were estimated to have a modest or severe English-speaking problem versus 43 percent of their counterparts in the Commonwealth. Part of the explanation

32 The foreign born in Table 9 exclude persons born in one of the outlying territories of the U.S., including Puerto Rico.



for this gap is the much higher share of immigrants from Mexico in the U.S. population totals relative to the state. Very high fractions of Mexican immigrants have both limited schooling and English-speaking proficiencies, especially in comparison to immigrants from Canada, Europe, and many parts of Asia. As will be revealed in a following section of this monograph, a high fraction of working-age Asian and European immigrant arrivals into Massachusetts during the 1990s had high levels of formal schooling and English-speaking skills.

The English-speaking proficiencies of the immigrant population in Massachusetts also can be compared to those of other states across the country with large numbers of recent immigrant arrivals. In Figures 11 and 12, we compare the shares of the immigrant population (5 and older) in 2000 that had severe or modest to severe English-speaking deficits across the 14 states with the largest number of new immigrant labor force arrivals between 2000 and 2003. The shares of the resident immigrant population with severe English-speaking deficits ranged from lows of 17 to 18 percent in the states of Maryland, Pennsylvania, and Michigan to highs of 36 to 39 percent in Arizona and Texas. On this particular measure, Massachusetts ranked only 10th highest among these 14 states. When the measure of English-speaking deficits is expanded to include those with modest deficits (only speak English well), the share of immigrants with limited English-speaking skills ranges from lows of 37 to 38 percent in Maryland, Pennsylvania and Michigan to a high of 60 percent in Texas. On this measure, Massachusetts again ranked 10th highest among these 14 states. Limited English-speaking skills among a high fraction of immigrants are the norm for those states that were the recipients of the largest numbers of new immigrants during the past few years. Massachusetts' experience in 2000 tends to fall in the lower half of the distribution for these 14 states, but not very far from the middle of the pack.

**English-Speaking Proficiencies of the Massachusetts Immigrant Population Across Counties and Selected Large Cities**

The immigrant population of Massachusetts has not been uniformly distributed across geographic regions, counties, or cities/towns. In 1990 and 2000, immigrants were more concentrated in the Northeast, Greater Boston, and Southeast regions than in Cape Cod, Central, or Western Massachusetts.

**TABLE 9:**

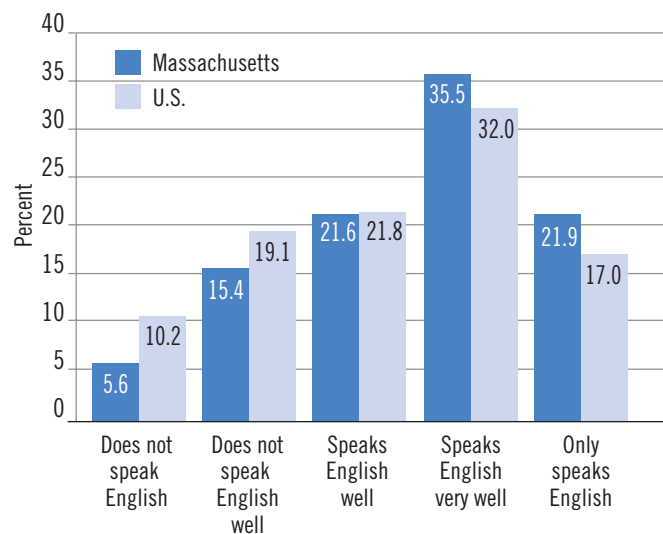
Comparisons of the Percentage Distribution of Foreign-Born Persons, 5 Years and Older in Massachusetts and the U.S. by Their Self-Reported English-Speaking Proficiency, 2000

ENGLISH-SPEAKING PROFICIENCY	MASSACHUSETTS	U.S.	MA-U.S.
Does not speak English	5.6	10.2	-4.6
Does not speak English well	15.4	19.1	-3.6
Speaks English well	21.6	21.8	-0.2
Speaks English very well	35.5	32.0	3.5
Only speaks English	21.9	17.0	4.9

Source: 2000 Published Census Data.

**FIGURE 10:**

Percentage of Foreign-Born Persons, 5 Years and Older in Massachusetts and the U.S. by English-Speaking Ability, 2000

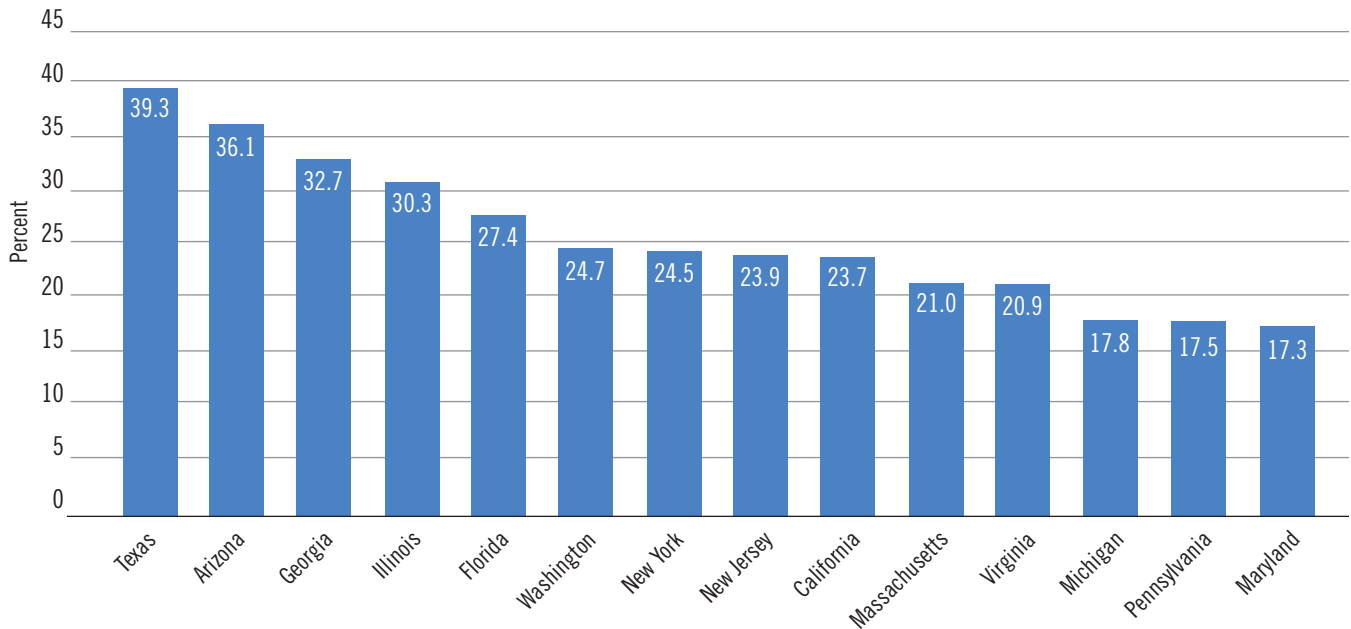


Immigrants also were over-represented in Bristol, Essex, Hampden, Middlesex, and Suffolk counties, and in many of the state's central cities (Boston, Lowell, Lawrence, New Bedford, Springfield). How do the English language proficiencies of the state's immigrants vary across geographic areas of the state? To answer this question, we have estimated the share of immigrants (5 and older) who spoke a language other than English in the home and who had severe English-speaking difficulties across each of the state's 14 counties and its 20 most populous cities in 2000.

At the time of the 2000 Census, the share of the immi-

**FIGURE 11:**

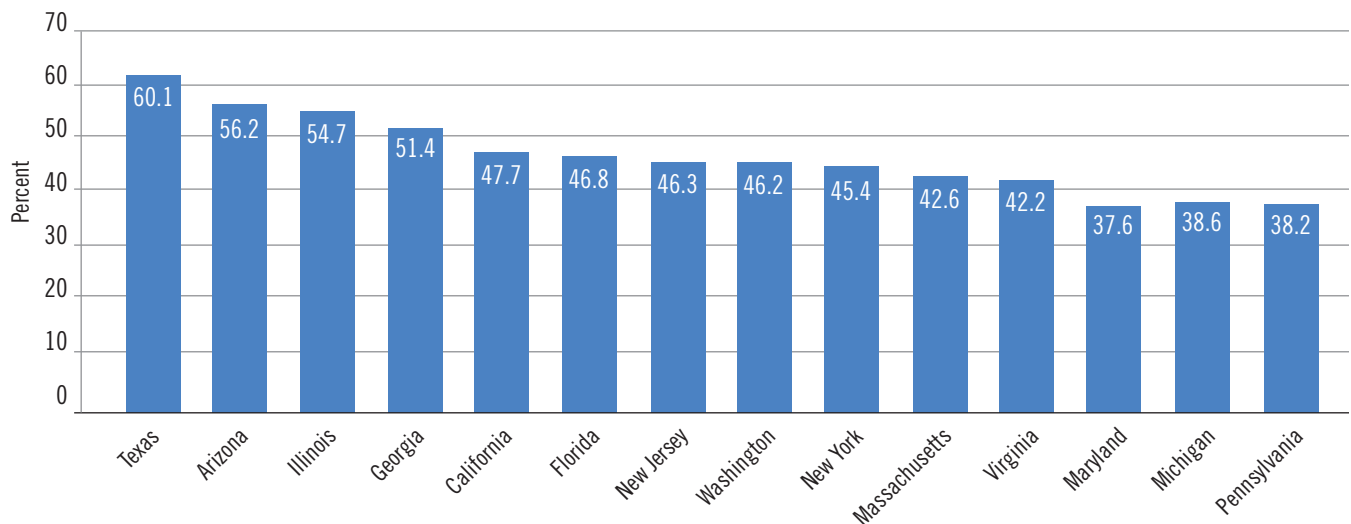
Share of the Immigration Population 5 and Older That Have Highly Deficient English-Speaking Skills for Selected States, 2000



Source: U.S. Census Bureau, Census 2000.

**FIGURE 12:**

Share of the Immigrant Population 5 and Older That Have Deficient English-Speaking Skills for Selected States, 2000



Source: U.S. Census Bureau, Census 2000.

grant population that spoke a language other than English ranged from lows of 55 percent in Barnstable County and 58 to 59 percent in Franklin and Berkshire Counties to highs of

82 percent in Essex and 85 percent in Bristol County.<sup>33</sup> (Table 10 and Figure 13). The shares of the immigrant population with a severe English-speaking deficit also ranged quite wide-

<sup>33</sup> In Nantucket County, only 57 percent of the immigrants spoke a language other than English but there were only 739 immigrants residing in Nantucket at the time of the 2000 Census.

**TABLE 10:**

Language Speaking Ability of the Foreign-Born Population (Ages 5 and Older) in Massachusetts by County, 2000

**FOREIGN-BORN POPULATION**

COUNTY	TOTAL	SPEAKS ONLY ENGLISH	SPEAKS A LANGUAGE OTHER THAN ENGLISH	SHARE OF TOTAL	SPEAKS ENGLISH "NOT WELL" OR "NOT AT ALL"	SHARE OF TOTAL	SHARE OF THOSE WHO SPEAK A LANGUAGE OTHER THAN ENGLISH
Massachusetts	764,008	167,321	596,687	78.1%	160,406	21.0%	26.9%
Barnstable	10,839	4,842	5,997	55.3%	1,508	13.9%	25.1%
Berkshire	4,906	2,008	2,898	59.1%	279	5.7%	9.6%
Bristol	62,433	9,143	53,290	85.4%	17,856	28.6%	33.5%
Dukes	924	320	604	65.4%	186	20.1%	30.8%
Essex	81,117	14,938	66,179	81.6%	20,545	25.3%	31.0%
Franklin	2,569	1,074	1,495	58.2%	313	12.2%	20.9%
Hampden	32,507	8,137	24,370	75.0%	7,152	22.0%	29.3%
Hampshire	9,853	2,804	7,049	71.5%	891	9.0%	12.6%
Middlesex	220,701	44,408	176,293	79.9%	38,389	17.4%	21.8%
Nantucket	739	318	421	57.0%	125	16.9%	29.7%
Norfolk	75,617	20,769	54,848	72.5%	10,811	14.3%	19.7%
Plymouth	29,161	7,903	21,258	72.9%	5,162	17.7%	24.3%
Suffolk	174,278	36,680	137,598	79.0%	46,597	26.7%	33.9%
Worcester	58,364	13,977	44,387	76.1%	10,592	18.1%	23.9%

Source: 2000 Census of Population and Housing, tabulations by U.S. Census Bureau

Note: (1) Totals exclude those immigrants who were born in one of the outlying territories of the U.S.

ly across counties. In Berkshire County, fewer than six percent of the resident immigrants either could not speak English or could not speak it very well, and only 9 percent of the immigrants in Hampshire County were categorized as having a severe English-speaking deficit. (Figure 14). At the other end of the distribution, 25 to 29 percent of the immigrants in Essex, Suffolk, and Bristol Counties were identified as having a severe English-speaking deficit. Those counties with the highest concentrations of immigrants in 2000 also tended to be home for a large number of immigrants with severe English-speaking deficits. These findings have important implications for the geographic distribution of future adult basic education and ESL monies to address the educational needs of both the native-born and immigrant populations.

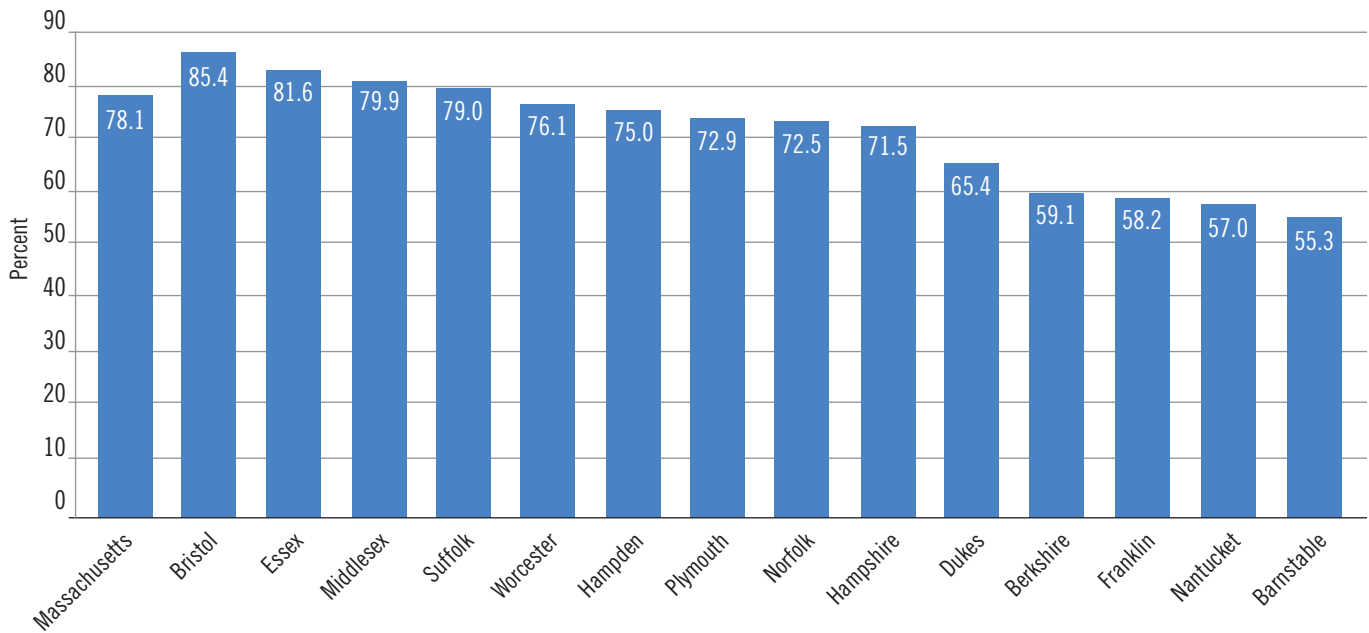
Historically, foreign immigrants have clustered in the state's older central cities in the eastern part of the state, especially Boston, Fall River, Lawrence, Lowell, and New Bedford. New foreign immigrants, particularly those with limited formal schooling and weak English-speaking skills and the undocumented, also tend to be over-represented in the state's larger central cities. At the time of the 1990 Census, 16 to 21 percent of the population of five central Cities (Boston, Fall River, Lawrence, Lowell, and New Bedford) were foreign-born.<sup>34</sup> The state's largest cities were overwhelmingly dependent on new foreign immigration to achieve any population growth during the past decade. The resident population of the state's 23 most populous cities increased by only 45,196 or 1.9 percent between 1990 and 2000.<sup>35</sup> However, over the decade,

34 See: Andrew Sum, W. Neal Fogg, et. al., *The Changing Workforce: Immigrants and the New Economy in Massachusetts*, pp. 39-42.

35 See: Andrew Sum, Ishwar Khatiwada, Nathan Pond, Jacqui Motroni, et. al., *The New Great Wave: Foreign Immigration in Massachusetts and the U.S. During the Decade of the 1990s*, Report Prepared for the Teresa and H. John Heinz III Foundation, Washington, D.C., June 2002.

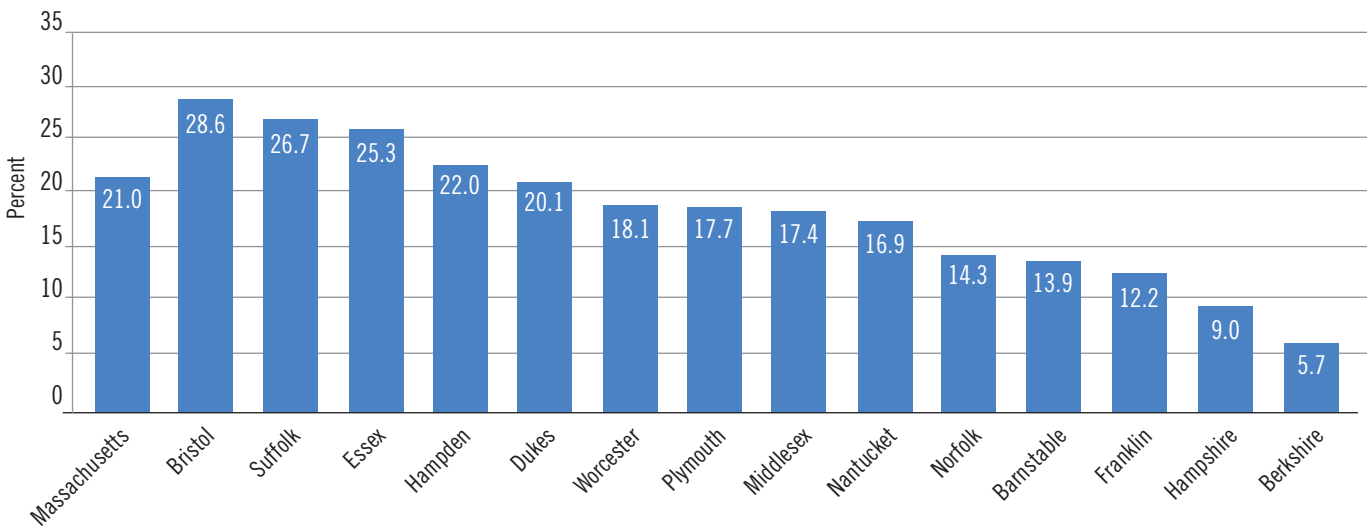
**FIGURE 13:**

Share of the Foreign-Born Population that Spoke a Language Other than English in Massachusetts by County, 2000 (in percent)



**FIGURE 14:**

Share of the Foreign-Born Population that Spoke English “Not Well” or “Not at All” in Massachusetts by County, 2000 (in percent)



slightly over 210,000 new foreign immigrants moved into these 23 cities, accounting for far more than all of the net growth in their combined populations.<sup>36</sup> Nearly 10 percent

of their combined population of 2.376 million consisted of new foreign immigrants in 2000.

In the state’s 20 most populous cities in 2000, a substan-

<sup>36</sup> If we excluded all new immigrants from these cities 2000 resident population count, their combined 2000 populations would have been 165,479 or 7.1 percent below their 1990 level. Twenty-one of these twenty-three cities would have experienced population declines in the absence of new foreign immigration over the past decade.

**TABLE 11:**

English Language Speaking Ability of the Foreign-Born Population in Massachusetts, 20 Largest Cities, 2000

FOREIGN-BORN POPULATION							
COUNTY	TOTAL	SPEAKS ONLY ENGLISH	SPEAKS A LANGUAGE OTHER THAN ENGLISH	SHARE OF TOTAL	SPEAKS ENGLISH "NOT WELL" OR "NOT AT ALL"	SHARE OF TOTAL	SHARE OF THOSE WHO SPEAK A LANGUAGE OTHER THAN ENGLISH
Boston	150,392	33,955	116,437	77.4%	38,927	25.9%	33.4%
Brockton	17,162	2,350	14,812	86.3%	4,100	23.9%	27.7%
Cambridge	25,752	5,616	20,136	78.2%	3,287	12.8%	16.3%
Chicopee	4,454	667	3,787	85.0%	1,049	23.6%	27.7%
Fall River	18,141	1,718	16,423	90.5%	6,477	35.7%	39.4%
Haverhill	4,061	764	3,297	81.2%	957	23.6%	29.0%
Lawrence	21,827	1,842	19,985	91.6%	7,651	35.1%	38.3%
Lowell	23,008	1,903	21,105	91.7%	6,685	29.1%	31.7%
Lynn	20,120	2,387	17,733	88.1%	6,525	32.4%	36.8%
Malden	14,367	1,586	12,781	89.0%	3,645	25.4%	28.5%
Medford	8,984	1,680	7,304	81.3%	1,515	16.9%	20.7%
New Bedford	18,325	1,711	16,614	90.7%	6,797	37.1%	40.9%
Newton	14,948	3,531	11,417	76.4%	1,685	11.3%	14.8%
Quincy	17,504	3,175	14,329	81.9%	4,600	26.3%	32.1%
Revere	9,802	1,034	8,768	89.5%	2,847	29.0%	32.5%
Somerville	22,471	3,141	19,330	86.0%	5,619	25.0%	29.1%
Springfield	12,029	4,000	8,029	66.7%	2,581	21.5%	32.1%
Taunton	5,639	687	4,952	87.8%	1,549	27.5%	31.3%
Waltham	11,879	2,090	9,789	82.4%	1,617	13.6%	16.5%
Worcester	24,810	4,080	20,730	83.6%	5,976	24.1%	28.8%

Source: 2000 Census of Population and Housing, tabulations by U.S. Census Bureau

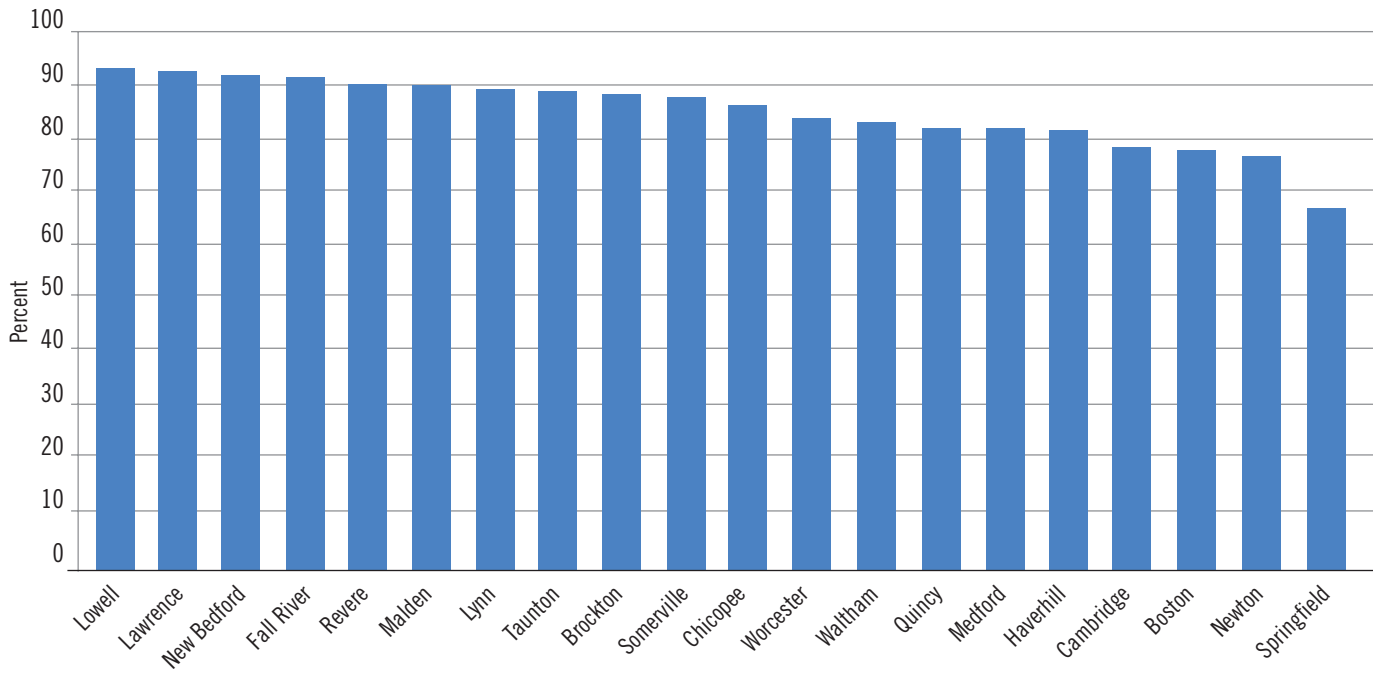
tial majority of the immigrant population lived in households where a language other than English was spoken in the home (Table 11 and Figure 15). In 19 of these 20 cities, three-fourths of the immigrant population spoke a language other than English in the home. In eleven of these twenty cities, 85 percent or more of the immigrant population spoke a language other than English in the home (Figure 15).

The proportion of the immigrant population with a severe English-speaking deficit varied quite considerably across the 20 largest cities of the state in 2000. In Newton, Cambridge, and Waltham, only 11 to 14 percent of the foreign-born either could not speak English or speak English well in 2000 while 25 percent or more of the immigrant population had a severe English-speaking deficit in 11 of these 20 cities, with 32 per-

cent or more of the immigrants having a severe English-speaking deficit in Lynn, Lawrence, Fall River, and New Bedford (Figure 16). In each of these four cities, the fraction of the immigrant population with a severe English-speaking deficit was three times higher than in Newton and Cambridge. The large relative differences in the shares of the immigrant population with severe English-speaking problems in these cities are largely attributable to substantive differences in the educational attainment of the adult immigrant population and their countries of origin. Those immigrants with post-secondary schooling and those from countries where English was the official language are far less likely to have severe English-speaking deficits.

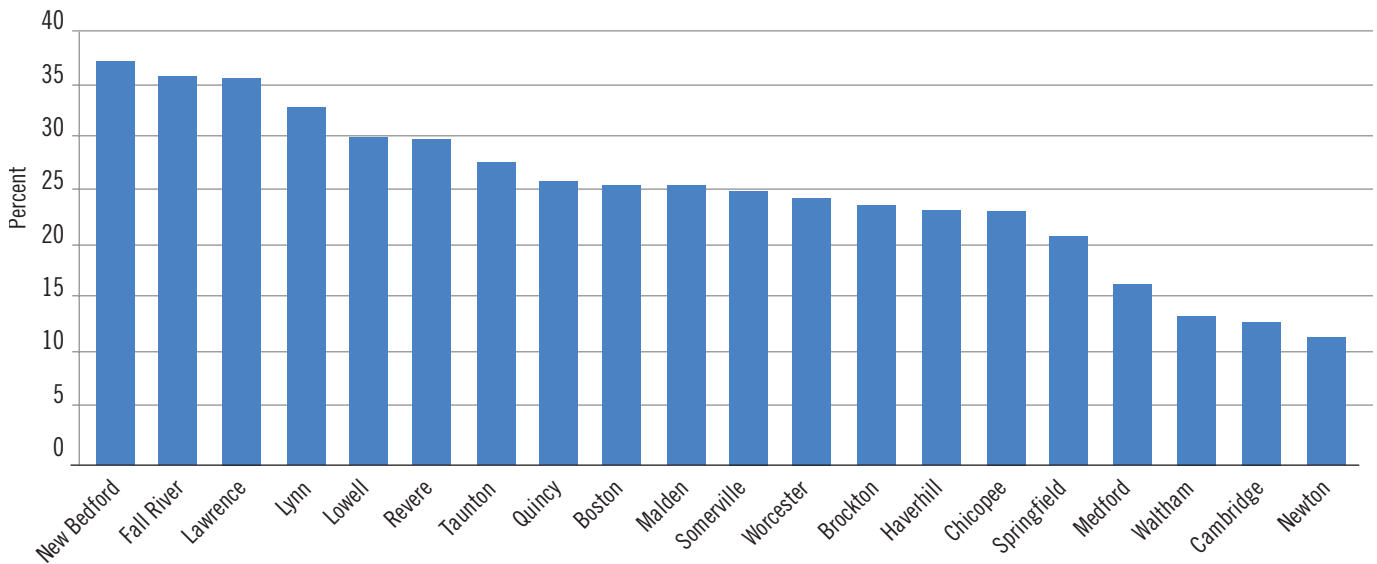
**FIGURE 15:**

Share of the Foreign-Born Population that Spoke A Language Other than English in Massachusetts, 20 Largest Cities, 2000 (in percent)



**FIGURE 16:**

Share of the Foreign-Born Population that Spoke English “Not Well” or “Not at All” in Massachusetts, 20 Largest Cities, 2000 (in percent)





**Geographic Concentration of Immigrants with Severe English-Speaking Deficits in 2000**

The preceding analyses have provided a statistical portrait of the relative concentration of immigrants across counties and the 20 most populous cities of the state in 2000 and described the English-speaking proficiencies of immigrants 5 and older in these same geographic areas. In this section, we will combine these two sets of findings to produce estimates of the comparative degree of concentration of immigrants with severe English-speaking deficits across counties and large cities of the state. For each geographic area, we multiplied the percent of the resident population that was foreign-born by the share of the immigrant population five and older who had a severe English-speaking deficit; i.e., could not speak English well or could not speak English at all.<sup>37</sup> The resulting estimates represent the percentage share of each area’s resident population that consisted of immigrants with a severe English-speaking deficit.

Table 12 displays the findings for the state as a whole and each of the counties. At the time of the 2000 Census, just under three percent of the population of Massachusetts were immigrants who either could not speak English or speak it well. The shares of the resident population with such English-speaking deficits varied markedly across counties of the state, ranging from lows of 0.3 to 0.8 percent in the three western counties of the state (Berkshire, Franklin, Hampshire) to approximately 3 to 4 percent in Middlesex, Hampden, Essex, and Bristol counties to a high of 7.4 percent in Suffolk County. The concentration of immigrants with severe English-speaking deficits in Suffolk County was nearly 25 times higher than it was in Berkshire county. To place this finding in perspective, consider the fact that Suffolk County which contained only slightly more than 10 percent of the state’s population in 2000 was home for nearly 30 percent of all immigrants with a severe English-speaking deficit.

A similar demographic analysis was undertaken for the state’s 20 most populous cities in 2000 (Table 13). In these 20 large cities combined, 5.2 percent of the population was

**TABLE 12:**

Resident Population by Place of Birth and the Share of the Total Resident Population With a Severe English-Speaking Deficit in Massachusetts Counties, 2000

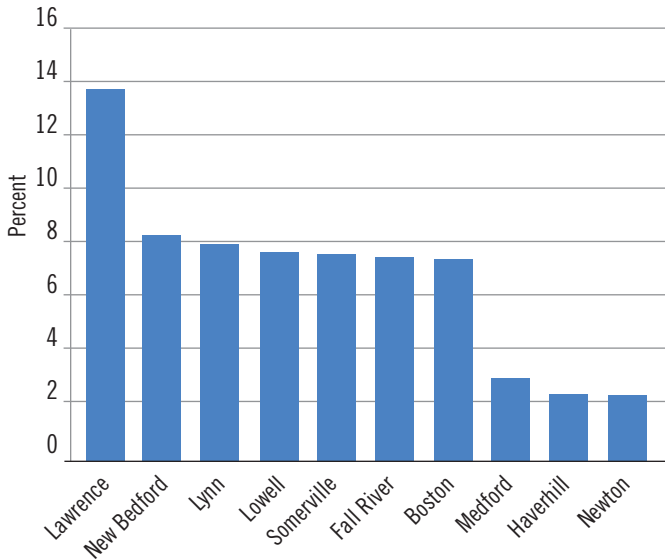
COUNTY	POPULATION		FOREIGN-BORN POPULATION THAT SPEAKS ENGLISH “NOT WELL” OR “NOT AT ALL” (5 YEARS AND OVER)	
	TOTAL	FOREIGN-BORN	TOTAL	SHARE OF TOTAL
Massachusetts	6,349,097	764,008	160,406	2.9
Barnstable	222,230	10,839	1,508	0.7
Berkshire	134,953	4,906	279	0.3
Bristol	534,678	62,433	17,856	3.6
Dukes	14,987	924	186	1.3
Essex	723,419	81,117	20,545	3.3
Franklin	71,535	2,569	313	0.5
Hampden	456,228	32,507	7,152	3.2
Hampshire	152,251	9,853	891	0.8
Middlesex	1,465,396	220,701	38,389	2.8
Nantucket	9,520	739	125	1.8
Norfolk	650,308	75,617	10,811	1.7
Plymouth	472,822	29,161	5,162	1.3
Suffolk	689,807	174,278	46,597	7.4
Worcester	750,963	58,364	10,592	2.0

classified as immigrants with severe English-speaking deficits, an incidence of such problems that was nearly twice as high as that for the state as a whole. The degree of variability in these ratios across these 20 cities, however, was extraordinarily high. In three of these cities (Haverhill, Newton, and Medford), fewer than 3 percent of the residents were foreign-born persons with severe English-speaking deficits (Figure 17). The share of residents with such traits ranged from 7 to 8 percent in Boston, Fall River, Somerville, Lowell, Lynn, New Bedford, and the concentration of immigrants with severe English-speaking deficits rose to a high of nearly 14 percent in Lawrence. The

37 Estimates of the number of foreign-born persons with a severe English-speaking deficit for counties and cities were based on two separate sets of calculations. The U.S. Census Bureau published estimates of the English-language speaking proficiencies only for the foreign born other than the U.S. island territories. We estimated the share of immigrants from Puerto Rico in the entire state who had a severe English-speaking deficit. We then applied this same share to the number of foreign born persons from Puerto Rico in each county and city.

**FIGURE 17:**

Share of the Total Population that is Foreign Born and that Speaks English “Not Well” or “Not at All” in Selected Large Cities in Massachusetts, 2000



relative size of the difference in these percentage shares for the cities at the top and bottom of the distribution was nearly 7 to 1.

Our last set of analyses on the geographic concentration of foreign-born persons with severe English-speaking deficits focused on the twenty most affluent cities in the state with a population of 20,000 or more at the time of the 2000 Census. Affluence was measured by the 1999 median income of families residing in each city. These 20 cities are identified in Table 14. Approximately 13 percent of the residents of these 20 affluent cities were foreign-born; however, relatively few of the foreign-born residents of these 20 cities had a severe English-speaking deficit (only 9 percent). As a result, only slightly more than one percent of the combined 593,000 residents of these 20 cities were foreign-born residents who could not speak English or speak English well. In only two of these twenty affluent cities (Brookline and Newton) were two percent or more of the residents immigrants with severe English-speaking deficits.

The above findings on the geographic distribution of all immigrants and those with severe English-speaking deficits across the state have revealed that there is a very high degree of variability in the geographic concentration of such immigrants across counties and cities of the state. Immigrants

**TABLE 13:**

Resident Population by Place of Birth and the Share of the Total Resident Population with a Severe English-Speaking Deficit in Massachusetts 20 Largest Cities, 2000

CITY	POPULATION		FOREIGN-BORN POPULATION THAT SPEAKS ENGLISH “NOT WELL” OR “NOT AT ALL” (5 YEARS AND OVER)	
	TOTAL	FOREIGN-BORN	TOTAL	SHARE OF TOTAL
Boston	589,141	170,995	42,671	7.2%
Brockton	94,304	20,242	4,698	5.0%
Cambridge	101,355	28,074	3,459	3.4%
Chicopee	54,653	6,717	1,551	2.8%
Fall River	91,938	19,430	6,684	7.3%
Haverhill	58,969	5,466	1,241	2.1%
Lawrence	72,043	31,481	9,942	13.8%
Lowell	105,167	28,673	7,917	7.5%
Lynn	89,122	22,867	7,048	7.9%
Malden	56,340	14,952	3,703	6.6%
Medford	55,765	9,546	1,541	2.8%
New Bedford	93,768	22,708	7,735	8.2%
Newton	83,829	16,353	1,721	2.1%
Quincy	88,025	18,305	4,651	5.3%
Revere	47,283	10,547	2,937	6.2%
Somerville	77,478	23,769	5,699	7.4%
Springfield	152,082	30,709	7,105	4.7%
Taunton	55,976	6,936	1,791	3.2%
Waltham	59,226	13,212	1,855	3.1%
Worcester	172,648	35,678	8,412	4.9%
Total 20 Cities	2,199,112	536,660	132,362	5.2%

Note: The numbers for the foreign born population include American citizens born in the outlying areas of the U.S. and those born abroad of American parents.

with severe language problems are heavily concentrated in the state’s larger central cities (Boston, Lawrence, Lowell, New Bedford, Springfield) as well as in less affluent inner suburbs of the Boston and Springfield metropolitan areas (Chelsea, Chicopee, Revere, Lynn). This high degree of geographic concentration in the need for ESL services by immigrants should be taken into consideration by the state legislature and the state Department of Education in allocating future adult basic education monies across cities and towns.

**TABLE 14:**

Resident Population by Place of Birth and the Share of the Total Resident Population with a Severe English-Speaking Deficit in Massachusetts 20 Most Affluent Cities, 2000

CITY	POPULATION		FOREIGN-BORN POPULATION THAT SPEAKS ENGLISH "NOT WELL" OR "NOT AT ALL" (5 YEARS AND OVER)	
	TOTAL	FOREIGN-BORN	TOTAL	SHARE OF TOTAL
Easton	22,299	1,169	69	0.3%
Andover	31,247	3,502	305	1.0%
Marblehead	20,377	1,521	43	0.2%
North Andover	27,202	2,433	224	0.8%
Acton	20,331	3,123	271	1.3%
Belmont	24,194	3,885	361	1.5%
Burlington	22,876	3,495	205	0.9%
Chelmsford	33,858	2,588	262	0.8%
Lexington	30,355	5,283	450	1.5%
Newton	83,829	16,353	1721	2.1%
Reading	23,708	1,122	150	0.6%
Tewksbury	28,887	1,865	72	0.2%
Westford	20,754	1,521	25	0.1%
Winchester	20,810	2,517	109	0.5%
Brookline	57,061	16,092	1925	3.4%
Canton	20,775	1,942	190	0.9%
Milton	26,062	2,816	239	0.9%
Needham	28,911	3,049	141	0.5%
Walpole	22,824	1,467	104	0.5%
Wellesley	26,613	3,273	206	0.8%
Total 20 Cities	592,973	79,016	7,072	1.2%

**Overlaps Among Language, Educational and Literacy Challenges Within the Massachusetts 20-64 Year-Old Immigrant Population, 2000**

The English-speaking proficiencies of the state's immigrant population five years of age and older at the time of the 2000 Census were described earlier. In this section, we will focus on the English-speaking proficiencies and the educational attainment of the state's adult immigrant population 20 to 64 years old, the primary target group for many adult basic education, ESL instruction, and workforce development programs in the Commonwealth. We also will examine the

**TABLE 15:**

The Distribution of 20-64 Year Old Foreign Immigrants in Massachusetts by Their Self Reported English-Speaking Proficiency, 2000

ENGLISH-SPEAKING PROFICIENCY	NUMBER	PERCENT
Only Speaks English	125,952	19.1
Speaks English very well	243,565	37.0
Speaks English well	151,505	23.0
Does not speak English well	104,669	15.9
Does not speak English	32,221	4.9
Total	658,002	100.0

degree of overlap among English-speaking problems and educational problems among the 20-64 year old immigrant population and come up with an unduplicated count of the number of immigrants facing language, educational, and literacy challenges at the time of the 2000 Census.

The self reported English-speaking proficiencies of the 20-64 year old immigrant population in Massachusetts are summarized in Table 15. Each immigrant was assigned to one of the five English-speaking proficiency groups, ranging from only speaks English to speaks English very well to does not speak English at all. Again, it should be emphasized that these classifications are based on the self-reports of the immigrants themselves or the adult proxy respondent who filled out the 2000 Census long form questionnaire. There is no objective assessment of the literacy proficiencies underlying these self reports. As revealed below and in Appendix B, a fairly high fraction of the immigrants reporting that they can speak English very well or only speak English appear to have limited literacy proficiencies.

At the time of the 2000 Census, slightly under 20 percent of the state's 20-64 year old immigrants reported that they only spoke English, and another 37 percent claimed that they spoke English very well. Nearly 21 percent, however, claimed that they either could not speak English well or did not speak English at all. These latter two groups combined represented approximately 137,000 immigrants with a severe English-speaking deficit.

The educational backgrounds of the state's adult immigrant population were quite varied. On the one hand, nearly

**TABLE 16:**

The Distribution of 20-64 Year Old Foreign Immigrants in Massachusetts by Their Educational Attainment, 2000

EDUCATIONAL ATTAINMENT	NUMBER	PERCENT
0-12 years, no diploma	191,502	29.1
12 years, high school diploma or GED, no college	146,223	22.2
13-15 years, no college degree	95,493	14.5
Associate's degree	33,434	5.1
Bachelor's degree	99,913	15.2
Master's or higher degree	91,437	13.9
Total	658,002	100.0

192,000 immigrants or 29 percent lacked a high school diploma or a GED certificate (Table 16). The share of adult immigrants lacking a high school diploma was nearly three times as high as that of native-born residents. On the other hand, nearly one-half (49 percent) of the state's adult immigrants had completed some post-secondary schooling, and 29 percent held a bachelor's or higher academic degree. Immigrants were somewhat less likely than the native-born residents of the state to hold a bachelor's or higher degree (29 percent vs. 36 percent).

The incidence of severe English-speaking deficits among the state's adult immigrants in 2000 was strongly associated with their educational attainment (Table 17). Nearly 44 of every 100 adult immigrants lacking a high school diploma either could not speak English or speak it well. The share of immigrant adults with a severe English-speaking problem declined to 20 percent for high school graduates, to 10 percent for those completing 1 to 3 years of college, and fell to 4 percent for those with a Master's or more advanced degree.

In an earlier MassINC report titled *New Skills for a New Economy*, an attempt was made to identify individuals encountering three separate human capital challenges: those persons lacking a high school diploma, immigrants with English language barriers, and high school graduates with literacy deficits. Efforts were also made to obtain an unduplicated count of

the number of 16-64 year olds experiencing one or more of these problems. The state's adult immigrant population (20-64) was characterized by a number of educational, language, and literacy problems in the early spring of 2000. Using data from the 2000 Census, we have generated unduplicated estimates of the number of adult immigrants who either failed to secure a high school diploma/GED certificate or had a severe English-speaking deficit. These counts of adult immigrants with an educational or language challenge are supplemented with an estimate of the number of adult immigrants who graduated from high school and did not have a severe English-speaking deficit, but likely had a literacy deficit, i.e. an inability to obtain a level 3 proficiency on the NALS literacy scale.<sup>38</sup>

At the time of the 2000 Census, there were 658,000 immigrant adults (20-64 years old) residing in Massachusetts. As revealed below, 191,500 of these individuals or 29 percent lacked a high school diploma or a GED certificate (Table 18). A total of 137,000 immigrants or 21 percent had a severe English-speaking deficit. There were some overlaps among these two groups, however. Many of the immigrants lacking a high school diploma also had limited English-speaking proficiencies. If we exclude those immigrants with both an educational and language deficit, we end up with an unduplicated count of 245,000 immigrants who experienced either an educational or an English language problem. This group was equivalent to 37 of every 100 adult immigrants residing in the state at the time of the 2000 Census.

Some of those immigrants who graduated from high school and reported that they either spoke English very well or only spoke English will have limited literacy proficiencies. Using findings from the 1994 International Adult Literacy Survey and a methodology described more fully in Appendix B of this monograph, we have generated estimates of the number of 20-64 year old immigrants who had no educational or English-speaking problem but had limited literacy skills; i.e., a literacy proficiency below Level 3 on the IALS literacy scale. A Level 3 literacy proficiency was used as a criterion for defining an adequate level of literacy in *New Skills for a New Economy*.<sup>39</sup> Our estimates

38 For a review of the five levels of literacy on the NALS literacy assessment, See: John Comings, Andrew Sum, and Johan Uvin, *New Skills for a New Economy*, (ii) Irwin Kirsch, Anne Jungeblut, Lynn Jenkins, Andrew Kolstad, et. al., *Adult Literacy in America*, National Center for Education Statistics, U.S. Department of Education, Washington D.C., 1993.

**TABLE 17:**

Distribution of 20-64 Year Old Foreign Immigrants in Massachusetts by Their Educational Attainment and Their Self-Reported English-Speaking Proficiency, 2000 (in percent)

EDUCATIONAL ATTAINMENT	(A) SPEAKS ENGLISH ONLY	(B) SPEAKS ENGLISH VERY WELL	(C) SPEAKS ENGLISH WELL	(D) DOES NOT SPEAK ENGLISH WELL OR DOES NOT SPEAK AT ALL	(E) SUM OF COLUMNS C + D
0-12, no diploma	11.1	20.3	25.1	43.5	68.6
High school diploma/GED	19.8	34.0	26.3	19.9	46.2
13-15 years, no degree	23.1	43.8	22.7	10.4	33.1
Associate's degree	22.2	44.4	24.0	9.4	33.4
Bachelor's degree	25.8	47.4	19.2	7.6	26.8
Master's or higher	22.4	55.9	17.5	4.3	21.8

**TABLE 18:**

English-Speaking Deficits, Educational Deficits, and Literacy Deficits Among 20-64 Year Old Immigrants in Massachusetts, 2000

GROUP	NUMBER	PERCENT
Lacks high school diploma/GED	191,502	29.1
Severe English-speaking deficit	136,890	20.8
Both lacks a high school diploma and has a severe English-speaking deficit	83,231	12.6
Unduplicated counts of educational and English language problems	245,161	37.3
• Lacks diploma but no English-speaking problem	108,271	16.5
• Lacks diploma and has English-speaking problem	83,231	12.6
• Has a diploma but lacks adequate English-speaking skills	53,659	8.2
Estimated number of immigrants with a high school diploma or more schooling and no English-speaking problem who lack level 3 literacy skills	221,986	33.7
Total Number of Immigrants with a Language, Educational or Literacy Challenge	467,147	71.0

suggest that there may have been as many as 222,000 additional immigrants who faced a literacy challenge. The combined, unduplicated number of adult immigrants with an educational, language, or literacy challenge in April 2000 was 467,000 or 71 percent of all 20-64 year old immigrants in the state. The substantial size of this pool of immigrants facing one or more of the above three educational, language, or literacy problems poses a formidable challenge to the state's adult basic education and workforce development system in the twenty-first century.

## EMPLOYMENT AND EARNINGS OF IMMIGRANTS

Given the growing importance of foreign immigrants to labor force growth in Massachusetts in recent decades, it is critically important for state workforce development and educational policymakers and program administrators to understand the educational characteristics of the foreign-born population and the links with their labor force participation behavior, employment rates, and unemployment rates. Earlier national studies on the labor force participation behavior and employment rates of foreign-born have revealed that formal schooling and

39 The National Governors Association had earlier adopted the Level 3 proficiency as a threshold defining the minimum set of literacy skills needed for success in today's economy.

literacy proficiencies were strong predictors of the likelihood that the foreign-born would be active in the labor force; i.e., either employed or actively looking for work.<sup>40</sup>

In this section, we present findings on the associations between three key labor market indicators (labor force participation rate, employment to population ratio, and unemployment rate) for the foreign-born in Massachusetts and their educational attainment and English-speaking ability in 2000. Findings for Massachusetts will be compared with those for their national counterparts.

All of the estimates appearing in this section of the report are based on the findings of the long form questionnaires that were used in conducting the 2000 Census. The long form questionnaire collected information on the labor force activities of each sample household member ages 16 or older at the time of the Census (April 2000). Each working-age household member was classified into one of the following three labor force categories:

- Employed
- Unemployed<sup>41</sup>
- Out of the labor force

The data on the labor force status of the foreign-born were used to calculate values for three labor force activity measures:

- The civilian labor force participation rate, which measures the percent of the civilian population that was either employed or unemployed.
- The unemployment rate which measures the ratio of the unemployed to the civilian labor force.
- The employment/population ratio (E/P) which measures the ratio of the number of employed to the civilian non-institutional population. The value of this measure is determined by the labor force participation rate and the unemployment rate.<sup>42</sup>

Findings will consistently reveal that, the higher the educational attainment level and the English language proficiency level of the foreign-born, the higher will be the labor

force participation rate and employment rate and the lower will be the unemployment rate.

The labor force participation rate of all non-enrolled, 20-64 year old foreign-born persons in Massachusetts in April 2000 was 70 percent versus 82 percent for the native-born. Labor force attachment of the foreign-born was strongly, positively associated with their educational attainment. The labor force participation rates of the foreign-born in Massachusetts ranged from lows of 57 percent for those with no high school diploma or GED, to 71 percent among those with a high school diploma but no college, to highs of 80 percent for those with a Bachelor's degree and 87 percent for those with a Master's or higher degree. Findings for the U.S. were characterized by similar patterns. The labor force participation rates of the foreign-born in the nation also were strongly linked to their educational attainment level. The overall labor force participation rate of 20-64 year old foreign-born persons in Massachusetts in 2000 was nearly 2 percentage points higher than that of their national counterparts (70 percent versus 68 percent). In each educational attainment level, except for those lacking a high school diploma, the labor force participation rates of the state's foreign-born population were higher than those of their national counterparts (Table 19).

Were foreign-born men and women equally likely to actively participate in the labor force in Massachusetts? Findings in Table 20 reveal that this was not the case. In every educational attainment group, foreign-born men were substantially more likely to participate in the state's labor force than their female counterparts. Overall, foreign-born men in Massachusetts were 15 percentage points more likely to participate in the state's labor force than their female peers. (78 percent versus 63 percent). These gender differences in labor force participation rates occurred at each level of educational attainment. The patterns of labor force participation rates by educational attainment for both foreign-born men and women in Massachusetts were quite similar:

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40 See: Andrew Sum, Irwin Kirsch, Kentaro Yamamoto, *A Human Capital Concern: The Literacy Skills of U.S. Immigrants*, Center for Global Assessment, Educational Testing Service (ETS), Princeton, New Jersey, March 2004.

41 The definition of unemployment in the 2000 Census is somewhat more liberal than that in the monthly CPS survey. The Census questionnaire does not allow one to distinguish active from passive job search methods. In the CPS, a jobless respondent must be actively searching for work to be counted as unemployed. Reading newspaper want ads or surfing the Internet job search sites does not count as active search.

42 Let E/P = the employment/population ratio. Algebraically,  $E/P = L/P * E/L$  where,  $L/P$  = the labor force participation rate,  $E/L = 1 - U/L$ , where  $U/L$  equals the unemployment rate.



the higher the educational attainment levels of men and women, the higher the labor force participation rate. Among foreign-born men, the labor force participation rate for an individual holding a Bachelor's degree was 25 percentage points higher than an individual without a high school diploma (89 percent versus 64 percent). Among women in these same two educational attainment subgroups, the gap between their labor force participation rates was 21 percentage points.

The labor force participation rates of the foreign-born population in Massachusetts and the U.S. were not only strongly linked to educational attainment levels, but also to their English-speaking ability. For example, in Massachusetts, the labor force participation rate of foreign-born individuals who did not speak English was only 49 percent versus 77 percent for those persons who only spoke English or spoke English very well. (Table 21). The U.S. as a whole exhibited similar pattern of labor force participation rates across English-speaking proficiency groups. The labor force participation rates of Massachusetts immigrants in each English-speaking ability category, except for those who did not speak English well or did not speak English at all, were higher than those of their counterparts in the U.S. For example, the foreign-born in Massachusetts who only spoke English were slightly more than four percentage points more likely to actively participate in the labor force than their counterparts in the U.S. (76.9 percent versus 72.6 percent).

Among the foreign-born population in Massachusetts, both educational attainment and English-speaking ability were positively associated with labor force participation rates. How big were the combined effects of educational attainment levels and English-speaking ability on the labor force participation rates of the foreign-born population in Massachusetts? To answer this question, we estimated labor force participation rates for thirty subgroups of immigrants classified by their combined educational attainment and English-speaking proficiency. Findings in Table 22 reveal a substantial combined effect of educational attainment and English-speaking ability on the labor force participation rate of the adult foreign-born population in Massachusetts. The higher the level of formal schooling and the better the English-speaking ability of foreign-born persons, the more likely it was that such persons would actively participate in

**TABLE 19:**

Labor Force Participation Rates of the Non-Enrolled 20-64 Year Old Foreign-Born Population in Massachusetts and the U.S. by Educational Attainment, 2000 (in percent)

EDUCATIONAL ATTAINMENT	MA	U.S.	MA-U.S.
1-12 years, no diploma or GED	57.5	59.7	-2.2
High school diploma or GED, no college	71.5	67.5	4.0
13 – 15 years, no college degree	74.4	73.9	0.5
Associate's degree	76.4	75.5	0.9
Bachelor's degree	80.1	78.1	2.0
Master's or higher degree	87.0	83.9	3.1
All	70.1	68.5	1.6

Source: 2000 Census, 5 percent PUMS files, tabulations by Center for Labor Market Studies, Northeastern University.

**TABLE 20:**

Labor Force Participation Rates of Non-Enrolled 20-64 Year Old Foreign-Born Persons in Massachusetts by Gender and by Educational Attainment, 2000 (in percent)

EDUCATIONAL ATTAINMENT	MEN	WOMEN	MEN-WOMEN
1-12 years, no diploma or GED	64.2	50.9	13.3
High school diploma or GED, no college	78.9	64.5	14.4
13 – 15 years, no college degree	81.7	67.9	13.8
Associate's degree	84.2	71.1	13.1
Bachelor's degree	89.0	72.0	17.0
Master's or higher degree	93.6	78.2	15.4
All	78.4	63.6	14.8

Source: 2000 Census, 5 percent PUMS files, tabulations by Center for Labor Market Studies, Northeastern University.

**TABLE 21:**

Labor Force Participation Rates of the Non-Enrolled 20-64 Year Old Foreign-Born Population in Massachusetts and the U.S. by English Speaking Ability, 2000 (in percent)

ENGLISH-SPEAKING ABILITY	MA	U.S.	MA-U.S.
Only speaks English	76.9	72.6	4.3
Speaks English very well	77.8	76.0	1.8
Speaks English well	69.5	69.0	0.5
Does not speak English well	58.9	60.7	-1.8
Does not speak English	48.8	54.1	-5.3
All	70.9	68.5	2.4

Source: 2000 Census, 5 percent PUMS files, tabulations by Center for Labor Market Studies, Northeastern University.

**TABLE 22:**

Labor Force Participation Rates of the Non-Enrolled 20-64 Year Old Foreign-Born Population in Massachusetts by Educational Attainment and English-Speaking Ability, 2000 (in percent)

EDUCATIONAL ATTAINMENT	SPEAKS ENGLISH ONLY	SPEAKS ENGLISH VERY WELL	SPEAKS ENGLISH WELL	DOES NOT SPEAK ENGLISH WELL	DOES NOT SPEAK ENGLISH
1-12 years, no diploma or GED	56.3	62.3	62.3	55.6	46.6
High school diploma or GED	73.8	75.7	70.9	64.7	57.0
13-15 years, no college degree	79.7	76.5	73.0	60.9	51.9
Associate's degree	79.8	79.3	77.1	55.9	50.2
Bachelor's degree	84.2	84.0	72.4	61.6	57.4
Master's or higher degree	92.0	88.1	80.0	74.3	44.2

Source: 2000 Census, 5 percent PUMS files, tabulations by Center for Labor Market Studies, Northeastern University.

the labor force. To illustrate this argument with statistics, the labor force participation rate of foreign-born high school graduates who did not speak English was 57 percent, while for those who spoke English well it rose to 71 percent, and for those who only spoke English it increased to 74 percent. This pattern of increasing labor force participation rates with English language proficiency typically held true for immigrants in each of the six educational subgroups. The combined effects of schooling and English-speaking proficiency were quite considerable. At the extremes, the participation rates of immigrants who held a Master's or higher degree and only spoke English or spoke English very well were twice as high as those of immigrants who lacked a high school diploma and could not speak English. (90 percent versus 47 percent).

#### **Unemployment Rates Among the Massachusetts Foreign-Born Labor Force in 2000**

The above findings on the foreign-born population's labor force participation rates and their educational attainment and English-speaking ability revealed the strong positive effects of schooling and English-speaking ability on the likelihood that adult immigrants would be active labor force participants. However, the labor force includes both the employed and those who were unemployed at the time of the 2000 Census. To identify the success of foreign-born workers in obtaining jobs when they did participate in the labor market, we analyzed the findings of the 2000 Census for both the U.S. and Massachusetts. On average, the Massachusetts' foreign-

born population was more successful than their national counterparts in finding jobs. The overall unemployment rate of foreign-born persons in Massachusetts was 1.2 percentage points lower than that of their peers in the U.S. (5.1 percent versus 6.3 percent). (Table 23). In 2000, foreign-born persons with lower educational attainment had higher unemployment rates in both the U.S. and Massachusetts. The unemployment rate of foreign-born persons in Massachusetts without a high school diploma was nearly 9 percent versus 5.3 percent for those with a high school diploma, and only 2.8 percent for bachelor degree recipients. These findings on typically lower unemployment rates for those with stronger educational attainment held true for both the U.S. and Massachusetts.

The unemployment rates of immigrant men and women in Massachusetts in April 2000 were essentially identical at 5.0 percent and 5.1 percent, respectively. Both men and women with higher educational attainment typically experienced lower unemployment rates in Massachusetts. The unemployment rates of immigrant men and women lacking a high school diploma were three to four times higher than those of their peers with a Master's or higher degree (Table 24).

The unemployment rates of foreign-born persons were also strongly linked to their English-speaking proficiency. In Massachusetts, those persons who reported that they did not speak English had an unemployment rate of 10 percent versus only 4.9 percent for those reported to speak English well and only 3.7 percent for those who only spoke English. At each English speaking proficiency level, unemployment rates in Massachusetts among immigrants were lower than or

equal to those for the U.S. (Table 25).

Findings in Table 26 display estimates of unemployment rates for the foreign-born in Massachusetts classified by their English-speaking ability and their educational attainment levels. In most of the educational subgroups, the unemployment rates of the immigrant population tended to rise as their English-speaking proficiency declined, but the pattern did not hold true for those lacking a high school diploma. Among the latter poorly educated group, the unemployment rates of those who could not speak English were basically the same as those who only spoke English or spoke it very well. The relative size of the gaps in unemployment rates between those immigrants who lacked a high school diploma and could not speak English or speak it well and persons with a Bachelor's or higher degree who only spoke English were between five and eight to one. It should be noted, however, that college educated immigrants with Bachelor's and Master's degrees who could not speak English well or at all faced very high unemployment rates in the 12 to 18 percent range.

### Employment Rates Among the Massachusetts Foreign-Born Population

Our analysis of the labor force participation rates and unemployment rates of the adult foreign-born population revealed that they were strongly dependent on their levels of educational attainment and English language proficiencies. As a result, one would expect that the employment rates of these same adult immigrants (20-64) would be strongly associated with their schooling levels and their English-speaking proficiencies.

At the time of the 2000 Census, slightly more than two-thirds of 20-64 year old foreign-born persons were employed. Immigrant men were more likely to be employed than immigrant women (75 percent versus 60 percent). Among both immigrant men and women, employment rates rose steadily and strongly with their educational attainment. For example, among foreign-born men, the employment rate for those individuals holding a Bachelor's degree was 22 percentage points higher than those lacking a high school diploma (80 percent versus 58 percent) and six percentage points higher than male high school graduates. The patterns of employment rates for foreign-born women across educational attainment levels were similar to those of foreign-born

**TABLE 23:**

Unemployment Rates of 20-64 Year Old Foreign-Born Persons in Massachusetts and the U.S. by Educational Attainment, 2000 (in percent)

EDUCATIONAL ATTAINMENT	MA	U.S.	MA – U.S.
1-12 years, no diploma or GED	8.7	9.6	-0.9
High school diploma or GED, no college	5.3	6.5	-1.2
13 – 15 years, no college degree	3.5	4.9	-1.4
Associate's degree	5.0	4.2	0.8
Bachelor's degree	2.8	3.5	-0.7
Master's or higher degree	2.4	2.3	0.1
All	5.1	6.3	-1.2

Source: 2000 Census, PUMS files, tabulations by Center for Labor Market Studies, Northeastern University.

**TABLE 24:**

Unemployment Rates of Foreign-Born Men and Women, 20-64 Years Old in Massachusetts by Educational Attainment, 2000 (in percent)

EDUCATIONAL ATTAINMENT	MEN	WOMEN	MEN-WOMEN
1-12 years, no diploma or GED	9.2	8.1	0.9
High school diploma or GED, no college	5.8	4.7	1.1
13 – 15 years, no college degree	2.9	4.2	-1.3
Associate's degree	4.9	5.0	-0.1
Bachelor's degree	2.0	3.7	-1.7
Master's or higher degree	2.2	2.8	-0.6
All	5.0	5.1	-0.1

Source: 2000 Census, 5 percent PUMS files, tabulations by Center for Labor Market Studies, Northeastern University.

**TABLE 25:**

Unemployment Rates of 20-64 Year Old Foreign-Born Persons in Massachusetts and the U.S. by English-Speaking Proficiency, 2000 (in percent)

ENGLISH-SPEAKING PROFICIENCY	MA	U.S.	MA-U.S.
Only speaks English	3.7	5.1	-1.4
Speaks English very well	4.5	4.5	0.0
Speaks English well	4.9	5.8	-0.9
Does not speak English well	7.7	8.4	-0.7
Does not speak English	10.1	13.1	-3.0
All	5.1	6.3	-1.2

Source: 2000 Census, 5 percent PUMS files, tabulations by Center for Labor Market Studies, Northeastern University.

**TABLE 26:**

Unemployment Rates of 20-64 Year Old Foreign-Born Persons in Massachusetts by Educational Attainment and English-Speaking Proficiency, 2000 (in percent)

EDUCATIONAL ATTAINMENT	SPEAKS ENGLISH ONLY	SPEAKS ENGLISH VERY WELL	SPEAKS ENGLISH WELL	DOES NOT SPEAK ENGLISH WELL	DOES NOT SPEAK ENGLISH
1-12 years, no diploma or GED	10.8	9.9	6.5	8.2	10.8
High school diploma or GED	4.4	5.6	5.2	5.5	7.5
13 – 15 years, no college degree	2.5	4.0	2.7	6.3	7.4
Associate's degree	3.3	4.7	7.8	2.7	--
Bachelor's degree	1.3	2.3	3.1	12.8	18.5
Master's or higher degree	1.7	2.3	2.2	12.1	--

Source: 2000 Census, 5 percent PUMS files, tabulations by Center for Labor Market Studies, Northeastern University

Note: -- indicates that the number of cases is too small to calculate a reliable estimate.

**TABLE 27:**

Employment/Population Ratios of 20-64 Year Old Foreign-Born Persons in Massachusetts by Educational Attainment, 2000 (in percent)

EDUCATIONAL ATTAINMENT	MEN	WOMEN	MEN-WOMEN
1-12 years, no diploma or GED	58.3	46.8	11.5
High school diploma or GED, no college	74.4	61.4	13.0
13 – 15 years, no college degree	79.3	65.1	14.2
Associate's degree	79.3	65.1	14.2
Bachelor's degree	80.1	67.5	12.6
Master's or higher degree	87.3	69.4	17.9
All	75.5	60.4	14.1

Source: 2000 Census, 5 percent PUMS files, tabulations by Center for Labor Market Studies, Northeastern University.

men. Both foreign-born men and women with higher educational attainment levels had uniformly higher employment rates. (Table 27).

The employability of the adult foreign-born population in Massachusetts and the U.S. also was positively and strongly linked to their English-speaking proficiency. Findings in Table 28 reveal that members of the foreign-born population with better English-speaking ability had consistently higher employment rates than their peers who did not speak English well or did not speak English at all. The size of these gaps in employment rates were quite substantial. For example, the employment rate of foreign-born persons in Massachusetts who did not speak English was only 44 per-

**TABLE 28:**

Employment/Population Ratios of 20-64 Year Old Foreign-Born Persons in Massachusetts and the U.S. by English-Speaking Proficiency, 2000 (in percent)

ENGLISH-SPEAKING PROFICIENCY	MASSACHUSETTS	U.S.	MA-U.S.
Only speaks English	74.1	68.9	5.2
Speaks English very well	74.3	72.5	1.8
Speaks English well	66.2	65.0	1.2
Does not speak English well	54.4	55.6	-1.2
Does not speak English	43.8	47.4	-3.6
All	67.3	64.2	3.1

Source: 2000 Census, 5 percent PUMS files, tabulations by Center for Labor Market Studies, Northeastern University.

cent versus 74 percent for those who spoke English only. The gaps in employment rates of immigrants by educational attainment were even higher in Massachusetts than they were in the U.S. in April 2000. The employment rates of the foreign-born in Massachusetts with limited English-speaking ability or no English-speaking ability were lower than their national peers in the same proficiency category; however, individuals with better English-speaking ability in Massachusetts had higher employment rates than their national counterparts. (Table 28). The absolute size of the gaps between the employment rates of immigrants who only spoke English in Massachusetts and those who did not speak English was 30 percentage points versus 21 percentage

**TABLE 29:**

Employment/Population Ratios of Foreign-Born Persons, 20-64 Year Old in Massachusetts by Educational Attainment and English-Speaking Proficiency, 2000 (in percent)

EDUCATIONAL ATTAINMENT	SPEAKS ENGLISH ONLY	SPEAKS ENGLISH VERY WELL	SPEAKS ENGLISH WELL	DOES NOT SPEAK ENGLISH WELL	DOES NOT SPEAK ENGLISH
1-12 years, no diploma or GED	50.2	56.1	58.2	51.0	41.6
High school diploma or GED	70.6	71.4	67.2	61.1	52.7
13 – 15 years, no college degree	77.7	73.4	71.1	57.1	48.1
Associate's degree	77.2	75.5	71.1	54.4	50.2
Bachelor's degree	83.2	82.1	70.1	53.7	46.8
Master's or higher degree	90.5	86.1	78.3	65.3	41.9

Source: 2000 Census, 5 percent PUMS files, tabulations by Center for Labor Market Studies, Northeastern University.

points in the U.S. (Table 28).

The combined effects of educational attainment and English-speaking ability on the employment rates of the foreign-born in Massachusetts were quite substantial. Within each educational attainment category, except those lacking a high school diploma, employment rates were lower for those individuals with a poor English-speaking ability. Among high school graduates, employment rates ranged from 53 percent for those who could not speak English to 70-71 percent for those who could speak English very well or only spoke English. (Table 29). The employment rates of foreign-born persons in Massachusetts with a Bachelor's degree who only spoke English or reported to speak English very well were 30 to 36 percentage points higher than the employment rates of those persons with the same level of educational attainment, but with limited or no English-speaking ability. The combination of a high level of educational attainment and strong English-speaking abilities generated very high employment rates while the opposite traits produced much lower employment rates in 2000. Bachelor degree recipients who only spoke English were twice as likely to be employed as their counterparts who failed to graduate from high school and could not speak English (83 percent versus 42 percent).

#### **The Influence of Educational Attainment and English-Speaking Proficiencies on the Employment Status of 20-64 Year Old Immigrant Men and Women: Findings of A Multivariate Statistical Analysis**

The preceding findings have provided evidence of strong, simple statistical associations between the educational attainment and English-speaking proficiencies of adult immigrants in Massachusetts and their labor force participation behavior and their employment status. In illustrating the nature of these relationships, we were not able to control for other differences in the demographic and socioeconomic backgrounds of immigrants that may be expected to significantly influence their willingness to participate in the labor force or to obtain employment. To provide a more statistically rigorous test of the independent influence of schooling and English-speaking proficiencies on the employment status of immigrant adults in Massachusetts in 2000, we constructed a set of multivariate statistical models of the employment behavior of immigrant adults based on core elements of the neoclassical theory of labor force behavior.<sup>43</sup> In these models, the dependent variable is the employment status of an individual 20-64 year old immigrant adult at the time of the 2000 Census.<sup>44</sup> The predictor variables include the gender, age group, race-ethnic background, educational attainment,

43 For a review of the basic theoretical foundations of neoclassical labor force participation and labor supply theory, see: (i) Ronald Ehrenberg and Robert S. Smith, *Modern Labor Economics: Theory and Public Policy*, (7th Edition), Addison-Wesley, Reading, MA 2000. (ii) Mark Killingsworth, *Labor Supply*, Cambridge University Press, Cambridge, 1983.

44 The dependent variable is a dichotomous variable that takes on the value of 1 if the respondent was employed at the time of the 2000 Census and the value of 0 if he/she was not employed.

**TABLE 30:**

Estimated Impacts of Educational Attainment and English-Speaking Proficiency Levels on the Expected Employment Rates of Immigrants 20 and Older in Massachusetts, April 2000 (in Percentage Points)

HUMAN CAPITAL TRAIT	ALL	MEN	WOMEN
1-8 Years of School	-0.105 **	-0.110 **	-0.099 **
9-12 Years of School, no Diploma or GED	-0.090 **	-0.103 **	-0.077 **
1-3 Years of College, No Degree	+0.030 **	+0.037 **	+0.026 *
Associate's Degree	+0.042 **	+0.032 *	+0.049 **
Bachelor's Degree	+0.077 **	+0.093 **	+0.069 **
Master's Degree	+0.122 **	+0.133 **	+0.120 **
Professional Degree	+0.148 **	+0.164 **	+0.141 **
Speaks English Very Well	+0.000	-0.013	+0.025 *
Speaks English Well	-0.024 **	-0.035 **	-0.015
Does Not Speak English Well or Does Not Speak At All	-0.083 **	-0.081 **	-0.084 **

\*\* significant at .01 level \* significant at .05 level

Note: Base Group for this analysis consists of individuals who are high school graduates with no college and only speak English.

English-speaking proficiency, timing of arrival in the U.S., personal income, and other family income of the respondent.<sup>45</sup> A model was estimated for immigrant men and women together and for both gender groups separately. Linear probability models based on ordinary least squares regression techniques were used to estimate the coefficients of the predictor variables.

Estimates of the coefficients for each of the seven educational variables and the three English-speaking proficiency variables are displayed in Table 30. A full set of findings are available from the authors. The base group for this analysis consists of individuals who were high school graduates with no completed years of post-secondary schooling and who only spoke English. Findings for the combined set of immigrants reveal that all the educational variables and two of the three English-speaking variables significantly influenced the likelihood of employment among immigrant men and women in 2000. In comparison to the base group (high school graduates), immigrants who completed some high school but failed to graduate were 9 percentage points less likely to be employed while those with an Associate's, Bachelor's, and Master's degree were 4, 8, and 12 percentage points, respec-

tively, more likely to be employed than high school graduates. The independent impact of being a bachelor's degree recipient as opposed to a high school dropout on the probability of employment was approximately 17 percentage points.

Two of the three English-speaking proficiency variables had a statistically significant impact on the probability of employment among immigrant adults. Those immigrants who reported that they spoke English very well were just as likely to be employed as their counterparts who only spoke English, holding all other predictor variables constant. An immigrant who only spoke English "well", however, was two to three percentage points less likely to be employed than their peers who only spoke English, and immigrants who either did not speak English or did not speak it well were between eight and nine percentage points less likely to be employed than their peers who only spoke English. The combined effect of limited formal schooling and a weak English-speaking proficiency on the employment prospects of immigrants was quite strong. For example, an immigrant adult (20-64 years old) who only had a primary education and could not speak English well was nearly 19 percentage points less likely to be employed than their base group counter-

45 In neoclassical labor supply theory, increased personal or other family income should increase the demand for leisure and reduce the likelihood of employment.



parts, i.e., an immigrant who graduated from high school and only spoke English. A bachelor's degree recipient who spoke English very well would have been 27 percentage points more likely to be employed than his counterpart with only a primary school education and weak English-speaking skills.

Findings of the multivariate statistical analyses of the employment behavior of immigrant men and women with respect to the influence of educational attainment and English-speaking proficiencies were quite similar. Formal schooling had quite uniform and statistically significant effects on the likelihood of employment among both men and women. Those male and female adults lacking a high school diploma were significantly less likely to be employed. The inability to speak English or to speak it well significantly reduced employment prospects for immigrant men and women by similar degrees. While immigrant men who could only speak English "well" were significantly less likely to be employed than their male counterparts who only spoke English, there was no significant difference between the employment rates of these two groups of immigrant women.

#### **Access to Professional, Managerial, and Technical Occupations for Immigrant Workers**

The above analyses focused on the positive statistical associations between the educational attainment and English-speaking proficiencies of adult immigrants (20-64 years old) in Massachusetts and their employment status at the time of the 2000 Census. The analysis did not, however, attempt to distinguish among the types of jobs obtained by those immigrants who were employed. A number of previous studies based on the NALS and IALS assessment data and the changing skills structure of jobs in U.S. labor markets have found strong links between the educational attainment and literacy/numeracy proficiencies of U.S. adults and their access to high skilled jobs in the professional, managerial, and technical occupations.<sup>46</sup> In this section, we examine how the education-

al attainment and English-speaking proficiencies of immigrant workers in Massachusetts influenced their ability to obtain jobs in these higher skilled professional, managerial, and technical occupations at the time of the 2000 Census.<sup>47</sup>

The percent of employed 20-64 year old native-born and foreign-born persons in each of six educational categories who were holding a professional, managerial, or technical job in Massachusetts at the time of the 2000 Census are displayed in Table 31. Not surprisingly, native-born workers in the aggregate were somewhat more likely than immigrant workers to obtain access to such high skilled occupations (33 percent vs. 28 percent). Among both groups, however, the likelihood of a worker obtaining such jobs rose continuously and strongly with his/her level of formal schooling. Among immigrant workers, the percent of the employed holding professional, managerial, or technical positions ranged from a low of 4 percent among those lacking a high school diploma/GED, to 8 percent among high school graduates, to 54 percent among bachelor degree holders, and to a high of nearly 70 percent for those with a Master's or higher academic degree (Table 31 and Figure 18). Employed bachelor degree recipients were nearly 7 times as likely as high school graduates to be working in one of these high skilled, white collar occupations, and Associate degree holders were nearly 3 times as likely as high school graduates to be doing so. While immigrant workers with less than a Bachelor's degree were modestly less likely than native-born workers to be employed in these high skilled occupations, those foreign-born workers with a bachelor's or higher degree were somewhat more likely than their native-born counterparts to be doing so (Table 31).

Employed immigrant males in the aggregate were more likely to be employed in professional, managerial, or technical positions than their female counterparts (31 percent vs. 25 percent), and these gender gaps existed even among those workers with Associate, Bachelor, and Master's degrees (Table 32). Among both immigrant men and women, the likelihood

46 For analyses of the influence of educational attainment and literacy proficiencies on the access of all U.S. adults to high-skilled occupations and the impacts of computers on the skills mix of jobs in the U.S. economy and their literacy skills requirements, See: (i) Frank Levy and Richard J. Murnane, *The New Division of Labor: How Computers are Creating the Next Job Market*, Russell Sage Foundation, New York, 2004; (ii) Andrew M. Sum, *Literacy and the Labor Force*, National Center for Education Statistics, Washington, DC, 1999; (iii) Andrew Sum, Irwin Kirsch, and Kentaro Yamamoto, *Making It in the Labor Market: The Key Role of Literacy Proficiencies*, Center for Global Assessment, Educational Testing Service, Princeton, 2004, forthcoming.

47 The occupational coding system (a version of the SOC system) used by the U.S. Census Bureau in classifying the occupations of jobs held by the employed at the time of the 2000 Census was the basis for determining these occupational categories.

**TABLE 31:**

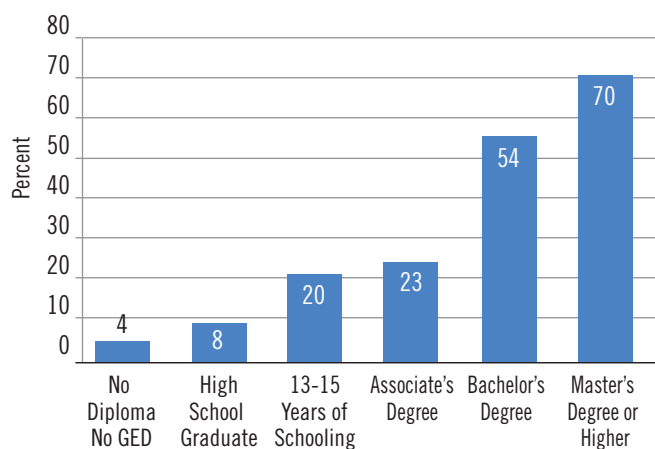
The Percent of Employed 20-64 Year Old Persons<sup>(1)</sup> in Massachusetts Holding Professional, Managerial, or Technical Positions by Educational Attainment and by Nativity Status, April 2000

EDUCATIONAL ATTAINMENT	NATIVE-BORN	FOREIGN-BORN	NATIVE-FOREIGN-BORN
1-12, no diploma or GED	6.1	4.1	+2.0
High school diploma/GED, no college	10.3	8.1	+1.8
13-15 years, no degree	21.8	20.3	+1.5
Associate's degree	24.6	23.0	+1.6
Bachelor's degree	49.8	53.5	-3.7
Master's or higher degree	68.4	69.8	-1.4
All	32.6	28.2	+4.4

Source: 2000 Census PUMS files, 5-100 sample, tabulations by Center for Labor Market Studies. Note: (1) Estimates pertain only to those persons who had not been enrolled in a formal educational program since February 1, 2000.

**FIGURE 18:**

The Percent of 20-64 Year Old Employed Foreign-Born Persons in Massachusetts Who Held Professional, Managerial, or Technical Occupations by Educational Attainment, 2000



of working in these high skilled occupations rose consistently and strongly with their years of schooling. Among immigrant women, fewer than 4 percent of those lacking a high school diploma were employed in a professional, managerial, or technical job versus 21 percent of those with an Associate's degree, 47 percent of those with a Bachelor's degree, and two-thirds of those with a Master's or higher degree (Table 32). Very similar patterns of employment in these high skilled

**TABLE 32:**

The Percent of Employed 20-64 Year Old Immigrants in Massachusetts Holding Professional, Managerial, or Technical Jobs by Educational Attainment and by Gender, April 2000

EDUCATIONAL ATTAINMENT	MEN	WOMEN
1-12, no diploma or GED	4.3	3.8
High school diploma/GED, no college	7.9	8.3
13-15 years, no degree	20.2	20.5
Associate's degree	25.9	20.9
Bachelor's degree	59.5	46.5
Master's or higher degree	71.9	66.5
All	30.8	25.2

Source: 2000 Census PUMS files, 5-100 sample, tabulations by Center for Labor Market Studies.

**TABLE 33:**

Percent of Employed 20-64 Year Old Immigrants in Massachusetts Holding Professional, Managerial, and Technical Jobs by English-Speaking Proficiency, Total and by Gender, April 2000

ENGLISH-SPEAKING PROFICIENCY	ALL	MEN	WOMEN
Only speaks English	34.8	37.7	31.2
Speaks English very well	37.1	40.9	32.8
Speaks English well	21.1	22.2	19.9
Does not speak English well	7.8	9.2	6.3
Does not speak English	4.1	4.3	3.9
All	28.2	30.8	25.2

Source: 2000 Census PUMS files, 5-100 sample, tabulations by Center for Labor Market Studies.

occupations by educational attainment prevailed among men.

The percentage share of employed immigrants who obtained jobs in professional, managerial, and technical occupations also varied quite markedly by their English-speaking proficiency (Table 33 and Figure 19). Among those employed foreign-born persons who could not speak English or speak English well, the share with high skilled jobs ranged from only 4 to 8 percent. The fraction of the immigrant employed

**TABLE 34:**

Percentage of the 20-64 Year Old Employed Foreign-Born Population in Massachusetts Who Were Working in Professional, Managerial and Technical Occupations by Educational Attainment and English-Speaking Ability, 2000

EDUCATIONAL ATTAINMENT	SPEAKS ENGLISH ONLY	SPEAKS ENGLISH VERY WELL	SPEAKS ENGLISH WELL	DOES NOT SPEAK ENGLISH WELL	DOES NOT SPEAK ENGLISH
No diploma, No GED	7.3	7.8	6.2	3.3	4.5
High school graduate, no college	14.0	14.2	9.1	6.3	5.9
Some College, no degree	30.0	30.1	22.1	12.5	8.9
Associate's degree	43.5	43.2	30.5	16.1	9.7
Bachelor's degree	72.2	70.3	59.9	36.7	34.4
Master's degree or higher	91.6	88.6	81.7	63.6	31.1

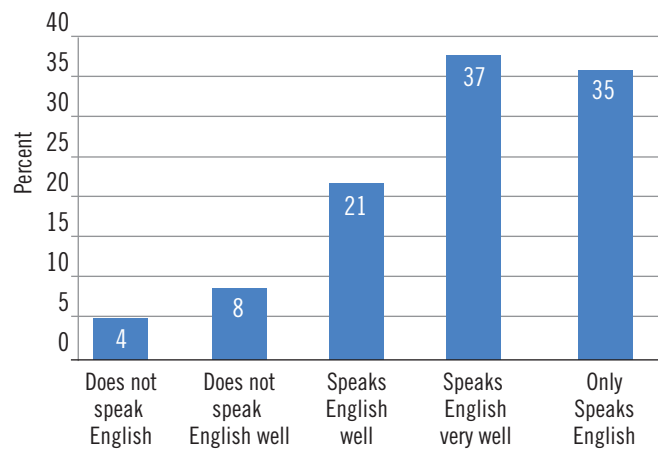
with such jobs rose sharply to 21 percent if they spoke English well and to a high of 37 percent if they spoke English very well (Table 33). Again, these employment patterns were very similar for men and women, with those speaking English very well being eight to nine times more likely to be working in such occupations than their immigrant peers who could not speak English.

The ability of employed immigrants to secure high skilled, white collar occupations was positively associated with both their English-speaking proficiency and their level of schooling (Table 34 and Figure 20). In all educational groups, except those lacking a high school diploma, the fraction of immigrants who were able to secure access to one of these high skilled occupations rose consistently with their English-speaking proficiency. Those who could not speak English were nearly always far less likely to work in such jobs than their peers with the same amount of schooling who either spoke English very well or only spoke English (Table 34).

The percent of the employed foreign-born who worked in these higher skilled jobs varied dramatically across key educational attainment/English-speaking proficiency subgroups. In the Spring of 2000, only 4 to 5 percent of those employed immigrants who lacked a high school diploma and could not speak English held one of these highly skilled jobs (Figure 20). The fraction of employed immigrants with such occupations rose to 22 percent if they had completed one to three years of college and spoke English well, to 70 percent if they had a bachelor's degree and spoke English very well, and to a maximum of nearly 92 percent if they held a Master's degree and only spoke English. The relative difference in the shares

**FIGURE 19:**

The Percent of 20-64 Year Old Employed Foreign-Born Persons in Massachusetts Who Held Professional, Managerial, or Technical Occupations by English-Speaking Proficiency, 2000

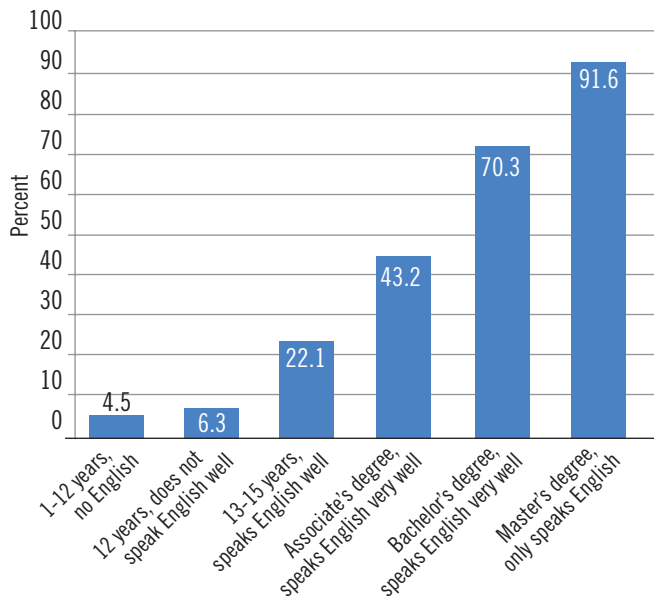


of immigrants with high skilled jobs between the top and bottom of the schooling/English-speaking skills distribution was more than twenty to one (Figure 20).

It should be noted that the acquisition of solid English-speaking skills by well educated immigrants also substantially improved their ability to secure employment in these professional, managerial, and technical occupations. Among employed immigrants with Bachelor degrees and those with Master's and higher degrees, the likelihood of obtaining a job in one of the above occupational categories rose very considerably as their English-speaking skills improved (Figure 21). Only slightly more than one-third of immigrant Bachelor

**FIGURE 20:**

Percentage of the Employed 20-64 Year Old Foreign-Born Population in Massachusetts Who Held Professional, Managerial, and Technical Occupations by Selected Combinations of Educational Attainment and English-Speaking Ability



**TABLE 35:**

Dependent and Predictor Variables in the Logit Regression Models of the Access of Immigrants to Highly Skilled Occupations in Massachusetts

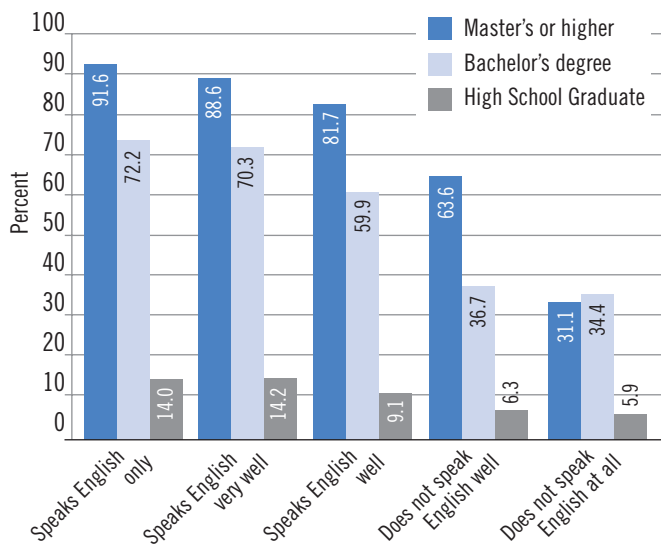
<p><b>DEPENDENT VARIABLE:</b> The natural log of the odds of an immigrant worker being employed in a professional, managerial, or technical occupation at the time of the 2000 Census.</p>
<p><b>PREDICTOR VARIABLES:</b></p> <ul style="list-style-type: none"> <li>Years of potential work experience [1]</li> <li>Years of potential work experience squared [1]</li> <li>Race-ethnic group [3]</li> <li>Educational Attainment [8]</li> <li>Year of entry into the U.S. [2]</li> <li>English-speaking proficiency [3]</li> </ul>

Note: Numbers in brackets refer to the number of individual variables in this category.

degree holders with substantial English-speaking deficits were employed in high level occupations in 2000 versus 70 to 72 percent of their identically educated peers who either spoke English very well or only spoke English. It is clear that Massachusetts labor markets would be able to make more effective

**FIGURE 21:**

Percentage of the Foreign-Born Population in Massachusetts Who Were Employed in Professional, Managerial, and Technical Occupations Within Selected Educational Attainment and English-Speaking Ability Groups, 2000



use of their more highly educated immigrant workers if they were able to bolster their English-speaking abilities. Limited English-speaking proficiencies sharply increase the likelihood of their being underemployed or mal-employed, thereby reducing their productivity, their real earnings prospects, and the future growth of real output in the Massachusetts economy. Effective solutions to these English skills mismatches should be sought by state economic and educational policymakers.

**Findings of A Multivariate Statistical Analysis of the Factors Influencing the Ability of Employed Immigrants to Obtain Jobs in Professional, Managerial, and Technical Occupations in Massachusetts**

The findings in the above section have revealed the existence of strong simple statistical associations between the schooling backgrounds and English-speaking proficiencies of immigrant workers and their ability to obtain employment in professional, managerial, and technical occupations in Massachusetts. The likelihood of immigrants' securing employment in such occupations is likely to be influenced by other demographic and socioeconomic traits of immigrants, including their gender, their years of potential work experience, their race-

ethnic group, and the number of years that they have lived in the United States.<sup>48</sup> To identify the independent impacts of formal schooling and English-speaking proficiencies on the probability of employed immigrants obtaining jobs in these high skilled, white collar occupations, we estimated a logit regression model in which the likelihood of obtaining such jobs is regressed against a set of 18 demographic traits, human capital traits, and length of stay variables in the U.S.<sup>49</sup> Separate logit models were estimated for immigrant men and women. A listing of the variables appearing in these models is displayed in Table 35.<sup>50</sup>

The estimated coefficients from the logit model were converted into marginal probability estimates evaluated at the mean values for all right hand side variables. The estimated sizes of the marginal probabilities for each of the formal schooling and English-speaking proficiency variables are displayed in Table 36 together with their significance levels. The base group for the analysis consists of immigrants who were high school graduates with no college who only spoke English. Findings of the complete set of logit regression results are available from the authors.

All of the educational variables and all but one of the English-speaking proficiency variables in the male and female regression models had statistically significant impacts on the expected probability of immigrants obtaining employment in the professional, managerial, or technical occupations.<sup>51</sup> The estimated sizes of the marginal probability impacts of many of the schooling and language variables are quite substantial. For example, in the male regression model, an immigrant male with only a primary school education, holding all other background variables constant, would have been 10 percentage points less likely to obtain a high skilled occupation than high school graduates with no college education (the base group). If this limited education also were accompanied by

**TABLE 36:**

Estimates of the Marginal Increase/Decrease in the Probability of Foreign-Born Workers (20-64 Years Old) Obtaining a Professional, Managerial, or Technical Job Due to Differences in Educational Attainment or English-Speaking Proficiency by Gender, Massachusetts, 2000

HUMAN CAPITAL VARIABLE	MEN	WOMEN
<b>Educational Attainment</b>		
0-8 years	-10.4 **	-10.5**
9-12 years, no diploma	-5.6 *	-11.5**
13-15 years, no degree	+18.2 **	+13.7**
Associate's degree	+27.8 **	+14.8**
Bachelor's degree	+48.5 **	+30.8**
Master's degree	+61.4 **	+44.1 **
Professional degree	+30.2 **	+24.6**
Ph.D. degree	+73.0 **	+58.4**
<b>English-Speaking Proficiency</b>		
Speaks very well	-.8	-2.2**
Speaks well	-7.8 **	-7.5**
Speaks English not well or not at all	-18.6 **	-15.7**

Notes: The base group for this analysis consists of immigrants with a high school diploma/GED who only speak English.

\*\* = sig. at .01 level. \* = sig. at .05 level.

an inability to speak English well, it would have reduced the expected probability of employment in these high skilled occupations by a combined 29 percentage points relative to the base group. Obtaining additional years of schooling beyond high school strongly increased the probability of obtaining a skilled, white-collar job. Possessing an Associate's degree increased the probability by 28 percentage points, a Bachelor's degree by nearly 49 percentage points, and a Ph.D. degree by

48 The potential years of work experience variable was calculated by subtracting years of schooling completed and six from the age of the respondent at the time of the 2000 Census. Those persons with academic post-secondary degrees were assigned the following years of schooling completion: Associate's degree = 14; Bachelor's degree = 16; Master's degree = 18; Professional degree = 19; Ph.D. degree = 20.

49 In the logit regression model, the dependent variable is the natural log of the odds of being employed in a professional, technical, or management-related job at the time of the 2000 Census.

50 Use of the PUMS 5-100 sample yields a very large number of sample cases for men and women, approximately 14,000 observations for both groups.

51 The one exception is the variable "Speaks English very well" in the male regression model. The coefficient of this variable was quite small (less than one percentage point) and not statistically significant, implying that immigrant males who spoke English very well, ceteris paribus, were just as likely to obtain high skilled employment as their immigrant peers who only spoke English.

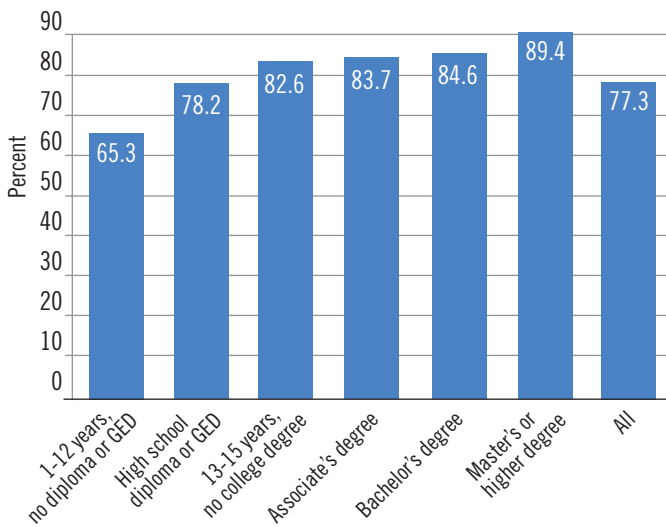
**TABLE 37:**

Percent of 20-64 Year Old Foreign-Born Persons in Massachusetts and the U.S. Who Were Employed for 1 or More Weeks during 1999 by Their Educational Attainment

EDUCATIONAL ATTAINMENT	MASSACHUSETTS	U.S.	MA-U.S.
1-12 years, no diploma or GED	65.3	68.6	-3.3
High school diploma or GED	78.2	74.8	3.4
13 – 15 years, no college degree	82.6	82.1	0.5
Associate's degree	83.7	82.0	1.7
Bachelor's degree	84.6	83.4	1.2
Master's or higher degree	89.4	88.3	1.1
All	77.3	76.0	1.3

**FIGURE 22:**

Percent of 20-64 year old Foreign-Born Persons in Massachusetts with Some Employment Experience During 1999 by Educational Attainment



73 percentage points (Table 36). Holding all other background traits constant, limited English-speaking proficiencies significantly reduced the probability of immigrant males securing professional, technical, or managerial (PTM) employment. Males who only spoke English “well” were eight percentage points less likely to obtain PTM employment than those who only spoke English while those who either could not speak

English well or speak it at all were nearly 19 percentage points less likely to be employed in such occupations.

The logit regression results for immigrant women were quite similar to those for immigrant males (Table 36, Column B). Women with more schooling were significantly more likely to obtain PTM employment especially when they held Bachelor or higher degrees, and limited English-speaking proficiencies significantly reduced their prospects for obtaining PTM employment. The estimated sizes of the marginal probability impacts of additional years of education beyond high school rose sharply with the number of years of post-secondary schooling completed, but they tended to be somewhat smaller in size than those for men. Each of the three English-speaking proficiency variables in the female immigrant model were statistically significant and were typically of similar magnitude to those of men. Among both immigrant women and men, formal schooling and English-speaking proficiencies were strong predictors of their success rates in obtaining PTM employment in Massachusetts in 2000.

The timing of the arrival of immigrants in the United States generally had significant impacts on the probability of immigrant workers being employed in PTM occupations.<sup>52</sup> Those workers who first arrived in the U.S. during the 1980s or the 1990s were modestly less likely to be holding a PTM occupation than their peers who arrived in the U.S. prior to 1980.<sup>53</sup> The estimated size of these marginal impacts was in the 3 to 4 percentage point range for both men and women. The ability of immigrant workers to gain access to highly skilled occupations tends to modestly improve with their length of stay in the U.S.

### Educational Attainment and English-Speaking Proficiencies of Immigrants and Their Employment and Earnings Experiences During 1999

Information on the employment and earnings experiences of immigrants during calendar year 1999 also was captured with the use of the long form questionnaire. All household members 15 years and older were asked to report the number of weeks that they were employed during calendar year 1999,

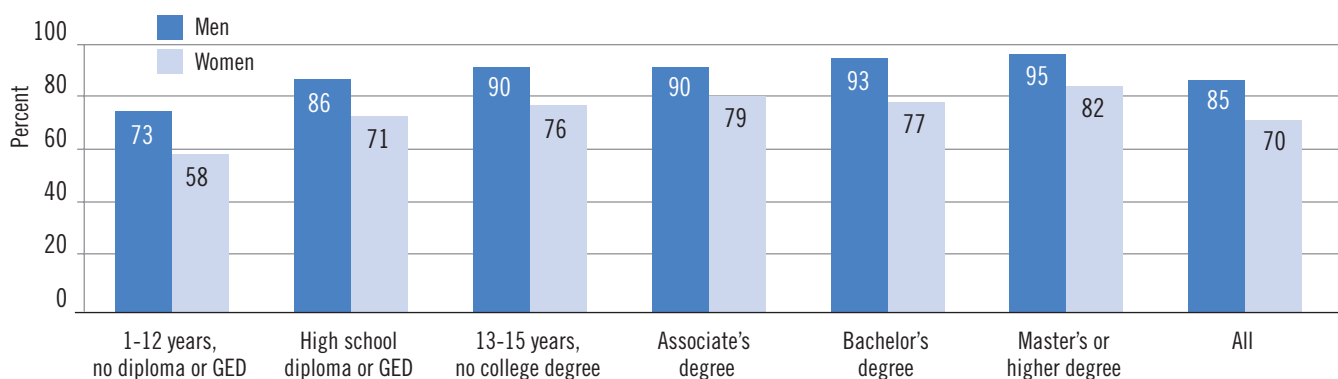
52 Among male immigrants, those who arrived in the 1990s had the same expected probability of PTM employment as those arriving prior to 1980. The estimated coefficient on the 1990s variable was negative as hypothesized but not statistically significant at the .05 level.

53 The long form questionnaire only captured information on the time of arrival in the U.S. rather than in Massachusetts. Field interviews over the past five years with immigrants revealed that many came to Massachusetts after living in another state.



**FIGURE 23:**

Percent of 20-64 Year Old Foreign-Born Men and Women in Massachusetts with Some Employment Experience in 1999 by their Educational Attainment



their average weekly hours of work, and their total earnings (before taxes) from wage and salary employment and self employment.<sup>54</sup> We have used this information to construct the following three employment and earnings variables for all 20-64 year old immigrants residing in the state at the time of the 2000 census.

- A dummy variable representing the employment status of the respondent during calendar year 1999. A value of 1 is assigned if the respondent worked 1 or more weeks during 1999 while a value of 0 was assigned if no paid work was performed during the year.

- A dummy variable representing the equivalent of full-time, year-round employment during calendar year 1999. A value of 1 was assigned if the respondent was employed for 1800 or more hours during calendar year 1999 while a value of 0 was assigned if he/she worked for less than 1800 hours.<sup>55</sup>

- Total gross earnings from wage and salary employment and self employment during calendar year 1999. Persons who did no paid work were assigned a value of 0 for this earnings measure.

Values for each of these three employment and earnings variables were calculated for subgroups of 20-64 year immigrants classified by their educational attainment and their self-reported, English-speaking proficiency. Findings on the

employment rates of immigrants in Massachusetts and the U.S. during calendar year 1999 by their educational attainment are displayed in Table 37. Overall, Massachusetts immigrants were modestly more likely to have been employed at some point during calendar year 1999 than their U.S. counterparts (77.3 percent vs. 76.0 percent). In both Massachusetts and the U.S., the incidence of employment rose consistently and strongly with their level of schooling (Table 37 and Figure 22). In Massachusetts, only 65 percent of immigrants lacking a high school diploma were employed versus 78 percent of high school graduates, 84 percent of those with an Associate's degree and slightly more than 89 percent of those with a Master's degree. In Massachusetts, immigrants in each of the six educational groups, except those lacking a high school diploma, were modestly more likely to have worked than their national counterparts.

The employment rates during 1999 of both immigrant men and women were strongly associated with their level of educational attainment (Table 38 and Figure 23). For both gender groups, the share of the adult immigrant population with some paid employment during the year generally rose steadily with their level of schooling. While only 73 percent of immigrant males with no high school diploma worked, 90 percent or more of those with some post-secondary

54 Total weeks of employment were to include weeks of paid vacation and sick leave and military service.

55 The standard U.S. Bureau of Labor Statistics definition of full-time employment is 35 or more hours per week. A person who was employed for all 52 weeks for 35 hours per week would have acquired 1820 hours of paid employment.

**TABLE 38:**

Percent of 20-64 Year Old Foreign-Born Men and Women in Massachusetts Who Were Employed for 1 or More Weeks during 1999 by their Educational Attainment

EDUCATIONAL ATTAINMENT	MEN	WOMEN	MEN-WOMEN
1-12 years, no diploma or GED	73.1	57.6	15.5
High school diploma or GED	85.9	70.7	15.2
13 – 15 years, no college degree	89.9	76.1	13.8
Associate's degree	90.2	79.2	11.0
Bachelor's degree	93.2	76.7	16.5
Master's or higher degree	95.3	81.7	13.6
All	84.9	69.8	15.1

**TABLE 39:**

Percent of 20-64 Year Old Foreign-Born Persons in Massachusetts and the U.S. Who Were Employed for 1 or More Weeks During 1999 by Their English-Speaking Proficiency

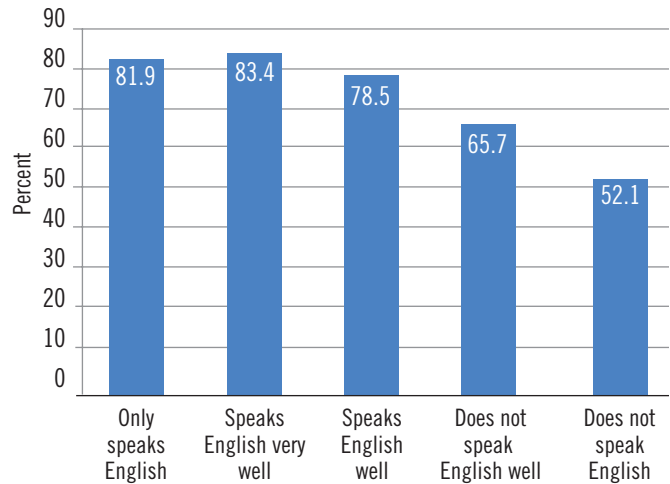
ENGLISH-SPEAKING PROFICIENCY	MASSACHUSETTS	U.S.	MA-U.S.
Only speaks English	81.9	78.6	3.3
Speaks English very well	83.4	82.5	0.9
Speaks English well	78.5	78.9	-0.4
Does not speak English well	65.7	69.8	-4.1
Does not speak English	52.1	58.5	-6.4
All	77.3	76.0	1.3

schooling did so as did 95 percent of those with a Master's or higher degree.

The employment rates of adult immigrants in Massachusetts and the U.S. also were positively associated with their level of English-speaking proficiency (Table 39). In both areas, immigrants who could not speak English were the least likely to work while those who spoke English very well were the most likely to work. The size of the employment gap between these two groups of immigrants in Massachusetts was quite substantial. Only 52 percent of those who could not speak English were employed at some point during 1999 versus 83 percent of those who spoke English very well, a 31 percentage point gap. The employment gap was only 24 per-

**FIGURE 24:**

Percent of 20-64 Year Old Foreign-Born Persons in Massachusetts with Some Employment Experience in 1999 by Self-Reported English-Speaking Proficiency

**TABLE 40:**

Percent of 20-64 Year Old Foreign-Born Men and Women in Massachusetts Who Were Employed for 1 or More Weeks during 1999 by their English-Speaking Proficiency

ENGLISH-SPEAKING PROFICIENCY	MEN	WOMEN	MEN-WOMEN
Only speaks English	88.6	74.8	13.8
Speaks English very well	89.3	77.5	11.8
Speaks English well	85.2	71.7	13.5
Does not speak English well	76.0	56.7	19.3
Does not speak English	63.9	43.3	20.6
All	84.9	69.8	15.1

centage points for the same two groups in the U.S. Immigrants in Massachusetts were less likely to work than their counterparts in the nation when they had a severe English-speaking deficit while they were more likely to work than their U.S. peers when they spoke English very well or only spoke English. Language barriers to employment among immigrants seem to be somewhat more formidable in our state than in the nation as a whole.

The English-speaking proficiencies of immigrant men and women in Massachusetts were strongly associated with their employment rates during 1999 (Table 40). For both groups, employment rates rose steadily and strongly as English-speaking proficiencies moved from could not speak

**TABLE 41:**

Percent of 20-64 Year Old Foreign-Born Persons in Massachusetts Who Were Employed for 1 or More Weeks during 1999 by their Years of Schooling Completed and English-Speaking Proficiency

YEARS OF SCHOOLING	SPEAKS ENGLISH ONLY	SPEAKS ENGLISH VERY WELL	SPEAKS ENGLISH WELL	DOES NOT SPEAK ENGLISH WELL	DOES NOT SPEAK ENGLISH
1-12 years, no diploma or GED	62.9	70.4	73.3	63.1	49.0
High school diploma or GED	79.7	81.2	80.2	70.2	63.7
13 – 15 years, no college degree	84.7	84.8	83.8	70.2	62.1
Associate's degree	86.3	87.5	82.0	68.1	52.6
Bachelor's degree	89.0	88.3	78.2	64.8	47.0
Master's or higher degree	93.6	90.6	84.7	70.1	61.8

English to speaks English “very well”. The gaps between the employment rates of those who spoke English very well and those who either could not speak English or speak it well were larger among women than men. Nearly 78 of every 100 women who spoke English very well were employed during 1999 versus only 43 of every 100 women who reported that they could not speak English, a gap of 34 percentage points. A gap of 25 percentage points existed among men in the same two proficiency groups. Gender gaps in employment rates among immigrants were smaller when immigrant women spoke English more fluently.

The employment rates of immigrants were strongly influenced by their English-speaking proficiency in each of the six educational subgroups (Table 41). In each educational group, those who could not speak English had the lowest employment rates while those who spoke English very well or only spoke English had the highest employment rates.<sup>56</sup>

The gaps in employment rates across English-speaking proficiency groups were very large among those immigrants with post secondary schooling, including both Bachelor degree recipients and those with a Master's or a more advanced degree. The combination of a high level of formal schooling and strong English-speaking proficiencies markedly raised the likelihood of some employment (Figure 25). During 1999, these employment rates ranged from a low of 49 percent for immigrants who lacked a high school diploma and

could not speak English to a high of nearly 94 percent for those with a Master's or more advanced degree who only spoke English (Figure 25). The absence of a reasonably strong English-speaking proficiency had a profound negative impact on the employability of the state's best educated immigrants.

#### **Educational Attainment, English-Speaking Proficiencies and the Year Round, Full-time Employment Rates of Adult Immigrants in Massachusetts**

In the preceding section, we examined the employment rates of 20-64 year old immigrants in Massachusetts during calendar year 1999. The employment measure simply captured information on whether the respondent worked for pay or profit at any time during the year. The Census 2000 long form questionnaire also collected information on the actual weeks of paid employment during the year and average hours of work per week. We combined these two variables to generate an estimate of annual hours of paid employment during calendar year 1999. Any person who worked for 1800 or more hours during the year was classified as a full-time, year-round worker.<sup>57</sup>

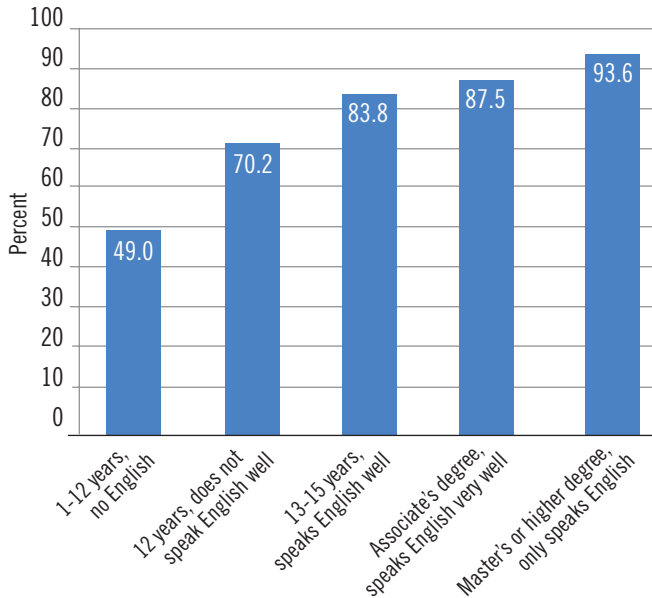
Estimates of the percent of 20-64 year old immigrants in Massachusetts and the U.S. in selected educational attainment categories who worked 1800 or more hours during 1999 are displayed in Table 42 and in Figure 26. In both the state and the nation, the higher the level of educational attain-

56 The one exception to this pattern was immigrants who lacked a high school diploma or a GED certificate. Among this group, the employment rate was highest among those who spoke English well.

57 This definition of a full-time, year-round worker is in close accord with that of the U.S. Census Bureau. The Census Bureau defines a full-time, year-round worker as one who was employed for 50-52 weeks during the year and worked for an average of 35 or more hours per week.

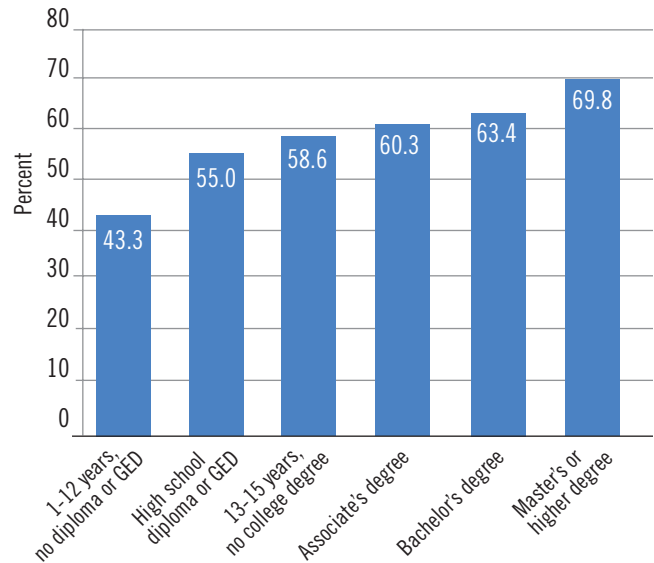
**FIGURE 25:**

Percent of 20-64 Years Old Foreign Born Persons in Massachusetts in Selected Schooling/English Proficiency Subgroups Who Were Employed During 1999



**FIGURE 26:**

Percent of 20-64 Year old Foreign Born Persons in Massachusetts Working 1800 or More Hours During Calendar Year 1999 by Years of Schooling Completed



**TABLE 42:**

Percent of 20-64 Year Old Foreign-Born Persons in Massachusetts and the U.S. Who Worked 1800 or More Hours During 1999 by Their Educational Attainment

EDUCATIONAL ATTAINMENT	MASSACHUSETTS	U.S.	MA - U.S.
1-12 years, no diploma or GED	43.4	44.0	-0.6
High school diploma or GED, no college	55.0	51.6	3.4
13 – 15 years, no college degree	58.6	58.5	0.1
Associate's degree	60.3	58.9	1.4
Bachelor's degree	63.4	62.1	1.3
Master's or higher degree	69.8	68.6	1.2
All	55.2	52.7	2.5

Source: 2000 Census, PUMS files, tabulations by Center for Labor Market Studies, Northeastern University.

ment of immigrants, the greater was their incidence of full-time, year-round employment. In Massachusetts, the share of immigrants who worked 1800 or more hours rose from a low of 43 percent among those lacking a high school diploma, to 63 percent for bachelor degree holders, and to a high of just under 70 percent for those with a Master's or higher degree (Figure 26). There was a 26 percentage point differ-

ence between the full-time, year-round employment rates of the best and least well educated groups of immigrants in Massachusetts during 1999. Very similar patterns prevailed among immigrants in the U.S. Overall, Massachusetts immigrants were slightly more likely than their national counterparts to have worked for 1800 or more hours (55.2 percent vs. 52.7 percent). Within each educational group, except high school dropouts, Massachusetts immigrants were modestly more likely than their U.S. peers to have worked full-time, year-round. In most cases, however these gaps in these employment rates were 1 percentage point or less.

Male immigrants in the aggregate and in each of the six educational attainment groups were substantially more likely than immigrant women to have worked for 1800 or more hours in calendar year 1999. Overall, 67 percent of immigrant males worked full-time, year-round versus slightly fewer than 44 percent of immigrant women (Table 43). Among both men and women, however, higher levels of schooling were associated with higher rates of year-round full-time work. For example, among immigrant males, the percent working more than 1800 hours ranged from a low of 53 percent among those lacking a high school diploma to a high of nearly 82 percent for those holding a Master's or higher degree, a gap

of 29 percentage points from top to bottom. Among immigrant women, the percentage point difference in full-time, year-round employment rates from top to bottom of the educational attainment distribution was 20 percentage points.

The likelihood of adult immigrants working 1800 or more hours per year was also strongly associated with their English-speaking proficiencies (Table 44). These patterns held true in both Massachusetts and the U.S. In our state, the percentage of immigrants who worked 1800 or more hours during 1999 ranged from a low of 30 percent among those who could not speak English to 56 percent among those who spoke English well, to a high of just under 62 percent for those who spoke English very well. Nearly identical employment patterns prevailed among immigrants in the U.S. (Table 44). It is interesting to note that immigrants with limited English-speaking proficiencies in Massachusetts were less likely to work full-time, year-round relative to their U.S. counterparts while those who only spoke English were more likely to work year-round, full-time than their U.S. counterparts (61 percent vs. 56 percent). Strong English-speaking skills appear to raise full-time year-round employment prospects more in Massachusetts than in the U.S. This result is likely attributable to the higher fraction of jobs in professional, managerial, technical, high level sales, and lower level white collar occupations in Massachusetts that require strong literacy and communication skills in English.

Among both immigrant men and women in Massachusetts, those who had stronger English-speaking proficiencies were considerably more likely to work year-round, full-time in 1999 (Table 45). The percent of immigrant men and women who spoke English very well and who worked full-time year-round was 29 percentage points higher than among those who did not speak English at all. In fact, only 1 of every 5 immigrant women in Massachusetts who did not speak English were employed full-time, year-round versus 50 percent of those who spoke English very well.

The likelihood of adult immigrants in Massachusetts working 1800 or more hours in 1999 was influenced by both their educational attainment and their English-speaking proficiency. In each of the six educational attainment subgroups, those immigrants who could not speak English were the least likely to be employed year-round, full-time while those who spoke English very well or only spoke English were typically

**TABLE 43:**

Percent of 20-64 Year Old Foreign-Born Men and Women in Massachusetts Who Worked 1800 or More Hours During 1999 by their Educational Attainment

EDUCATIONAL ATTAINMENT	MEN	WOMEN	MEN-WOMEN
1-12 years, no diploma or GED	52.9	34.1	18.8
High school diploma or GED, no college	66.2	44.3	21.9
13 – 15 years, no college degree	72.3	46.6	25.7
Associate's degree	74.5	50.6	23.9
Bachelor's degree	77.7	50.3	27.4
Master's or higher degree	81.5	54.2	27.3
All	66.9	43.7	23.2

Source: 2000 Census, 5 percent PUMS files, tabulations by Center for Labor Market Studies, Northeastern University.

**TABLE 44:**

Percent of 20-64 Year Old Foreign-Born Persons in Massachusetts and the U.S. Who Worked 1800 or More Hours During 1999 by Their English-Speaking Proficiency

ENGLISH-SPEAKING PROFICIENCY	MASSACHUSETTS	U.S.	MA-U.S.
Only speaks English	60.7	56.2	4.5
Speaks English very well	61.5	61.0	0.5
Speaks English well	56.2	55.4	0.8
Does not speak English well	42.1	45.0	-2.9
Does not speak English	30.5	32.4	-1.9

Source: 2000 Census, 5 percent PUMS files, tabulations by Center for Labor Market Studies, Northeastern University.

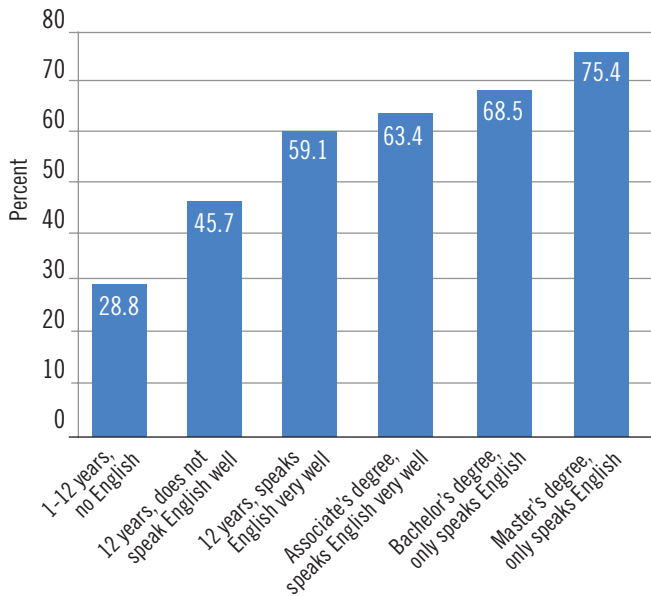
**TABLE 45:**

Percent of 20-64 Year Old Foreign-Born Men and Women in Massachusetts Who Worked 1800 or More Hours during 1999 by their English-Speaking Proficiency

ENGLISH-SPEAKING PROFICIENCY	MEN	WOMEN	MEN-WOMEN
Only speaks English	73.6	47.3	26.3
Speaks English very well	72.7	50.3	22.4
Speaks English well	66.6	45.6	21.0
Does not speak English well	53.0	32.7	20.3
Does not speak English	43.1	21.2	21.9

**FIGURE 27:**

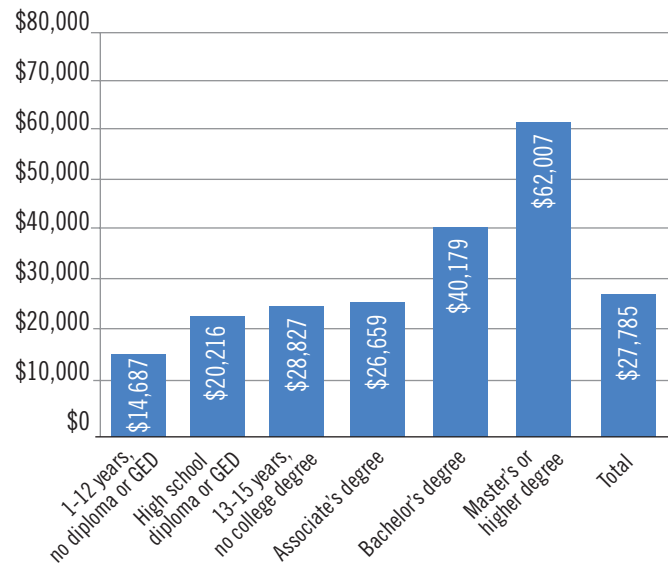
Percent of 20-64 Year Old Immigrants in Massachusetts in Selected Educational Attainment/ English-Speaking Proficiency Subgroups Who Were Employed Year-Round, Full-Time in 1999



the most likely to be employed year round, full-time (Table 46).<sup>58</sup> The year-round, full-time employment rates across educational attainment/English-speaking proficiency subgroups were extraordinarily large from bottom to top (Figure 27). Only 29 percent of those immigrants who lacked a high school diploma and could not speak English worked for 1800 or more hours during 1999 versus 46 percent of high school graduates who could not speak English well, 60 percent of Associate degree holders who spoke English very well, and a high of 75 percent of immigrants holding Master's or higher degrees who only spoke English. The last group of immigrants was more than two and one-half times as likely as their poorly educated peers who lacked diplomas and could not speak English to work full time, year-round. The substantially more intensive work effort among well educated immigrants with strong English-speaking proficiencies would combine with much higher hourly earnings to produce very large annual earnings advantages over their less educated and less English proficient counterparts in the state.

**FIGURE 28:**

Mean Annual Earnings of 20-64 Year Old Foreign-Born Persons in Massachusetts by Educational Attainment, 1999



#### Mean Annual Earnings of Adult Immigrants in Massachusetts, 1999

One of the most important measures of the labor market success of adults is their annual earnings from employment, including earnings from both wage and salary jobs and self-employment. Estimates of the mean annual earnings during calendar year 1999 of 20-64 year old immigrants in Massachusetts and the U.S. by educational attainment are displayed in Table 47 and Figure 28. The estimates of the mean earnings of these immigrants include those with no paid work experience during the year. The annual earnings of any educational or English-speaking proficiency sub group will be influenced by their mean weeks of employment during the year, their mean hours of work per week, and their earnings per hour of employment.

The mean annual earnings of all 20-64 year old immigrants in Massachusetts during 1999 was \$27,785 or 16 percent higher than that of the nation (Table 47). The mean annual earnings of adult immigrants in both the state and

<sup>58</sup> The one exception to this pattern was immigrants lacking a high school diploma or a GED. Among this group of immigrants, those who spoke English well were modestly more likely to have worked 1800 or more hours than those who spoke English very well.



**TABLE 46:**

Percent of 20-64 Year Old Foreign-Born Persons in Massachusetts Who Worked 1800 or More Hours During 1999 by Their Years of Schooling Completed and English-Speaking Proficiency

EDUCATIONAL ATTAINMENT	SPEAKS ENGLISH ONLY	SPEAKS ENGLISH VERY WELL	SPEAKS ENGLISH WELL	DOES NOT SPEAK ENGLISH WELL	DOES NOT SPEAK ENGLISH
1-12 years, no diploma or GED	41.8	47.9	51.4	40.6	28.8
High school diploma or GED	57.8	59.1	56.4	45.7	34.8
13 – 15 years, no college degree	62.1	59.9	60.1	45.9	37.6
Associate's degree	61.0	63.4	60.5	48.2	29.2
Bachelor's degree	68.5	66.9	58.6	37.2	27.0
Master's or higher degree	75.4	71.3	63.7	39.2	--

Note: - implies fewer than 25 sample observations in the cell.

the nation rose steadily and strongly with their level of educational attainment (Figure 28). Mean annual earnings of those Massachusetts immigrants lacking a high school diploma were slightly under \$14,700, increased above \$20,200 for high school graduates, rose to over \$40,000 for bachelor degree holders, and reached a peak of \$62,000 for those with a Master's or more advanced academic degree. The mean annual earnings of high school graduates were nearly 40 percent higher than those of adults lacking a high school diploma/GED, and bachelor degree recipients obtained mean earnings nearly twice as high as those of high school graduates with no completed years of post secondary schooling.<sup>59</sup> An interesting finding in Table 47 is the very small to non-existent earnings advantage of immigrants with post secondary schooling in Massachusetts relative to their national counterparts. For example, immigrants with 1-3 years of college in Massachusetts barely matched the earnings of their peers across the country, while bachelor degree recipients obtained mean annual earnings only 4 percent higher than that of their peers across the nation. The larger relative earnings advantage of all immigrant adults combined in Massachusetts is attributable to a higher level of schooling among state immigrants relative to their national counterparts.

The mean annual earnings of immigrant men and women in Massachusetts during calendar year 1999 were strongly correlated with their level of formal schooling (Table 48 and

**TABLE 47:**

1999 Mean Annual Earnings of 20-64 Year Old Foreign-Born Persons in Massachusetts and the U.S. by Educational Attainment (Includes the Non-Employed)

EDUCATIONAL ATTAINMENT	MA	U.S.	MA AS PERCENT OF U.S.
1-12 years, no diploma or GED	\$14,687	\$13,336	110
High school diploma or GED	\$20,216	\$18,168	111
13-15 years, no college degree	\$24,827	\$25,092	99
Associate's degree	\$25,659	\$27,286	94
Bachelor's degree	\$40,179	\$38,507	104
Master's or higher degree	\$62,007	\$59,815	104
Total	\$27,785	\$23,995	116

Source: 2000 Census, PUMS data files, tabulations by Center for Labor Market Studies.

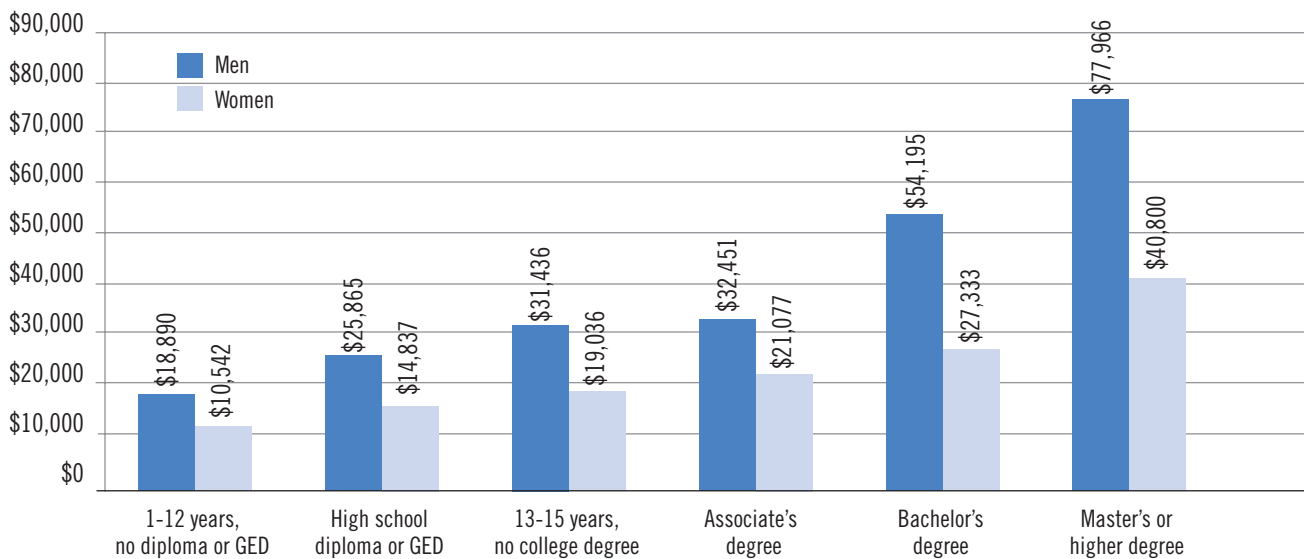
Figure 29). Among both groups, the mean earnings of high school graduates were 37 to 41 percent higher than those of immigrant adults lacking a high school diploma (Table 48). Among women, the mean 1999 annual earnings level of those with an Associate's degree was 42 percent higher than that of women with only a high school diploma, and those with a bachelor's degree earned 84 percent more than high school graduates. Among men, the mean level of earnings of those with a bachelor's degree was 2.1 times as high as that of their male counterparts with only a high school diploma.

59 The annual earnings' advantages of better educated immigrants reflect a combination of a higher incidence of employment, more weeks and hours worked by the employed, and higher hourly earnings.



**FIGURE 29:**

Mean Annual Earnings of 20-64 Year Old Foreign-Born Men and Women in Massachusetts by Educational Attainment, 1999



**TABLE 48:**

Mean Annual Earnings of 20-64 Year Old Foreign-Born Men and Women in Massachusetts by Educational Attainment in 1999 (Includes the Non-Employed)

EDUCATIONAL ATTAINMENT	MEN	WOMEN
1-12 years, no diploma or GED	\$18,890	\$10,542
High school diploma or GED	\$25,865	\$14,837
13 – 15 years, no college degree	\$31,436	\$19,036
Associate's degree	\$32,451	\$21,077
Bachelor's degree	\$54,195	\$27,333
Master's or higher degree	\$77,966	\$40,800
High School Diploma/1-12 years	137 %	141 %
Associate's/High School Diploma	125 %	142 %
Bachelor's/High School Diploma	210 %	184 %

In both Massachusetts and the U.S., the mean annual earnings of immigrants rose uniformly and very substantially with their English-speaking proficiency. Among Massachusetts immigrants, mean annual earnings increased from a low of \$9,064 for those who could not speak English to nearly \$23,200 for those who spoke English well, to a high of \$38,500 for those who only spoke English. The mean earnings of this last group were 4.2 times as high as those of their peers who could not speak English in Massachusetts and 3.65 times as

high in the U.S.

An interesting finding from Table 49 is the varying sizes of the earnings advantages of Massachusetts immigrants relative to their U.S. counterparts by proficiency level. Those Massachusetts immigrants with severe to modest English-speaking deficits obtained only modest (2 to 4 percentage points) earnings advantages over their national peers. In contrast, those who had strong English-speaking skills out-earned their national counterparts by 18 to 25 percentage points. Massachusetts immigrants with the strongest English-speaking proficiencies appear to have enjoyed larger wage premiums for those skills in our state's labor market at the end of the 1990's. A series of human capital earnings functions for immigrants in Massachusetts and the U.S. will be estimated to determine the independent effect of schooling and English-speaking proficiencies on the earnings of immigrants at the end of the 1990's decade.

To examine the joint effects of formal schooling and English-speaking skills on the annual earnings of immigrants in Massachusetts during calendar year 1999, we estimated the mean annual earnings of 20-64 year old immigrants in 30 educational attainment and English-speaking proficiency subgroups (Table 50). In nearly every case, with the exception of high school dropouts, the mean annual earnings of immigrant adults rose continuously and substantially with their English-speaking proficiency. In five of the six educa-

**TABLE 49:**

Mean Annual Earnings of 20-64 Year Old Foreign-Born Persons in Massachusetts and the U.S. by English-Speaking Proficiency, 1999

ENGLISH-SPEAKING PROFICIENCY	MA	U.S.	MA AS PERCENT OF U.S.
Only speaks English	\$38,526	\$32,560	118
Speaks English very well	\$34,264	\$32,695	125
Speaks English well	\$23,176	\$22,230	104
Does not speak English well	\$14,221	\$13,815	103
Does not speak English	\$9,064	\$8,923	102
Only speaks English/speaks English well	166 %	196 %	
Only speaks English/does not speak English well	275 %	236 %	
Only speaks English/does not speak English	425 %	365 %	

**TABLE 50:**

Mean Annual Earnings of 20-64 Year Old Foreign-Born Persons in Massachusetts by Their Years of Schooling Completed and English-Speaking Proficiency, 1999

EDUCATIONAL ATTAINMENT	ONLY SPEAKS ENGLISH	SPEAKS ENGLISH VERY WELL	SPEAKS ENGLISH WELL	DOES NOT SPEAK ENGLISH WELL	DOES NOT SPEAK ENGLISH
1-12 years, no diploma or GED	\$15,341	\$16,420	\$18,056	\$13,238	\$8,038
High school diploma or GED	\$25,317	\$21,447	\$19,618	\$14,671	\$10,662
13-15 years, no college degree	\$29,332	\$25,626	\$23,571	\$14,954	\$20,658
Associate's degree	\$31,589	\$27,727	\$21,913	\$13,062	\$9,540
Bachelor's degree	\$51,778	\$40,391	\$31,334	\$18,715	\$20,580
Master's or higher degree	\$78,878	\$63,936	\$42,040	\$20,761	\$24,086

tional subgroups, the mean annual earnings of those who only spoke English or spoke English very well were two to three times higher than those of their educational counterparts who could not speak English.

The combined earnings effects of higher formal schooling and stronger English-speaking proficiencies were quite substantial for all immigrants combined and for men and women separately (Figure 30, 31, and 32). For all immigrants, mean annual earnings were only slightly over \$8,000 for those with no high school diploma and an inability to speak English, tripled to nearly \$24,000 for those with 1 to 3 years of college who spoke English, and increased further to just under \$52,000 for those with a bachelor's degree who only spoke English. The mean annual earnings of the latter group of immigrants were between six and seven times as high as those of immigrants with limited schooling and English-speaking proficiencies.

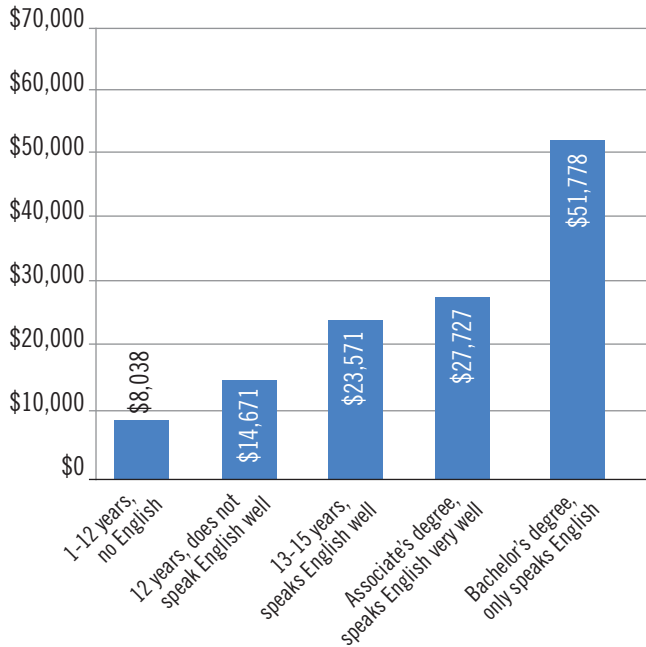
The relative size of the annual earnings difference between these two groups of immigrants was similar for men and women in Massachusetts (Figures 31 and 32).

#### **The Influence of Educational Attainment, English-Speaking Proficiencies and Work Experience on the Annual Earnings of 20-64 Year Old Employed Immigrant Men and Women in Massachusetts: Findings of A Multivariate Statistical Analysis**

The above empirical findings revealed that the joint combination of additional years of formal schooling and higher English-speaking proficiencies of immigrants had strong links with their mean annual earnings during calendar year 1999. These strong associations between annual earnings, years of schooling, and English-speaking proficiencies were found among both men and women alike. The findings also revealed that immigrants with higher educational attainment

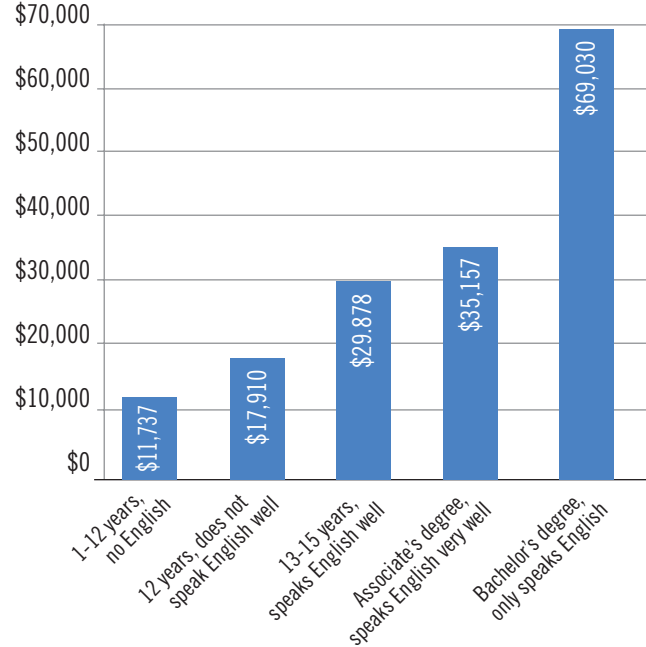
**FIGURE 30:**

Mean Annual Earnings of 20-64 Year Old Foreign-Born Persons in Massachusetts in Selected Schooling/English-Speaking Proficiency Subgroups, 1999



**FIGURE 31:**

Mean Annual Earnings of 20-64 Year Old Foreign-Born Men in Massachusetts in Selected Schooling/English-Speaking Proficiency Subgroups, 1999



(Associate degree or higher), but with limited English-speaking proficiency, earned substantially less than their counterparts with the same level of education but with better English-speaking proficiencies. Although there were strong simple associations between mean annual earnings and years of schooling and English-speaking ability, we were not able to statistically control for other differences in the demographic and socio-economic backgrounds of immigrants that may be expected to significantly influence their annual earnings. For example, we did not control for differences in years of potential work experience, marital status, length of time in the U.S., gender or race-ethnic origin. To estimate the independent influence of years of schooling and English-speaking ability on the expected annual earnings of employed adult immigrants in Massachusetts, we constructed a set of multivariate statistical models utilizing core element of human capital earnings theory.<sup>60</sup> In these models, the dependent variable is the natural log of the annual earn-

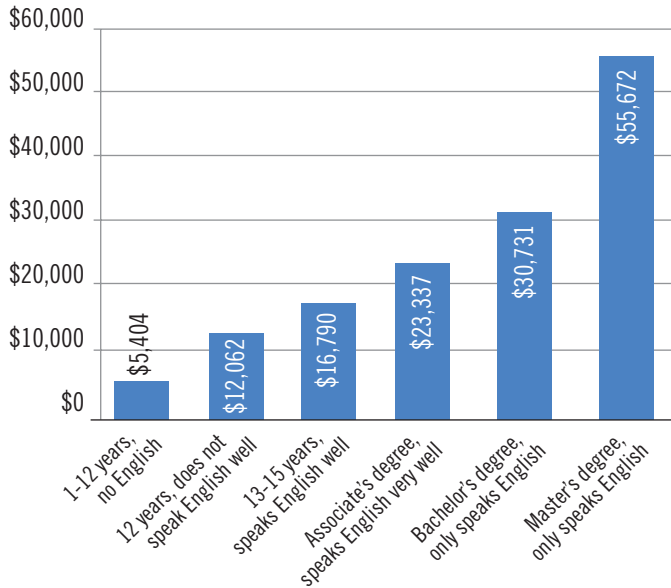
ings of 20-64 year old employed immigrants during calendar year 1999. The predictor variables include the gender, race, marital status, years of potential work experience, years of schooling, English-speaking ability, and length of time in the United States of each respondent. A listing of all dependent and independent variables in the earnings function is displayed in Table 51. Separate earnings regression models were estimated for all immigrants combined and for men and women separately.

Findings of the multiple regression analysis of the annual earnings of the combined pool of immigrant workers revealed that both formal schooling and English-speaking proficiencies had large independent effects on their expected earnings. Those immigrant workers who failed to obtain a high school diploma earned less than their peers with a regular high school diploma or a GED certificate, the base group for the model. Those with only a primary school education (1-8 years), *ceteris paribus*, obtained annual earnings that were about 10 percent

60 For a review of the key theoretical underpinnings of human capital earnings functions, see: (i) Jacob Mincer, *Schooling, Experience, and Earnings*, National Bureau of Economic Research, New York, 1974; (ii) Solomon W. Polachek and W. Stanley Siebert, *The Economics of Earnings*, Cambridge University Press, Cambridge, 1993.

**FIGURE 32:**

Mean Annual Earnings of 20-64 Year Old Foreign-Born Women in Massachusetts in Selected Schooling/English-Speaking Proficiency Subgroups, 1999



below those of high school graduates while high school dropouts also earned 10 percent less than high school graduates.

The estimated impacts of additional years of schooling and higher English-speaking proficiencies on the annual earnings of immigrant workers were quite strong among both men and women. Those men and women who held Associate and Bachelor's degrees obtained substantially higher annual earnings than their peers with only a high school diploma. The estimated earnings impacts of a Bachelor's degree were 73 percent and 56 percent, respectively, for men and women. A Master's degree would raise expected earnings by 113 and 85 percent for men and women, respectively, above those of comparable high school graduates. English language proficiencies also had large independent impacts on the earnings of immigrants. For example, male immigrant workers who reported that they could not speak English well or could not speak English at all earned 32 percent less than their peers who only spoke English while those who spoke English well earned 20 percent less. All of the coefficients for the educational attainment variables and all but one of the English-proficiency variables were highly sig-

**TABLE 51:**

Dependent and Independent Variables Appearing in the Regression Models of the Annual Earnings of Employed 20-64 Year Old Immigrants in Massachusetts, 1999

**DEPENDENT VARIABLE:** The natural log of the annual earnings of employed 20-64 year old immigrants who were not enrolled in school at the time of the 2000 Census.

**INDEPENDENT VARIABLES:**

- Race-ethnic origin (4)
- Potential years of work experience (1)
- Years of potential work experience squared (1)
- Educational attainment (8)
- Marital Status (2)
- English-speaking proficiency (3)
- Timing of arrival in the U.S. (2)

Note: The number of individual variables appearing in the regression model for each category of independent variables is displayed in brackets. For example, there are eight individual educational attainment variables. The base educational group for the regression model consists of high school graduates with no years of completed post-secondary schooling.

nificant. These findings of strong impacts of English-proficiency variables held true more for male than for female immigrants in Massachusetts. Employed immigrant workers with a limited English-speaking proficiency had substantially lower earnings than their base group counterparts who spoke English only. (Table 52).

Did a weak English-speaking proficiency reduce the annual earnings of immigrant workers with some post-secondary schooling to an even greater degree than their less educated counterparts? To test this hypothesis, we introduced a set of interaction variables (poor English-speaking proficiency variables interacting with post-secondary levels of education) in our multivariate statistical models. Findings provided strong support for this hypothesis. For example, in the combined model, immigrant workers with a bachelor's degree but a severe English-speaking deficit would earn 33 percent less than their bachelor degree peers who spoke only English. This effect is on top of the 23 percent reduction for all workers who could not speak English well. Immigrant men with an Associate's degree who reported that they could not speak English well or could not speak English at all earned 25 percent less than

**TABLE 52:**

Estimated Impacts of Work Experience, Educational Attainment and English-Speaking Proficiency on the Expected Earnings of Employed Immigrants 20-64 Years Old in Massachusetts, April 2000 (In Percentage Points)

	ALL	MEN	WOMEN
Experience	0.030 ***	0.034 ***	0.025 ***
Experience Squared	-0.001 ***	-0.001 ***	-0.0004 ***
1-8 Years of Schooling	-0.096 ***	-0.090 ***	-0.100 ***
High School Dropouts	-0.103 ***	-0.087 ***	-0.128 ***
1-3 Years of College	0.113 ***	0.113 ***	0.108 ***
Associate Degree	0.237 ***	0.152 ***	0.292 ***
Bachelor's Degree	0.656 ***	0.733 ***	0.563 ***
Master's Degree	1.011 ***	1.132 ***	0.854 ***
Professional Degree	1.485 ***	1.443 ***	1.501 ***
Doctorate Degree	1.378 ***	1.337 ***	1.426 ***
Speak English Very Well	-0.058 ***	-0.097 ***	0.000 ***
Speak English Well	-0.155 ***	-0.198 ***	-0.097 ***
Speak English Not Well or Not at all	-0.277 ***	-0.321 **	-0.215 ***
Entered U.S. in 1980s	-0.034 **	-0.046 **	-0.031 **
Entered U.S. in 1990s	-0.167 ***	-0.172 ***	-0.167 ***

\*\*\* significant at .01 level \*\* significant at .05 level \* significant at .10 level

their college educated peers who only spoke English. The estimated impacts of poor English-speaking proficiencies on the annual earnings of immigrant workers with a Master's or higher degree were even higher. Those immigrant workers with a Master's or higher degree who could not speak English well or could not speak English at all earned 39 percent less than their counterparts who only spoke English. Immigrant women with a Master's or higher degree also earned substantially less than their peers who spoke only English (-45 percent).

Other human capital variables and the timing of arrival in the U.S. of immigrants also significantly influenced the expected earnings of immigrant workers in Massachusetts during 1999. Additional years of potential work experience also had large payoffs on earnings for the combined group of immigrants, with each of the early years of work experience adding about 3 percent more to their annual earnings, and 10 years of work experience raising expected annual earnings by approximately 20 percent, holding all other variables con-

**TABLE 53:**

Estimated Impacts of Educational Attainment, Work Experience and English-Speaking Proficiency on the Expected Earnings of Employed Immigrants 20-64 Years Old in Massachusetts, Including Interaction Variables, April 2000 (in Percentage Points)

	ALL	MEN	WOMEN
Experience	0.030 ***	0.034 ***	0.025 ***
Experience Squared	-0.001 ***	-0.001 ***	0.000 ***
1-8 Years of Schooling	-0.110 ***	-0.106 ***	-0.122 ***
High School Dropouts	-0.110 ***	-0.093 ***	-0.137 ***
1-3 Years of College	0.118 ***	0.122 ***	0.118 ***
Associate Degree	0.272 ***	0.202 ***	0.319 ***
Bachelor's Degree	0.710 ***	0.774 ***	0.627 ***
Master's Degree	1.065 ***	1.178 ***	0.912 ***
Professional Degree	1.578 ***	1.510 ***	0.965 ***
Doctorate Degree	1.435 ***	1.376 ***	0.923 ***
Speaks English Very Well	-0.056 ***	-0.096 ***	0.001
Speaks English Well	-0.147 ***	-0.192 ***	-0.085 **
Speaks English Not Well or Not at all	-0.232 ***	-0.287 ***	-0.156 ***
Entered U.S. in 1980s	-0.038 **	-0.048 **	-0.036
Entered U.S. in 1990s	-0.166 ***	-0.170 ***	-0.166 ***
Speaks English Not Well or Not at all			
1-3 Years of College	-0.055	-0.034	-0.090
Speaks English Not Well or Not at all			
Associate Degree	-0.248 **	-0.379 ***	-0.147
Speaks English Not Well or Not at all			
Bachelor's Degree	-0.329 ***	-0.255 ***	-0.389 ***
Speaks English Not Well or Not at all			
Master's or Higher Degree	-0.391 ***	-0.324 ***	-0.451 ***

\*\*\* significant at .01 level \*\* significant at .05 level \* significant at .10 level

stant. The earnings effects of greater experience do not reach a maximum until nearly 30 years of work experience are reached. The earnings of immigrants were also significantly influenced by their length of stay in the U.S. Those who came into the country in the 1990's earned 17 percent less than their counterparts who arrived in the U.S. prior to 1980 while those arriving in the 1980's earned 3 percent less. Years of paid work experience in the U.S. tend to payoff at higher rates than work abroad.

**Predicting the Expected Annual Earnings of Selected Groups of 20-64 Year Old Male Immigrant Workers in Massachusetts, 1999**

The findings of the above regression model also can be used to predict the expected annual earnings for immigrant workers with given demographic traits, work experience, years of schooling, English language proficiency, and time of stay in the U.S. We have selected four hypothetical 20-64 year old employed male immigrant workers to illustrate the range in their expected annual earnings in 1999. The traits of each of these four employed immigrant workers are displayed in Table 54. The predicted annual earnings of the first group (an employed, White high school graduate, married, speaks only English, entered the U.S. in the 1980s, 10 years of work experience) was \$21,462. An immigrant male worker with a Associate degree who entered the U.S. in the 1980s, spoke English very well, and had 10 years of work experience was expected to earn \$33,046. This large differential is due to the impact of an Associate degree which would increase his expected earnings by 14 percent, while speaking English very well rather than not well increases his expected earnings by 32 percent. At the upper end of the educational distribution, an immigrant male worker with a Bachelor's degree who entered in the U.S. in the 1980s with 10 years of work experience and spoke English very well was expected to earn \$54,767. Similarly, an immigrant worker with a Master's degree who entered the U.S. in the 1980s with 10 years of work experience and spoke English very well was expected to earn nearly \$61,153 or nearly three times as much as our first group. These findings clearly indicate that additional years of schooling and English language proficiency had large significant impacts on the expected annual earnings of employed immigrant workers in Massachusetts.

**POVERTY STATUS OF IMMIGRANTS**

The preceding analyses of the labor market experiences of adult immigrants in Massachusetts have revealed that key employment and earnings outcomes were strongly associated with their educational attainment and English-speaking proficiency levels. Since earnings from the labor market are

**TABLE 54:**

Predicted Earnings of a Hypothetical Set of 20-64 Year Old Employed Male Immigrant Workers in Massachusetts, 1999

IMMIGRANT CHARACTERISTICS	PREDICTED EARNINGS
Earnings of employed, White high school graduate, married, does not speak English well, entered the U.S. in the 1980s, 10 years of work experience	\$21,462
An immigrant male worker with an Associate degree, entered the U.S. in the 1980s, spoke English very well, 10 years of work experience	\$33,046
An immigrant male worker with a Bachelor's degree, entered the U.S. in the 1980s, spoke only English, 10 years of work experience	\$54,767
An immigrant male worker with a Master's degree, entered the U.S. in the 1980s, spoke English very well, 10 years of work experience	\$61,153

the most important source of the income of the typical non-elderly family and household in Massachusetts, one would expect that the ability of adult immigrants to obtain incomes above selected adequacy thresholds would be influenced by their English-speaking abilities and their educational attainment. In this section, we will examine the relationships between the English-speaking proficiencies and educational attainment of adult immigrants in Massachusetts and their ability to achieve incomes during calendar year 1999 above the following thresholds:

- The official poverty lines of the federal government
- Two times the poverty line, a proxy for low incomes<sup>61</sup>
- Four times the poverty line, a proxy for a middle class income standard

The poverty income measures of the federal government are based on an absolute income measure of poverty. Poverty income thresholds are adjusted for family size, the age of the householder, and the number of children under 18 in the

61 A number of poverty/welfare researchers have used 200 percent of the poverty line as a measure of the "low income" population. See: Gregory Acs, Katherin Ross Phillips, and Daniel McKenzie, *Playing by the Rules but Losing the Game: America's Working Poor*, Urban Institute, Washington, D.C., 2000.



**TABLE 55:**

Poverty Thresholds (Annual Dollar Amounts) by Size of Family and Number of Related Children Under 18 Years Old: 1999

SIZE OF FAMILY UNIT	WEIGHTED AVERAGE THRESHOLD	RELATED CHILDREN UNDER 18 YEARS								
		NONE	ONE	TWO	THREE	FOUR	FIVE	SIX	SEVEN	EIGHT OR MORE
One person (unrelated individual)	\$8,501									
Under 65 years	8,667	8,667								
65 years and over	7,990	7,990								
Two persons	10,869									
Householder under 65 years	11,214	11,156	11,483							
Householder 65 years and over	10,075	10,070	11,440							
Three people	13,290	13,032	13,410	13,423						
Four people	17,029	17,184	17,465	16,895	16,954					
Five people	20,127	20,723	21,024	20,380	19,882	19,578				
Six people	22,727	23,835	23,930	23,436	22,964	22,261	21,845			
Seven people	25,912	27,425	27,596	27,006	26,595	25,828	24,934	23,953		
Eight people	28,967	30,673	30,944	30,387	29,899	29,206	28,327	27,412	27,180	
Nine people or more	34,417	36,897	37,076	36,583	36,169	35,489	34,554	33,708	33,499	32,208

Note: The weighted average thresholds represent a summary of the poverty thresholds for a given family size. They are not used to compute official poverty statistics.

Source: U.S. Census Bureau, Current Population Survey.

family.<sup>62</sup> Table 55 displays the values of the poverty income thresholds for families of varying sizes in the U.S. in 1999. The average weighted values of these poverty thresholds ranged from \$11,214 for a non-elderly family of two to \$17,029 for a family of four to \$34,417 for families containing 9 or more persons. The poverty income thresholds are updated each year by the Office of Management and Budget to reflect changes in the annual cost-of-living as measured by the Consumer Price Index for All urban Consumers (CPI-U). There are no adjustments in the official poverty income thresholds to take into account variations in the cost of living across regions, states, metropolitan areas, or cities. The determination of the poverty status of a given family or individual is based on its

pre-tax money income including all cash income transfers but excluding in-kind benefits (food stamps, rental subsidies, Medicaid) and federal and state Earned Income Tax Credits.

Our third measure of income adequacy is based on a measure of family income that represents four times the poverty line for a family of the size and age composition in which the immigrant resided at the time of the 2000 Census.<sup>63</sup> The 1999 family incomes equivalent to four times the poverty line for families containing two to five persons are displayed in Table 56. These incomes range in value from \$44,856 for a two person family to \$80,508 for a five person family. The percentile ranks of these incomes in the distribution of incomes for all families in Massachusetts by family size during

62 For a more detailed review of the federal government's official poverty income concepts and measures and their uses in measuring poverty in 1999, See: Joseph Dalaker and Bernadette D. Proctor, *Poverty in the United States: 1999*, U.S. Government Printing Office, Washington, D.C., 2000. For a review of alternative critiques of the official poverty income definitions and measures of the federal government, See: Garth L. Mangum, Stephen L. Mangum, and Andrew M. Sum, *The Persistence of Poverty in the United States*, The Johns Hopkins University Press, Baltimore, 2003.

63 An unrelated individual is treated as a family of one in determining his/her poverty status. The 1999 poverty income threshold for a one person family who was under 65 years of age was \$ 8,667. Four times that poverty line is equal to \$34,668.

1999 are displayed in Column B of that table. These income adequacy thresholds were fairly close to the median incomes for families in each family size category. For all four person families, the \$68,116 income was equivalent to the 46th percentile of the distribution. The percentile rank for the income for three person families was somewhat lower (40th percentile) but higher than the median for five person families (58th percentile). It would be fair to say that an immigrant family with an income equal to or higher than four times the poverty line was at least a middle income family during 1999 in Massachusetts.

Estimates of the poverty rates of both native-born and foreign-born persons 20-64 years old by their English-speaking proficiency are presented in Table 58. Native-born persons who lived in families where a language other than English was spoken in the home were asked to report their English-speaking proficiency. Of the nearly 3.158 million native-born adults 20-64 years old residing in the state at the time of the 2000 Census, only 6 percent or 192,000 lived in households where a language other than English was spoken (Table 57). One of every six of these native-born persons reported that they only spoke English well or not well/not at all.<sup>64</sup>

The incidence of poverty among foreign-born persons ages 20 to 64 in Massachusetts was more than twice the incidence of poverty among native-born persons in this same age group (Table 58). Just under 16 percent of foreign-born persons lived in families with money incomes at or below the federal poverty level compared to only 6.7 percent of native-born persons in the same age group.

Poverty rates for both native and foreign-born persons tended to vary widely by their English language ability. The data in Table 58 and the display in Figure 33 illustrate this point clearly. With one exception, those who spoke English well, the poverty rates of foreign-born persons in each English-speaking proficiency group exceeded those of the native-born. The poverty rate among native-born Massachusetts persons, ages 20 to 64, who reported that they only spoke English was 6.4 percent compared to 10.4 percent among foreign-born persons who only spoke English. The gap between the poverty rates of native-born and foreign-born persons was

**TABLE 56:**

The Family Incomes Equivalent to Four Times the Poverty Line for Families of Two to Five Persons in Massachusetts and Their Percentile Rank in the Family Income Distribution for Families of Such Size

FAMILY SIZE	INCOME LEVEL	PERCENTILE RANK
2	\$44,856	43rd
3	\$53,160	40th
4	\$68,116	46th
5	\$80,508	58th

Source: 2000 Census, PUMS files, 5-100 sample, tabulations by authors.

**TABLE 57:**

The Self-Reported English-Speaking Proficiencies of 20-64 Year Old Native-Born Residents in Massachusetts, 2000

ENGLISH-SPEAKING PROFICIENCY	NUMBER	PERCENT
Only speaks English	2,965,479	93.9
Speaks English very well	160,207	5.1
Speaks English well	20,391	0.6
Does not speak English well or does not speak English at all	11,513	0.3
Total	3,157,590	100.0

Source: 2000 Census of Population and Housing, PUMS files, 5-100 sample, tabulations by authors.

**TABLE 58:**

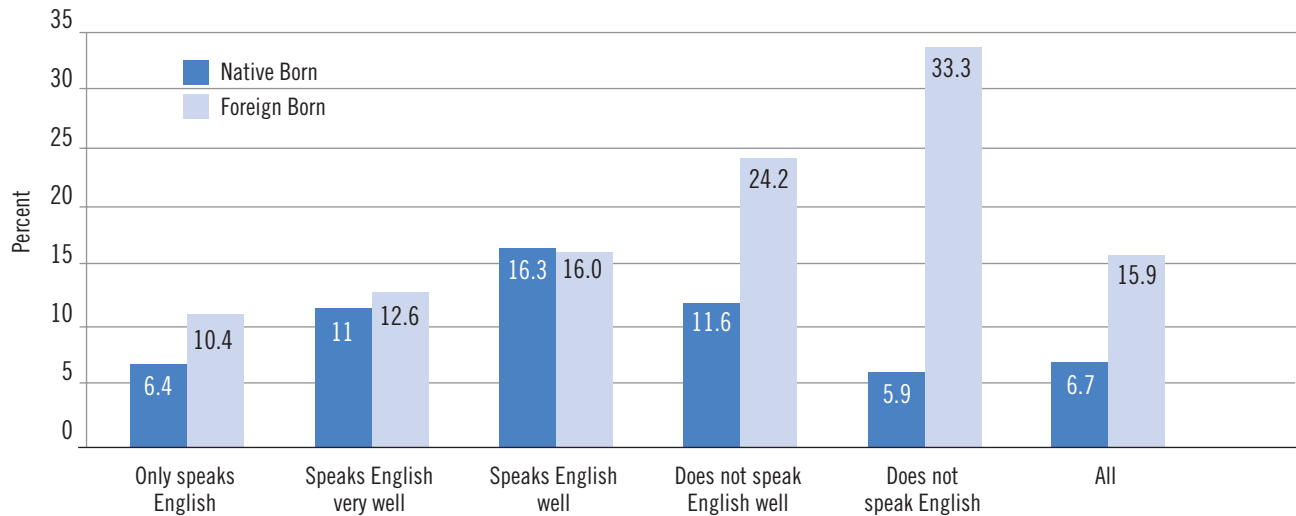
Percent of 20-64 Year Old Native-Born and Foreign-Born Persons in Massachusetts Who Were Poor, by English-Speaking Proficiency, 2000

ENGLISH-SPEAKING PROFICIENCY	NATIVE-BORN	FOREIGN-BORN
Only speaks English	6.4	10.4
Speaks English very well	11.0	12.6
Speaks English well	16.3	16.0
Does not speak English well	11.6	24.2
Does not speak English	5.9	33.3
All	6.7	15.9

<sup>64</sup> Fewer than 700 native-born persons in Massachusetts reported that they could not speak English. We have combined them with those persons who were reported to not speak English well.

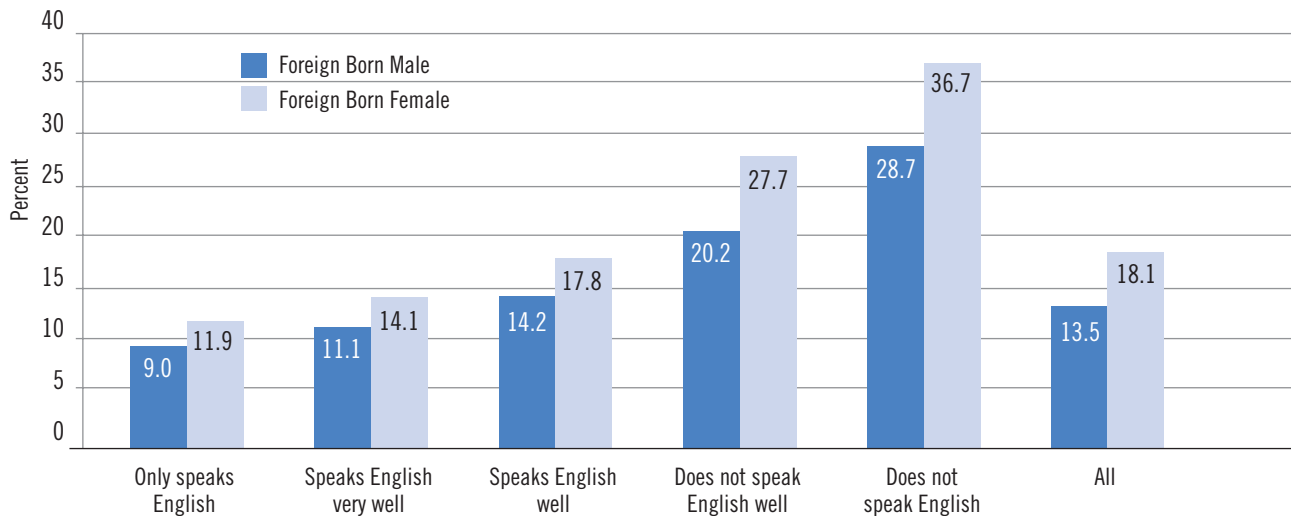
**FIGURE 33:**

Percent of 20-64 Year Old Native Born and Foreign Born Persons in Massachusetts classified as Poor, by English-Speaking Proficiency, 2000



**FIGURE 34:**

Percent of 20-64 Year Old Foreign Born Persons in Massachusetts Who Were Poor by English-Speaking Proficiency and Gender



widest among persons with low levels of self-reported English speaking ability and smaller at higher levels of self-reported English-speaking ability. For example, 12.6 percent of foreign-born persons who reported they spoke English very well were classified as poor compared to 11 percent of native-born persons in this proficiency category, a relatively small difference. But, one-third of foreign-born persons who reported they spoke no English were classified as poor compared to

only 5.9 percent of native-born persons. In other words, the share of foreign-born persons with no English-speaking ability who were living in poverty in 1999 was more than six times the share of native-born persons with similar English ability who were living in poverty.

The poverty rate for Massachusetts foreign-born women was higher than the poverty rate among foreign-born men (Table 59 and Figure 34). Slightly more than 18 percent of

foreign-born women were poor compared to 13.5 percent of the men. Both gender groups of immigrants were more than twice as likely to be poor as their native-born counterparts. The percent of 20-64 year old foreign-born men and women who were poor tended to vary considerably by their English-speaking proficiency. One key finding is that at all levels of English proficiency immigrant women's poverty rates were always higher than the poverty rates of men. A second key finding is that the poverty rates among foreign-born men and women declined considerably as their English-speaking proficiency improved. Among women, only 12 percent of those who only spoke English were poor versus 18 percent of those who spoke English well and nearly 37 percent of those who did not speak English, a difference of three to one from top to bottom. Similar patterns prevailed among men with three to one differences from top to bottom, as well.

#### Educational Attainment and Poverty Among the State's Immigrant Population

Prior research work on poverty at the national and state level has consistently shown that educational attainment and poverty are closely related.<sup>65</sup> We first will explore this relationship between educational attainment and poverty among Massachusetts adults. Then, we will examine variations in poverty rates by both language ability and education. Table 60 and Figure 35 show that poverty rates among adult high school dropouts are considerably higher than poverty rates among persons with higher levels of educational attainment. This finding holds true for both native-born and foreign-born persons. To illustrate, the poverty rate among native-born persons without a high school diploma or GED was 21 percent and it was just under 24 percent among foreign-born persons with the same level of schooling. This means that approximately two out of every ten native-born high school dropouts and nearly one of every four foreign-born dropouts were classified as poor. Being a high school dropout was clearly related to the poverty status of both native and foreign-born persons. Among high school graduates or GED holders, the poverty gap between native and foreign-born persons widens. The poverty rate among

**TABLE 59:**

Percent of 20-64 Year Old Foreign Born Persons in Massachusetts Who Were Poor, by English-Speaking Proficiency and Gender, 2000

ENGLISH-SPEAKING PROFICIENCY	MALE	FEMALE
Only speaks English	9.0	11.9
Speaks English very well	11.1	14.1
Speaks English well	14.2	17.8
Does not speak English well	20.2	27.7
Does not speak English	28.7	36.7
All	13.5	18.1

**TABLE 60:**

Percent of 20-64 Year Old Native-Born and Foreign-Born Persons in Massachusetts Classified as Poor, by Educational Attainment, 2000

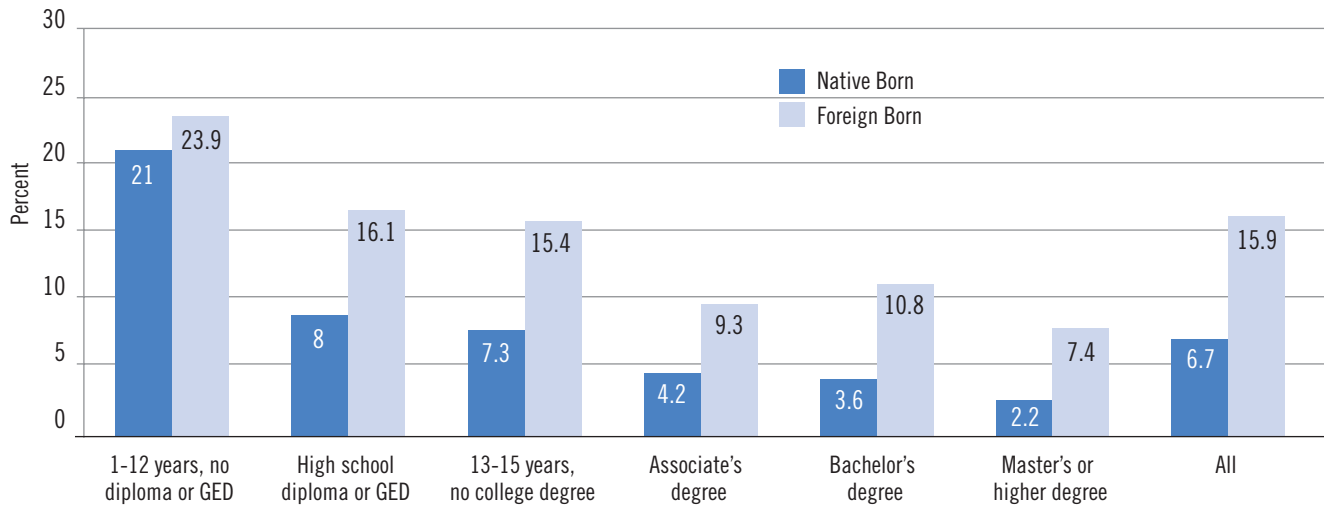
EDUCATIONAL ATTAINMENT	NATIVE-BORN	FOREIGN-BORN
1-12 years, no diploma or GED	21.0	23.9
High school diploma or GED	8.0	16.1
13-15 years, no college degree	7.3	15.4
Associate's degree	4.2	9.3
Bachelor's degree	3.6	10.8
Master's or higher degree	2.2	7.4
All	6.7	15.9

foreign-born high school graduates was twice the poverty rate among native-born persons. While poverty rates among both groups tend to decline at higher levels of educational attainment, the gaps between the poverty rates of native and foreign-born persons remain wide at these higher levels of educational attainment. For instance, the poverty rate among holders of an Associate's degree was 4.2 percent for native-born persons compared to 9.3 percent among foreign-born persons. Only 3.6 percent of the native-born holders of a Bachelor's degree and 2.2 percent of native-born Master's degree holders lived in poverty compared to 10.8 percent and 7.4 percent among immigrants in the same two educational subgroups.

65 See: (i) Bradley R. Schiller, *The Economics of Poverty and Discrimination* (8th Edition), Upper Saddle River, New Jersey, 2001; (ii) Garth Mangum, Stephen L. Mangum, Andrew Sum, *The Persistence of Poverty in the United States*.

**FIGURE 35:**

Percent of 20-64 Year Old Native Born and Foreign Born Persons in Massachusetts classified as Poor, by Educational Attainment



### **Educational Attainment, English-Speaking Proficiency, and Poverty Among the State's Immigrant Population**

Both the English-speaking proficiencies and the educational attainment of immigrants were shown to be associated with their poverty status. When these two traits are combined, we find that even greater variation exists in the poverty rates of foreign-born persons (Table 61 and Figure 36). First, as noted earlier, poverty rates tend to vary greatly by educational attainment regardless of language proficiency. Second, poverty rates tend to vary widely by English-speaking ability and did so at all levels of educational attainment. The third and perhaps the most important finding to be gleaned from these data is that foreign-born persons with lower levels of English-speaking proficiency pay a large penalty in terms of a higher incidence of poverty at all levels of educational attainment. This can be seen by comparing the poverty rates of high school dropouts with the poverty rates of Bachelor degree recipients at different levels of proficiency. Among dropouts who only speak English, 24 percent were poor compared to only 6.3 percent of the holders of a Bachelor's degree who only speak English. Immigrant dropouts who only spoke English were four times more likely to be poor than bachelor degree

holders. Among dropouts without any English-speaking abilities, on the other hand, the poverty rate was 33.3 percent and, while somewhat lower, it was still a very high 24.3 percent for holders of a Bachelor's degrees with no English-speaking abilities.

### **English-Speaking Proficiencies and Educational Attainment of Adult Immigrants and Their Income Status**

A growing number of employment and training program practitioners, national and state policymakers, and poverty researchers have argued that the federal government's poverty levels no longer represent an adequate measure of income adequacy, particularly in states such as Massachusetts. A number of researchers have proposed alternative measures to supplant the existing federal poverty income levels.<sup>66</sup> One such proposed measure is a low-income measure. Low-income status is defined as having an income at or below 200 percent of the federal poverty level. We use this income measure in the section below to explore the relationship between English language skills, educational attainment, and low income problems among the state's adult immigrants.

During 1999, 17 percent of all families in Massachusetts

66 For a review of these alternative poverty income measures, See: Neal Fogg, Andrew Sum, and Garth Mangum, *Poverty Ain't What it Used to Be*, Sar Levitan Center for Social Policy Studies, Johns Hopkins University, Baltimore, 2000.

**TABLE 61:**

Percent of 20-64 Year Old Foreign-Born Persons in Massachusetts Classified as Poor by Educational Attainment and English-Speaking Proficiency, 2000

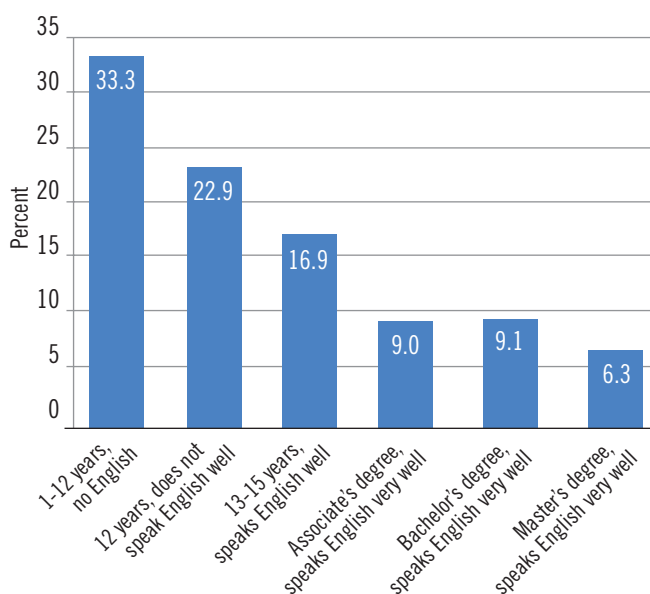
EDUCATIONAL ATTAINMENT	ONLY SPEAKS ENGLISH	SPEAKS ENGLISH VERY WELL	SPEAKS ENGLISH WELL	DOES NOT SPEAK ENGLISH WELL	DOES NOT SPEAK ENGLISH
1-12 years, no diploma or GED	24.4	21.6	17.8	26.2	33.3
High school diploma or GED	10.2	15.0	15.0	22.9	35.5
13-15 years, no college degree	10.2	14.8	16.9	23.3	35.1
Associate's degree	3.2	9.0	12.0	16.1	26.3
Bachelor's degree	6.3	9.1	16.9	19.9	24.3
Master's or higher degree	3.9	6.3	12.7	16.7	30.8

were considered low-income families.<sup>67</sup> Ten percent of married couple families, twenty percent of male-headed families (no spouse present), and almost half of the state's female-headed families with no spouse present were classified as low-income families at the time of the 2000 Census.

Findings presented in Table 62 and Figure 37 show that nearly one out of every three foreign-born persons (ages 20-64) in Massachusetts would have been classified as low-income in 1999. The share of the adult foreign-born population that was low-income (32 percent) was more than twice the share among native-born persons (15 percent). Variations in the share of the immigrant and native-born populations who were low income by English-speaking proficiency were considerable. Several key points about this variation can be made. First, the share of foreign-born persons who were classified as low-income was always (i.e., in all categories of English-speaking proficiency) greater than the share of native-born persons who were classified as low-income. Second, higher shares of foreign-born persons with low incomes are associated with lower levels of English-speaking abilities. To illustrate, two out of every ten (i.e., 21 percent) foreign-born persons who reported they only spoke English were classified as low-income compared to nearly 6 out of every 10 of those who reported they spoke no English. The latter findings reveal that the majority of foreign-born persons with no English-speaking skills were low-income in 1999. Third, variations in low-income status by language ability

**FIGURE 36:**

Percent of 20-64 Year Old Native Born and Foreign Born Persons in Massachusetts classified as Poor, in Selected Educational Attainment and English-Speaking Proficiency Groups, 2000



among native-born persons were less straightforward. While those who only spoke English had the lowest incidence of low income problems, the share of native-born individuals who did not speak English well that were low income was smaller than the share of individuals who were reported to speak English very well (23 percent). Other factors besides

67 See: Andrew Sum, Mykhaylo Trubs'kyy, and Kamen Madjarov, *Poverty and Other Income Inadequacy Problems Among Massachusetts Families in 2000: Implications for Workforce Development Policy*, The Commonwealth Corporation, Boston, July 2003.



**TABLE 62:**

Percent of 20-64 Year Old Native-Born and Foreign Born Persons in Massachusetts Classified as Low Income, by English-Speaking Proficiency, 2000

ENGLISH-SPEAKING PROFICIENCY	NATIVE-BORN	FOREIGN-BORN
Only speaks English	14.3	21.1
Speaks English very well	23.2	26.1
Speaks English well	32.6	33.8
Does not speak English well	22.8	48.5
Does not speak English	30.2	58.9
All	14.9	32.2

**TABLE 63:**

Percent of 20-64 Year Old Native-Born and Foreign Born Persons in Massachusetts Classified as Low Income, by Educational Attainment, 2000

EDUCATIONAL ATTAINMENT	NATIVE-BORN	FOREIGN-BORN
1-12 years, no diploma or GED	39.2	46.7
High school diploma or GED	19.2	35.2
13-15 years, no college degree	16.2	31.5
Associate's degree	11.1	24.2
Bachelor's degree	8.2	19.5
Master's or higher degree	5.1	14.6
All	14.9	32.2

**TABLE 64:**

Percent of 20-64 Year Old Foreign-Born Persons in Massachusetts Classified as Low Income by Educational Attainment and English-Speaking Proficiency, 2000

EDUCATIONAL ATTAINMENT	ONLY SPEAKS ENGLISH	SPEAKS ENGLISH VERY WELL	SPEAKS ENGLISH WELL	DOES NOT SPEAK ENGLISH WELL	DOES NOT SPEAK ENGLISH
1-12 years, no diploma or GED	41.3	44.0	39.1	50.7	60.6
High school diploma or GED	23.9	32.6	35.9	48.1	57.8
13 – 15 years, no college degree	22.8	29.7	36.0	47.1	52.3
Associate's degree	14.1	22.7	27.4	45.3	55.2
Bachelor's degree	12.0	17.6	25.3	41.6	42.0
Master's or higher degree	8.4	12.8	22.9	41.6	47.9

language ability—such as occupational attainment, amount of work effort, education, or marital status—may account for this atypical result.

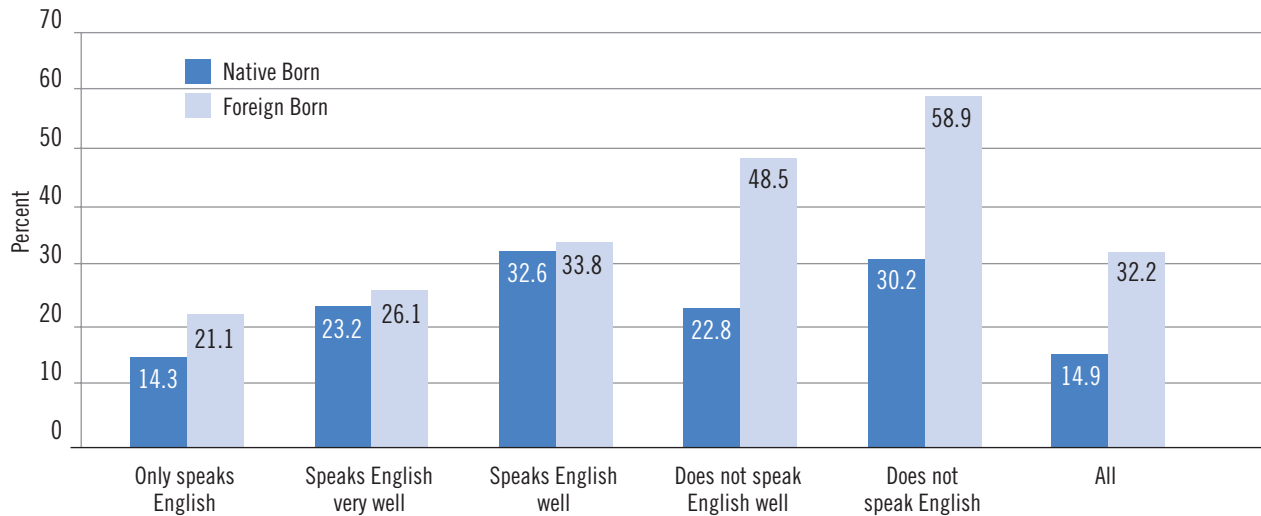
Data in Table 63 and Figure 38 enable us to examine the relationships between low-income status and educational attainment among both immigrants and the native-born adult population. Almost half (47 percent) of foreign-born dropouts and 39 percent of native-born dropouts were classified as low-income. The incidence of low income problems among immigrants declined steadily as they acquired more years of schooling, but substantial gaps between the share of immigrant and native-born adults with low income problems persist across all levels of schooling. For example, only slightly more than 8 percent of native-born Bachelor degree holders were classified as low-income compared to nearly 20 percent of immigrant adults with the same level of schooling. The incidence of low-income problems among foreign-born persons who held a Bachelor's degree, in other words, was more than twice the incidence of such problems among native-born persons with a Bachelor's degree.

The probability that an adult immigrant would be low income was strongly associated with both their English-speaking ability and educational attainment. Those with the least schooling and lowest English-speaking proficiency were at greatest risk of being low income. Five out of every ten dropouts who did not speak English well and six out of every ten dropouts who did not speak English at all were classified as low-income individuals (Table 64).

Even among those immigrants with Bachelor's degrees and Master's or higher degrees, those with limited or no English-

**FIGURE 37:**

Percent of 20-64 Year Old Native Born and Foreign Born Persons in Massachusetts classified as Low Income, by English-Speaking Proficiency, 2000



speaking skills were very likely to be low-income individuals. For example, four out of every ten Bachelors' and Masters' degree holders who did not speak English well fell into the low-income category as did 42.0 percent of those with a Bachelor's degree who did not speak any English at all. Among bachelor degree holders who only spoke English, the share of immigrants with a low income fell to only 12 percent. The range in the incidence of low income problems among foreign-born adults varied from a low of 8 percent among those with a Master's degree who only spoke English to a high of nearly 61 percent for primary school/high school dropouts who could not speak English, a relative difference of seven times from top to bottom.

#### **English-Speaking Proficiencies and Educational Attainment of Adult Immigrants and Their Ability to Achieve Middle Class or Higher Incomes**

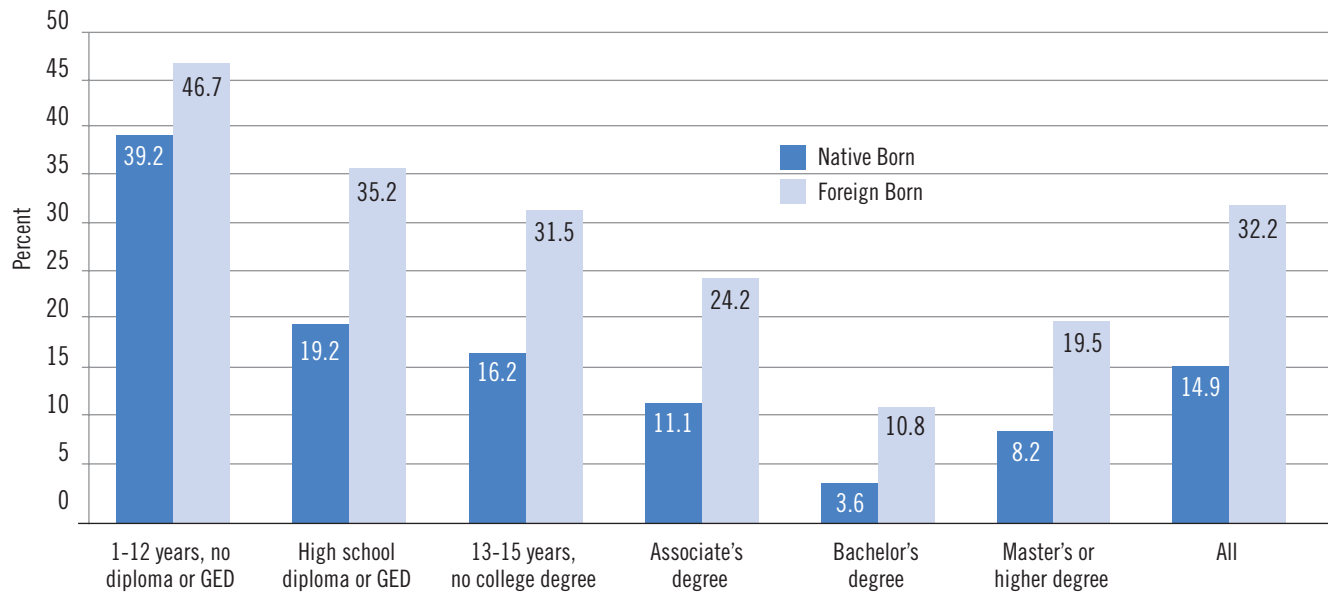
Our third measure of the economic well-being of immigrant adults in Massachusetts is related to their ability to obtain family incomes that would achieve a middle class or higher standard of living. Since its inception, MassINC has been devoted to the development of state and local policies and programs that would strengthen the size and economic well-being of the middle class in the Commonwealth. The income measure that we have selected as a proxy for a middle class

standard of living is an income at least four times the poverty line. Table 66 and Figure 40 below present data on the percent of 20–64 year old native-born and foreign-born persons in Massachusetts with family incomes four or more times the poverty level by English-speaking proficiency in 1999. These data reveal some important differences between the economic well-being of native-born and foreign-born persons. Overall, the share of 20-64 year old native-born persons with incomes four or more times the federal poverty level was almost sixty percent versus only 38 percent of the foreign-born. Among the foreign-born, the ability to secure a middle class income was strongly related to their English-speaking abilities. Nearly 53 percent of those who only spoke English were able to achieve a middle class income versus 32 percent of those who spoke English well and only 11 percent of those who could not speak English at all.

The gaps in the share of native and foreign-born persons with middle class incomes were smallest at the two highest levels of English-speaking proficiencies, but were very large at the two lower levels of English-speaking proficiencies. Specifically, among those who only spoke English, 60 percent of the native-born and 53 percent of the foreign-born were found to have incomes at least four times the federal poverty level. However, 51 percent of native-born persons who did not speak English well had a middle class or higher income

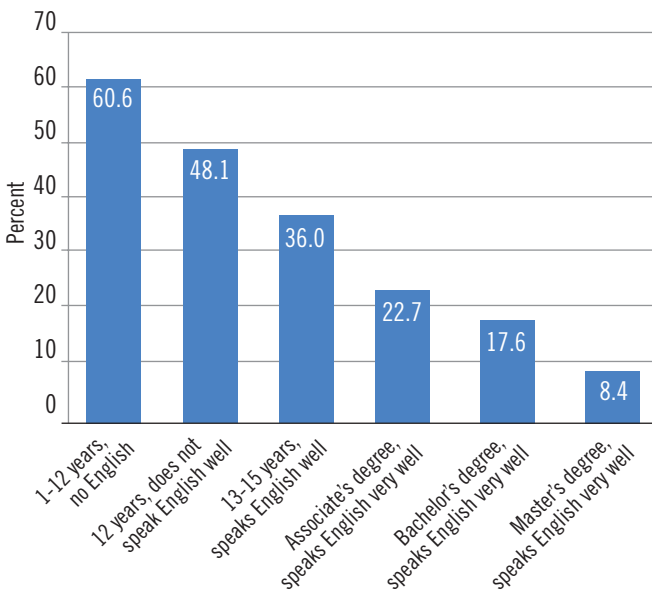
**FIGURE 38:**

Percent of 20-64 Year Old Native Born and Foreign Born Persons in Massachusetts classified as Low Income, by Educational Attainment, 2000



**FIGURE 39:**

Percent of 20-64 Year Old Foreign Born Persons in Massachusetts classified as Low Income in Selected Educational Attainment and English-Speaking Proficiency Groups, 2000



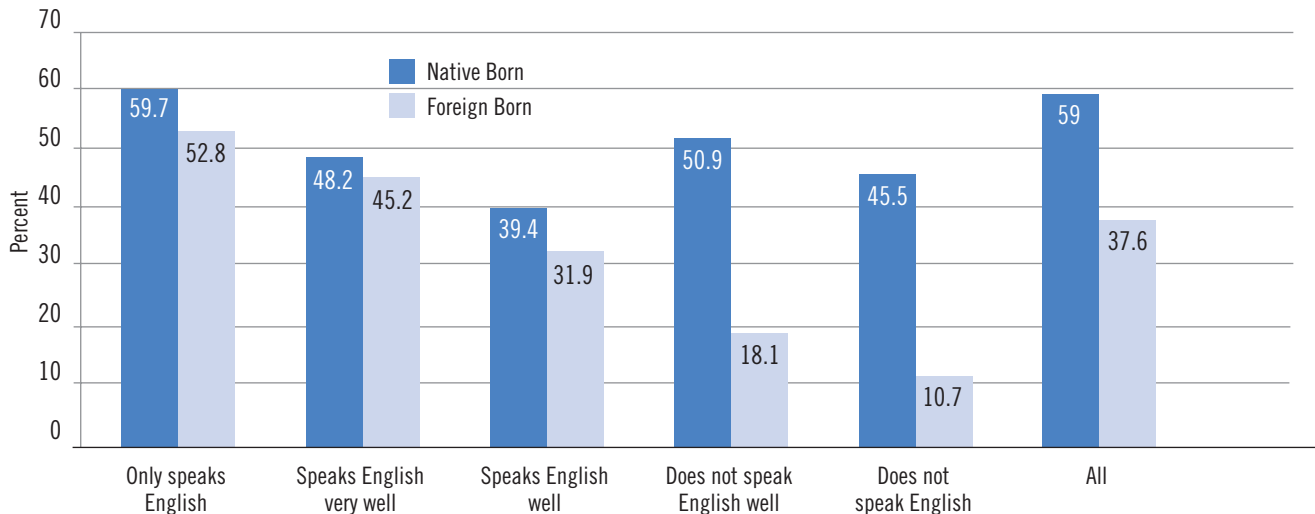
versus only 18 percent of foreign-born persons who reported that they did not speak English well, a gap of 32 percentage points (Table 65 and Figure 40).

Educational attainment through its effects on labor supply,

wages, annual earnings, and marriage rates also is strongly associated with the ability of immigrant and native-born adults to achieve middle class incomes in Massachusetts (Table 66 and Figure 41). The effects of educational attainment on middle class incomes are quite strong for both native and foreign-born persons. The shares of immigrants with middle class incomes ranged from a low of 20 percent among high school dropouts, to nearly 30 percent for high school graduates and GED holders, to 34 percent for those with 13 to 15 years of education but no college degree, to nearly 42 percent for holders of Associate's degrees and to highs of 56 percent for those with a Bachelor's degree and 68 percent for those with a Master's or higher degree. Very strong links between educational attainment and middle class incomes also prevailed among the native-born with Master degree holders being three times more likely than dropouts to achieve such incomes. The higher the educational attainment levels of native and foreign-born adults, the greater was the share of these population groups with incomes four or more times the poverty line. It is also clear, however, that nativity-based gaps in middle class incomes persisted at all educational levels. While foreign-born persons with higher levels of educational attainment are most certainly economically better

**FIGURE 40:**

Percent of 20-64 Year Old Native Born and Foreign Born Persons in Massachusetts with Incomes Four or More Times the Poverty Level, by English-Speaking Proficiency, 2000



**TABLE 65:**

Percent of 20-64 Year Old Native-Born and Foreign-Born Persons in Massachusetts with Incomes Four or More Times the Poverty Level, by English-Speaking Proficiency, 2000

ENGLISH-SPEAKING PROFICIENCY	NATIVE-BORN	FOREIGN-BORN
Only speaks English	59.7	52.8
Speaks English very well	48.2	45.2
Speaks English well	39.4	31.9
Does not speak English well	50.9	18.1
Does not speak English	--	10.7
All	59.0	37.6

Note: -- indicates that the number of cases is insufficient to calculate a reliable estimate.

**TABLE 66:**

Percent of 20-64 Year Old Native-Born and Foreign-Born Persons in Massachusetts, With Incomes Four or More Times the Poverty Level by Educational Attainment, 2000

EDUCATIONAL ATTAINMENT	NATIVE-BORN	FOREIGN-BORN
1-12 years, no diploma or GED	28.8	19.8
High school diploma or GED	46.6	29.6
13-15 years, no college degree	54.4	34.4
Associate's degree	61.5	41.5
Bachelor's degree	72.1	56.4
Master's or higher degree	82.1	68.2
All	59.0	37.6

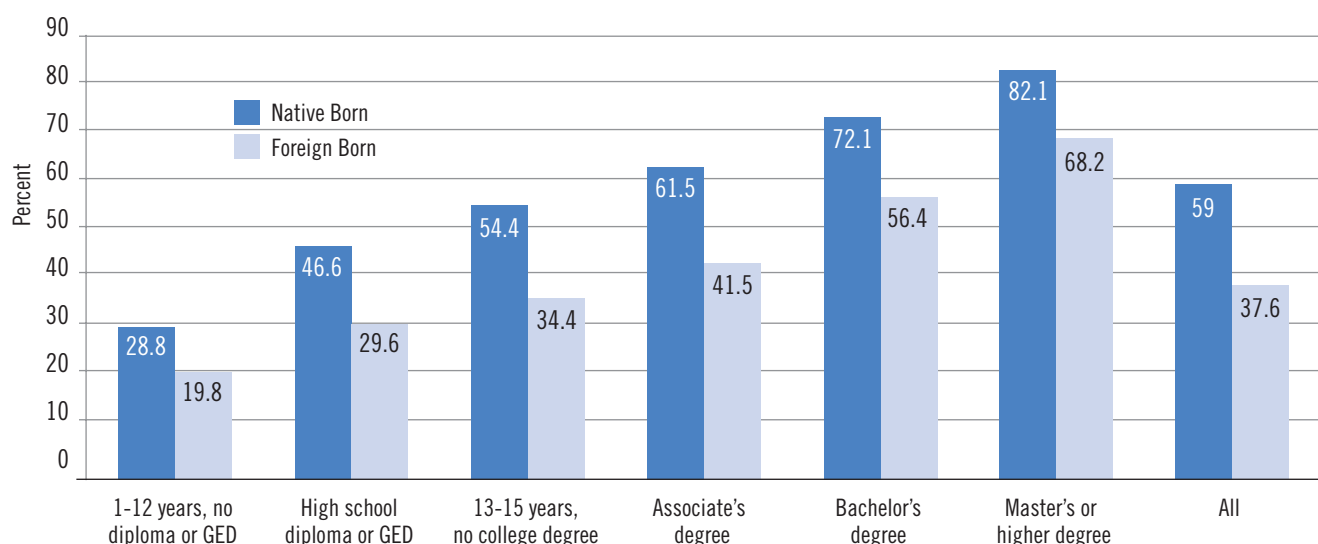
off than their peers with lower levels of schooling, the share of foreign-born persons with incomes four or more the poverty level within each educational attainment group was below the share of native-born persons in these same educational attainment groups. To illustrate, 72 of every 100 native-born persons with a Bachelor's degree had incomes four or more times the poverty level compared to only 56 of every 100 foreign-born adults (Table 66 and Figure 41).

Not surprisingly, given all of our previous findings on the

links between the human capital of immigrants and their economic outcomes, the combination of higher educational attainment and English-speaking proficiency considerably increased the likelihood that immigrant adults achieved these higher income levels. Formal schooling increased the chances for middle class incomes at all levels of English-speaking proficiency. In addition, it appears that the penalty for not speaking English well or not at all is only modestly mediated by increased years of education. (Table 67 and Figure 42). To

**FIGURE 41:**

Percent of 20-64 Year Old Native Born and Foreign Born Persons in Massachusetts with Incomes Four or More Times the Poverty Level by Educational Attainment, 2000



**TABLE 67:**

Percent of 20-64 Year Old Foreign-Born Persons in Massachusetts with Incomes Four or More Times the Poverty Level by Educational Attainment and English-Speaking Proficiency, 2000

EDUCATIONAL ATTAINMENT	ONLY SPEAKS ENGLISH	SPEAKS ENGLISH VERY WELL	SPEAKS ENGLISH WELL	DOES NOT SPEAK ENGLISH WELL	DOES NOT SPEAK ENGLISH
1-12 years, no diploma or GED	25.2	23.6	24.3	15.9	9.8
High school diploma or GED	41.4	33.2	26.2	17.8	9.5
13-15 years, no college degree	49.9	33.9	27.2	18.9	17.1
Associate's degree	54.9	42.9	35.8	20.9	--
Bachelor's degree	68.6	57.8	48.9	26.3	21.9
Master's or higher degree	79.4	70.9	52.4	39.2	30.8

Note: -- indicates that the number of cases is insufficient to calculate a reliable estimate.

illustrate this important point, the shares of immigrant dropouts and high school graduates who could not speak English well with middle class or higher incomes was only modestly lower than that of Associate and Bachelor degree holders. However, persons with less than a college education and poor English-speaking skills clearly appear to be penalized twice. Of those immigrants without a high school diploma and no English-speaking skills, fewer than 10 percent were able to achieve a middle class income versus 33 percent of high school graduates who spoke English well, 43 percent of Associate Degree holders who spoke English very well, and 71 percent of those immigrant adults with a Master's or higher

degree who spoke English very well. Strong human capital skills do not guarantee a middle class lifestyle for immigrants, but they clearly substantially increase the possibilities of doing so for both immigrants and the native-born.

#### Receipt of Cash Transfer Income by Immigrants in Massachusetts

Poor and near poor families in the U.S. are the most dependent on various forms of cash (TANF, SSI disability, general assistance) and in-kind public assistance (food stamps, rental subsidies, Medicaid) to support themselves. Given the above average incidence of poverty and other types of low income

problems among adult immigrants in the state, one might well expect them to be dependent on these public assistance payments to an above average extent. Not all immigrants, however, were eligible for various types of cash and in-kind assistance due to national legislation that restricted eligibility for various types of cash transfer payments to either legal immigrants who have resided in the U.S. for a given length of time or are U.S. citizens. In this section, we will examine the incidence of receipt of selected types of cash public assistance income by 20-64 year old immigrants in Massachusetts in selected educational attainment and English-speaking proficiency groups.

The 2000 Census collected information regarding whether persons were receiving particular types of cash transfer incomes in 1999. The available data allowed us to estimate the number and percentage share of 20-64 year old foreign-born persons in Massachusetts receiving cash transfer incomes by individual background characteristics. Cash transfer incomes include Supplemental Security Income for the aged and disabled (SSI), welfare (TANF), and other cash public assistance incomes payments. We have excluded Social Security Retirement and unemployment benefits from the income transfer category since Social Security retirement income is a type of pension income based in large part upon past contributions to the Social Security payroll system tax. We cannot isolate Unemployment Insurance benefits from other sources of cash income on the PUMS data files.

Table 68 and Figure 43 show the percentage shares of 20-64 year old foreign-born persons in Massachusetts who received cash transfer incomes in 1999 by educational attainment and English-speaking ability. An analysis of the data shows that there is an inverse relationship between educational attainment and the receipt of cash transfer incomes among these 20-64 year old foreign-born persons.

Almost fifteen percent (14.8 percent) of those with one to twelve years of education but without a high school diploma were receiving cash transfer incomes in 1999 compared to 7.5 percent of those with a high school diploma or GED, 4.7 percent among those with thirteen to fifteen years of education including Associate degree holders, only 2.7 percent of those with a Bachelor's degree, and a low of 2.4 percent of

**TABLE 68:**

Percent of 20-64 Year Old Foreign-Born Persons in Massachusetts Receiving Cash Transfer Incomes in 1999 by Educational Attainment and English-Speaking Ability<sup>68</sup>

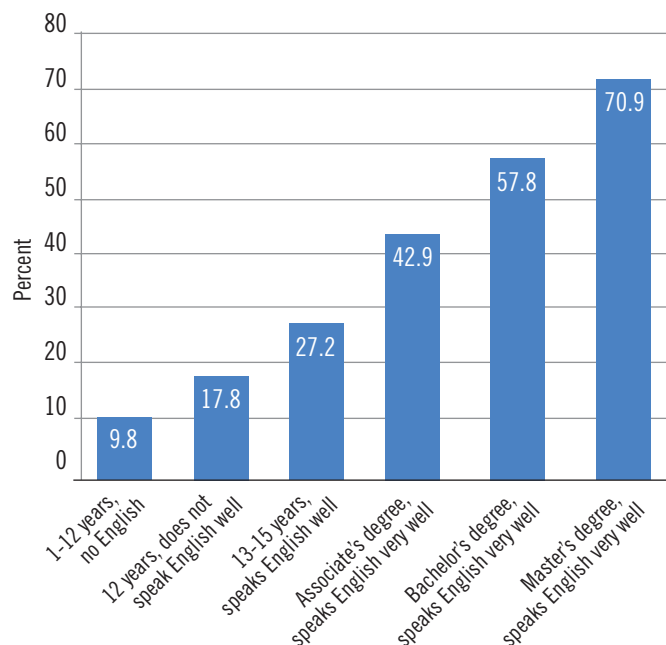
EDUCATIONAL ATTAINMENT	PERCENT WITH CASH TRANSFERS
1-12 years, no diploma	14.8
High school diploma or GED	7.5
13-15 years, no degree	4.7
Associate's degree	4.7
Bachelor's degree	2.7
Master's or higher degree	2.4

ENGLISH-SPEAKING PROFICIENCY	PERCENT WITH CASH TRANSFERS
Only speaks English	6.9
Speaks English very well	4.8
Speaks English well	7.2
Does not speak English well	12.6
Does not speak English	18.8

**FIGURE 42:**

Percent of 20-64 Year Old Foreign Born Persons in Massachusetts with Incomes Four or More Times the Poverty Level in Selected Educational Attainment and English-Speaking Proficiency Groups, 2000

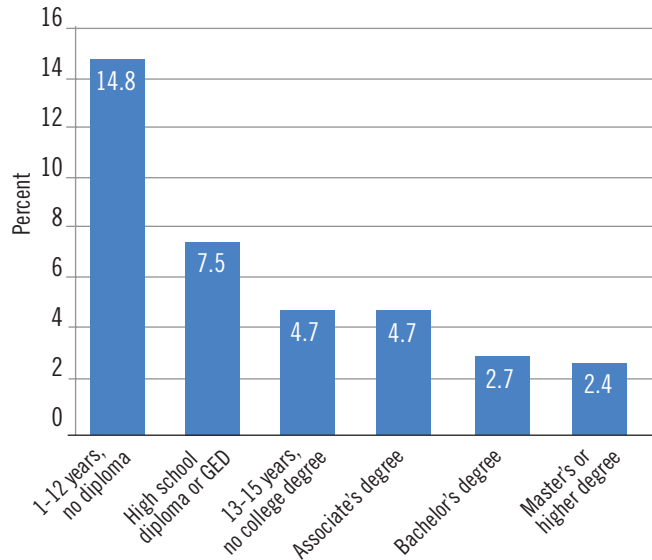


68 Cash transfer income excludes Social Security Retirement Income.



**FIGURE 43:**

Percentage of 20-64 year old Foreign Born Persons in Massachusetts receiving Cash Transfer Incomes in 1999, by Educational Attainment



those with a Master's or higher degree. Clearly, the lower one's educational attainment, the higher was the likelihood that an immigrant adult would receive cash transfer incomes.

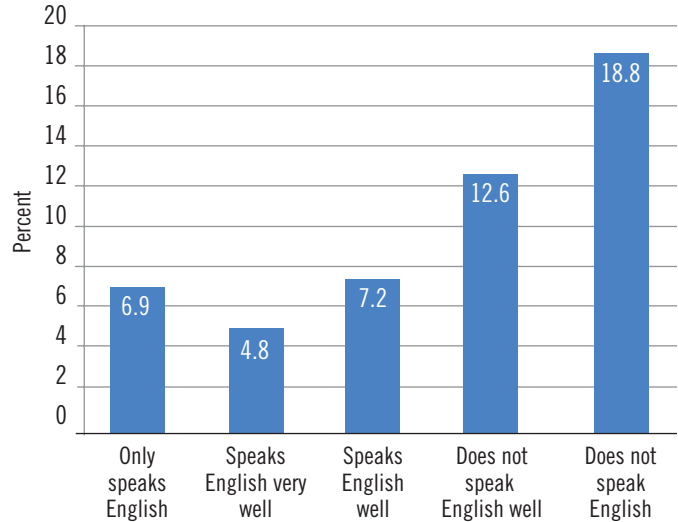
The data in Table 68 and Figure 44 further suggest that there is an inverse relationship between the English-speaking ability of immigrants and their receipt of cash transfer incomes. Among 20-64 year old foreign-born persons in Massachusetts who only speak English, about seven percent (6.9 percent) received cash transfer incomes compared to 4.8 percent among those who speak English very well, 7.2 percent among those who speak English well, 12.6 percent among those who do not speak English well and almost 1 out of every 5 persons (18.8 percent) who do not speak English. In sum, lower levels of English-speaking proficiency are related to higher shares of 20-64 year old foreign-born persons receiving these types of transfer incomes.

How did the receipt of cash transfer incomes among foreign-born persons in Massachusetts compare to the receipt of such incomes among native-born persons in the Commonwealth? Table 69 and Figure 45 display the percent of 20-64 year old native-born and foreign-born persons in Massachusetts receiving cash transfer incomes in 1999 by educational attainment.

In the aggregate, foreign-born adults were only modestly more likely than the native-born to have received some type

**FIGURE 44:**

Percentage of 20-64 year old Foreign Born Persons in Massachusetts Receiving Cash Transfer Incomes in 1999 by English Speaking Ability

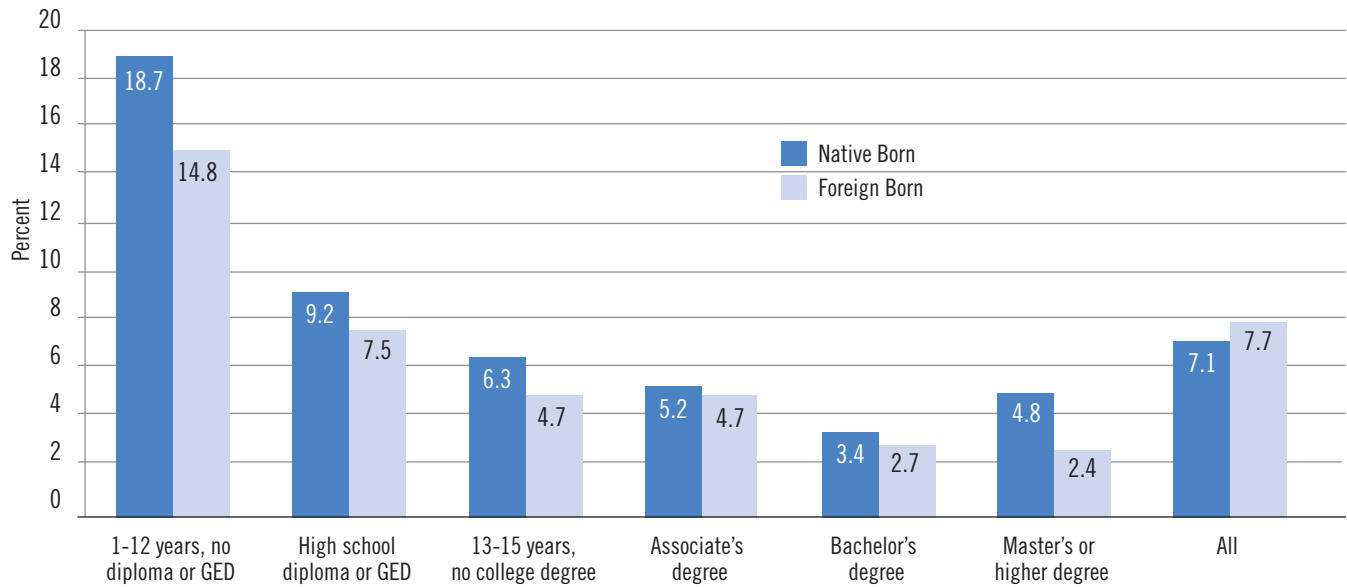


of cash public assistance income in 1999. Approximately seven percent (7.1 percent) of native-born persons ages 20 to 64 and slightly less than eight percent (7.7 percent) of foreign-born persons in this same age group received cash transfer incomes in 1999. Within each educational attainment group, however, the percent of 20-64 year old native-born persons receiving cash transfer incomes in 1999 was greater than the percent of foreign-born persons. For example, 18.7 percent of native-born persons with only 1-12 years of education but without a high school diploma or GED received such payments compared to only 14.8 percent of foreign-born dropouts. Among native-born high school graduates and GED holders, 9.2 percent received cash transfer incomes compared to 7.5 percent of foreign-born high school graduates and GED holders. Similar patterns of lower receipt of cash transfer incomes prevailed among each of the other educational subgroups.

The relationship between educational attainment and dependence on cash transfer incomes for both native and foreign-born persons is clear. The highest percentages of persons receiving cash transfer incomes are found in the lowest educational attainment group. This is true for both native and foreign-born persons. Almost one out of every five native-born dropouts and approximately fifteen percent of foreign-born dropouts in the 20-64 age category had such incomes.

**FIGURE 45:**

Percentage of 20-64 year old Native Born and Foreign Born Persons in Massachusetts receiving Cash Transfer Incomes in 1999, by Educational Attainment



The shares of 20-64 old persons who received such incomes —irrespective of whether these persons were native or foreign-born—in the higher educational attainment groups are considerably smaller than the shares for groups with moderate levels of educational attainment. Interestingly, the share of native-born persons with a Master’s or higher degree receiving such payments (4.8 percent) was twice as high as the share of foreign-born persons in this same educational group.

The share of foreign-born persons receiving cash transfer incomes varied greatly by their combined educational attainment and English language ability. Table 70 allows us to examine the incidence of cash transfer incomes among immigrants categorized by their language ability at different levels of educational attainment. The data appearing under each of the columns in Table 70 show that the share of dropouts (at all levels of language ability) who received cash transfer incomes was greater than the share of persons in any of the higher educational attainment groups. To illustrate, the share of dropouts who only spoke English who received cash income transfers was 16 percent; it was 13 percent for those who speak English very well, 12 percent for those who speak English well, 15 percent for those who did not speak English well, and it was 20 percent for those who did not speak English at all. When comparing dropouts with high school graduates

**TABLE 69:**

Percent of 20-64 Year Old Native-Born and Foreign Born Persons in Massachusetts Receiving Cash Transfer Incomes in 1999, by Educational Attainment

EDUCATIONAL ATTAINMENT	NATIVE-BORN	FOREIGN-BORN
1-12 years, no diploma or GED	18.7	14.8
High school diploma or GED	9.2	7.5
13-15 years, no college degree	6.3	4.7
Associate's degree	5.2	4.7
Bachelor's degree	3.4	2.7
Master's or higher degree	4.8	2.4
All	7.1	7.7

and GED holders, the share of high school graduates and GED holders who received cash transfer incomes was markedly lower in each of the five English-speaking proficiency groups. For example, among high school graduates who only spoke English, the incidence of receipt of cash transfer incomes was only 7.8 percent compared to 16.2 percent for dropouts, it was only 5.9 percent for those graduates who spoke English very well compared to 13.1 percent for dropouts, and it was only 13.6 percent for those graduates who did not speak English compared to 20.4 percent for high school dropouts. Very sim-

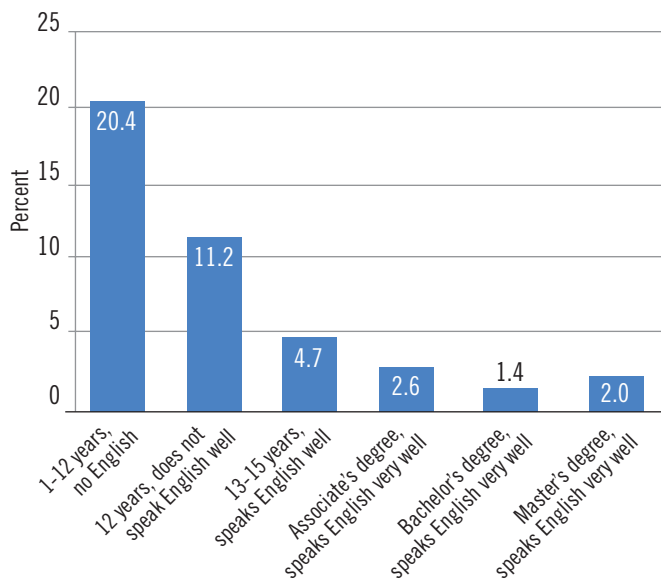
**TABLE 70:**

Percent of 20-64 Year Old Foreign-Born Persons in Massachusetts Receiving Cash Transfer Incomes in 1999 by Educational Attainment and English-Speaking Ability

EDUCATIONAL ATTAINMENT	ONLY SPEAKS ENGLISH	SPEAKS ENGLISH VERY WELL	SPEAKS ENGLISH WELL	DOES NOT SPEAK ENGLISH WELL	DOES NOT SPEAK ENGLISH
1-12 years, no diploma or GED	16.2	13.1	12.5	15.2	20.4
High school diploma or GED	7.8	5.9	6.4	11.2	13.6
13-15 years, no college degree	4.7	3.6	4.7	9.5	12.2
Associate's degree	5.1	2.6	6.0	9.5	18.3
Bachelor's degree	3.6	1.4	3.0	4.4	20.1
Master's or higher degree	3.1	2.0	2.1	5.3	12.4

**FIGURE 46:**

Percentage of 20-64 year old Foreign Born Persons in Massachusetts receiving Cash Transfer Incomes in 1999 by Selected Groups of Educational Attainment and English Speaking Ability



ilar patterns prevailed in the other higher educational subgroups. Those immigrants who spoke English very well were the least likely to receive cash transfer incomes while their peers who could not speak English were the most likely to do so.

The effect of language ability, irrespective of the level of education, on the receipt of cash income transfer is also clear from the data in Table 70. When examining each of the rows, we see that the receipt of cash transfer incomes among those who do not speak English was far greater than that of immigrants with higher levels of language ability. This was

true for dropouts, high school graduates, and those in all other educational attainment groups. One out of five dropouts with no English skills received cash transfer incomes compared to one out of seven who do not speak English well, and one out of eight who spoke English well or very well. The data for those with no English-speaking abilities are disconcerting but not surprising. The shares of those who received cash transfer incomes at higher levels of education were lower than the share of dropouts with no English but are still considerable. Roughly one out of every five Associate's and Bachelor's degree holders and one out of every eight holders of a Master's or higher degree who could not speak English received cash transfer incomes.

One final observation regarding the receipt of cash transfer incomes pertains to differences between those who speak only English (and can be considered native or native like speakers of English) and those at other levels of English-speaking proficiency. It is interesting to see that the incidence of cash transfer incomes among those who only speak English are consistently greater than the shares of those who spoke English very well. This is true at each level of educational attainment. This finding suggests that some adult immigrants for whom English is a second language may have a linguistic and literacy advantage over those who are monolingual.

To further illustrate the relationships between language ability, education, and the share of foreign-born persons receiving cash transfer incomes, Figure 46 displays the shares of immigrants in the following educational attainment and English-speaking ability subgroups who were recipients of cash income transfers: (1) has 1-12 years of education and

does not speak any English, (2) has 12 years of education and does not speak English well, (3) has 13-15 years of education and speaks English well, (4) holds an Associate's degree and speaks English very well, (5) holds a Bachelor's degree and speaks English very well, and (6) has a Master's degree and speaks English very well.

Among 20-64 year old foreign-born persons in Massachusetts, 20.4 percent of those with less than twelve years of education and no English-speaking ability received cash transfer incomes. The share receiving these incomes was only 11.2 percent among those with 12 years of education who did not speak English well at the time of the 2000 Census, 4.7 percent among those with 13-15 years of schooling who spoke English well, 2.6 percent for those with an Associate's degree who spoke English very well, and a low of 1.4 percent for holders of Bachelor's degrees who spoke English very well. Clearly, higher levels of English-speaking proficiency and educational attainment together sharply reduce the likelihood that adult immigrants will receive cash transfer incomes in the Commonwealth.

### EDUCATION, ENGLISH-SPEAKING SKILLS, AND SCHOOL ENROLLMENT OF YOUNG ADULT IMMIGRANTS

The English-speaking proficiencies and English literacy skills of immigrants are likely to influence a variety of educational and training outcomes as well as labor market outcomes. Nationally, research based on a wide array of longitudinal surveys over the past few decades has revealed the key role played by the academic achievement and basic academic skills of teens and young adults in influencing their ability and

willingness to graduate from high school, attend college upon high school graduation, and persist in college until they obtain an academic degree.<sup>69</sup> Studies of immigrant schooling and labor market behavior also have found that immigrants who came to the U.S. in early childhood were more likely to acquire a solid base of English-speaking proficiencies and complete more years of schooling than their counterparts who arrived in their adolescent years.<sup>70</sup> A recent study of the school dropout behavior of Hispanic youth, including first, second, and third generation immigrants, has found that those Hispanic 8th graders who had better English-speaking, reading, and writing skills, higher educational expectations, and better grade point averages were significantly less likely to drop out of high school.<sup>71</sup> Having high educational expectations, good English-speaking, reading, and writing skills, and not being held back a grade in school were particularly important predictors of not being an early high school dropout; i.e., leaving high school before the second half of the sophomore year.<sup>72</sup>

Immigrant youth with poor English-speaking proficiencies might well be expected to perform below average in their academic studies, to be held back in school, to expect to complete fewer years of schooling and, thus, to drop out of high school at higher rates than their peers with stronger English-speaking, writing, and reading skills. When they do graduate from high school, they might well be expected to be less likely to enroll in college or to complete any years of post-secondary schooling. To test out these hypotheses, we examined the school enrollment status/educational attainment of all 16-24 year old, foreign-born youth in Massachusetts at the time of the 2000 Census by their

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69 For a review of the literature on the influence of academic achievement and basic academic test scores on the school enrollment, retention, and completion behavior of young adults in the U.S., See: (i) Gordon Berlin and Andrew Sum, *Toward A More Perfect Union: Basic Skills, Poor Families, and Our Economic Future*, Ford Foundation, New York, 1988; (ii) Anthony Carnevale and Donna M. Descrochers, *Standards For What? The Economic Roots of K-16 Reform*, Educational Testing Service, Princeton, 2004; (iii) Calvin C. Jones, Susan Campbell and Penny A. Sebring, *Four Years After High School: A Capsule Description of 1980 Seniors*, U.S. Government Printing Office, Washington, D.C., 1986; (iv) Andrew Sum, Neeta Fogg, and Garth Mangum, *Confronting the Youth Demographic Challenge: The Labor Market Prospects of Out-of-School Young Adults*, Sar Levitan Center for Social Policy Studies, Johns Hopkins University, Baltimore, October 2000.

70 See: Hoyt Bleakley and Aimee Chin, *Language Skills and Earnings: Evidence from Childhood Immigrants*, Department of Economics, MIT and University of Houston, February 2001.

71 See: Anne K. Driscoll, "Risk of High School Dropout Among Immigrant and Native Hispanic Youth", in *International Migration Review*, Winter 1999, Vol. 33, Issue 14.

72 The English proficiency of these Hispanic students in communications, reading, speaking, and writing English were based on self-reports of the students themselves. They were asked to rate their proficiencies on a scale from 1 to 4, with 4 being the highest.

**TABLE 71:**

The Percentage Distribution of 16-24 Year Old Immigrants in Massachusetts in Selected English-Speaking Proficiency Groups by Their School Enrollment/ Educational Attainment Status in 2000

ENGLISH-SPEAKING PROFICIENCY	HIGH SCHOOL DROPOUT	HIGH SCHOOL STUDENT	HIGH SCHOOL GRADUATE, NOT ENROLLED	13+ YEARS, NOT ENROLLED	COLLEGE STUDENT
Does not speak English or does not speak English well	47.2	14.8	20.7	8.2	9.0
Speaks English well	17.0	25.8	16.8	10.5	29.9
Speaks English very well	10.6	22.4	13.5	13.7	39.9
Only speaks English	8.0	24.8	11.2	16.2	39.2
All	16.6	22.4	14.9	12.6	33.4

Source: 2000 Census, PUMS data files, tabulations by Center for Labor Market Studies.

self-reported English-speaking proficiency.

In April 2000, one of every six of these 16-24 year old immigrants were high school dropouts, another 22 percent were still enrolled in high school, nearly 28 percent were either high school graduates or persons with at least some post-secondary schooling who were no longer enrolled in school, and the remaining one-third were enrolled in college (Table 71). The high school dropout and college enrollment status of these 16-24 year old immigrants varied quite widely and systematically by their English-speaking ability. Slightly over 47 percent of those foreign-born youth with severe English-speaking skill deficits had left high school (either in their own country or in the U.S.) without obtaining a high school diploma versus only 17 percent of their peers who spoke English well and 8 percent of those who only spoke English (Table 71 and Figure 47).

College enrollment rates among these foreign-born youth also varied considerably by their self-reported English-speaking proficiencies. Only 9 percent of those immigrant youth with severe English-speaking deficits were enrolled in some type of post-secondary educational program versus 30 percent of their counterparts who spoke English well and nearly 40 percent of those who spoke English very well or only spoke English (Table 71 and Figure 48). Over three-fourths of young immigrant adults with limited English-speaking skills were no longer enrolled in school, and a majority of the non-enrolled with severe English-speaking deficits had left

school without obtaining a high school diploma. Given the previous findings on the severe labor market difficulties of adult immigrants in Massachusetts with limited schooling and English-speaking proficiencies, many of these young immigrants with poor English-speaking abilities face bleak future economic prospects in the absence of sustained human capital investments in their English skills, schooling, and training. With minor exceptions, few of these foreign-born dropout youth have been targeted for services by either adult basic education or workforce development programs in Massachusetts or the nation.<sup>73</sup>

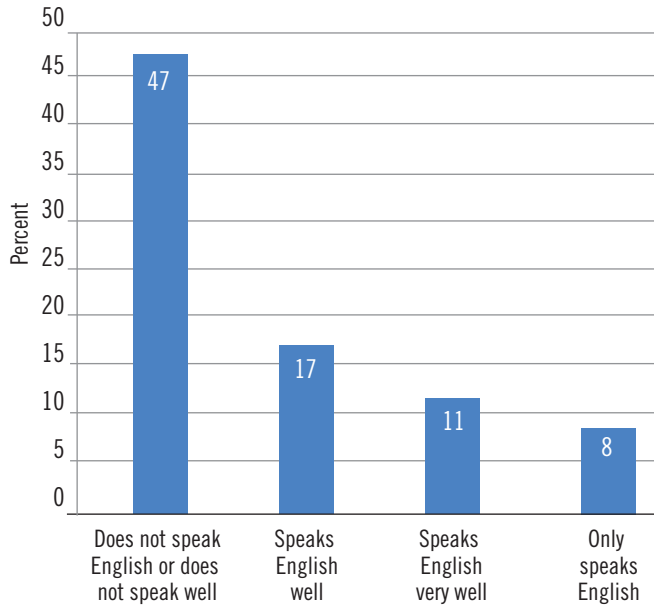
The 2000 Census long form questionnaire also collected information on the school enrollment status of older adult immigrants. The available PUMS micro-records data were used to estimate school enrollment rates for all 20-64 year old immigrants in Massachusetts classified by their educational attainment and English-speaking proficiency. It should be noted that the school enrollment questions asked respondents only to report enrollment in educational programs that would lead to the attainment of a high school diploma or its equivalent or a post-secondary degree. Persons enrolled in adult basic education or other educational programs not leading to a formal diploma (GED) or college degree would not be included in these enrollment data.

Estimates of school enrollment rates for all adult immigrants 20-64 years old by their educational attainment and English-speaking proficiencies at the time of the 2000 Census

73 Neither the national WIASRD information reporting system for WIA youth and adults programs nor the national ABE reporting system of the U.S. Department of Education requires states to identify the nativity status of program participants.

**FIGURE 47:**

The Percent of 16-24 Year Old Foreign-Born Persons in Massachusetts Who Were High School Dropouts by English-Speaking Proficiency, 2000

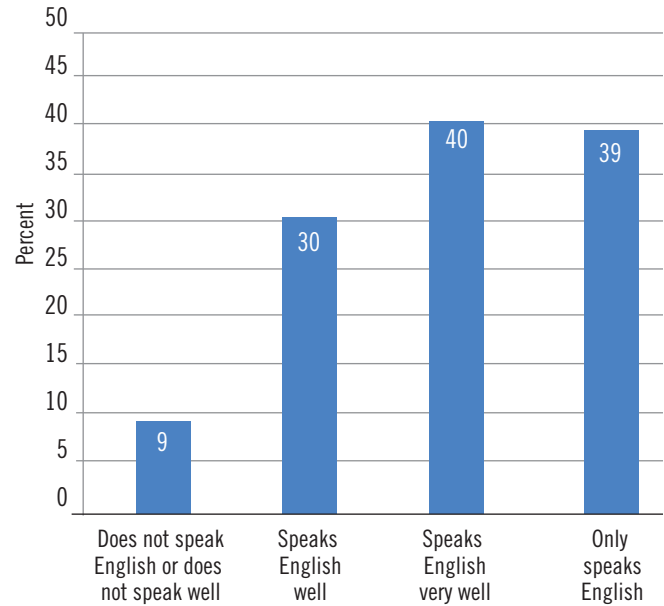


are displayed in Table 72. Overall, 7.1 percent of these immigrants were enrolled in school; however, the share of immigrants doing so varied quite considerably by their educational attainment and their English-speaking proficiency. Only slightly more than 4 percent of the immigrants lacking a high school diploma or its equivalent were attending school versus 5.5 percent of high school graduates, and 12 to 16 percent of those with 1 to 3 years of college, including associate degree holders. Adult immigrants who could not speak English were the least likely to be attending school (2.8 percent). Those immigrants who spoke English well or very well were three times as likely to be enrolled in school (Table 72).

A combination of strong English-speaking proficiencies and more years of schooling was associated with considerably higher rates of school enrollment among adult immigrants up to the bachelor degree level (Figure 49). Even among those immigrants lacking a high school diploma, school enrollment rates varied sharply by their English-speaking proficiency, ranging from a low of 1.6 percent for those who could not speak English to 5.8 percent among those who

**FIGURE 48:**

The Percent of 16-24 Year Old Foreign-Born Persons in Massachusetts Who Were Enrolled in College by English-Speaking Proficiency, 2000



spoke English very well. For those immigrant adults who had completed 1-3 years of college, school enrollment rates ranged in the 18-19 percent range for those who spoke English well or very well. The relative size of the gap between the immigrant group with the highest school enrollment rate and the group with the lowest enrollment rate was nearly twelve to one (18.6 percent vs. 1.6 percent).

The above findings clearly reveal that the rate of acquisition of additional human capital in the form of more years of formal schooling by adult immigrants in Massachusetts during 2000 was much greater for those with more schooling (up to the bachelor's degree level) and stronger English-speaking proficiencies. Findings of national literacy assessments, including IALS, provide strong evidence that those employed immigrants with stronger literacy proficiencies are also much more likely to receive job related education and training, especially from their employers.<sup>74</sup>

Thus, the human capital gaps between the more literate and English-proficient immigrants and their less skilled counterparts are likely to widen over their working lives, thereby

74 See: Andrew Sum, Irwin Kirsch, and Kentaro Yamamoto, *A Human Capital Concern: The Literacy Skills of U.S. Immigrants*.



**TABLE 72:**

School Enrollment Rates of 20-64 Year Old Foreign-Born Persons in Massachusetts by Educational Attainment and English-Speaking Proficiency, 2000

EDUCATIONAL ATTAINMENT	ONLY SPEAKS ENGLISH	SPEAKS ENGLISH VERY WELL	SPEAKS ENGLISH WELL	DOES NOT SPEAK ENGLISH WELL	DOES NOT SPEAK ENGLISH	ALL
0-12, no diploma or GED	3.6	5.8	4.8	4.2	1.6	4.3
High school diploma, no college	3.6	6.7	6.1	4.4	4.6	5.5
13-15 years, no degree	12.4	18.3	18.6	13.0	7.1	16.4
Associate's degree	8.8	13.7	13.7	9.3	--	12.2
Bachelor's degree	4.4	6.7	9.1	10.5	6.0	6.8
Master's degree or higher	2.2	4.3	7.6	8.7	--	4.6
All	5.4	8.5	8.4	3.6	2.8	7.1

Source: 2000 Census of Population and Housing, 5-100 PUMS files, tabulations by authors. Note: -- indicates that the number of cases is too small to generate a reliable estimate.

contributing to greater wage and earnings inequality over their work lives. This trend does not bode well for the future of economic inequality in the Commonwealth, particularly given the steep rise in wage and earnings inequality that took place over the past two decades.<sup>75</sup>

#### EDUCATION, ENGLISH-SPEAKING SKILLS AND CITIZENSHIP OF MASSACHUSETTS IMMIGRANTS

Higher levels of schooling, stronger English-speaking and reading skills, and strengthened literacy proficiencies for immigrants impact a range of civic, political, and social outcomes as well as labor market outcomes.<sup>76</sup> Immigrants with stronger literacy proficiencies and higher levels of education are more likely to actively follow news on public affairs and government activities, to partake in civic and political activities in their local communities, and to vote in national and

state elections. To be eligible to vote, however, one must first become a U.S. citizen. Previous studies at the national and state level have found that the citizenship status of immigrants is positively associated with their years of schooling and their English-speaking abilities.<sup>77</sup> Increasing the number of immigrants who become U.S. citizens can contribute to an increase in voter turnout in national and state elections and a strengthening of democracy in the U.S.<sup>78</sup>

The long form questionnaire that was used in conducting the 2000 Census captured information on the citizenship status of all foreign-born persons. In this section, we will examine variations in the citizenship rates of adult immigrants (20 and older) in Massachusetts at the time of the 2000 Census by their educational attainment and English-speaking proficiencies.<sup>79</sup> At times, the findings for Massachusetts will be compared to those for the entire nation and the New England

75 For a review of earnings and income inequality in the state during the 1980s and 1990s, See: Andrew Sum, Paul Harrington, Neeta Fogg, et.al., *The State of the American Dream in Massachusetts: 2002*, Massachusetts Institute for A New Commonwealth and Blue Cross/Blue Shield, Boston, 2002.

76 For a review of evidence on the links between the English literacy/numeracy proficiencies of U.S. immigrants and their civic and political behavior, See: Andrew Sum, Irwin Kirsch, and Kentaro Yamamoto, *A Human Capital Concern: The Literacy Skills of U.S. Immigrants*.

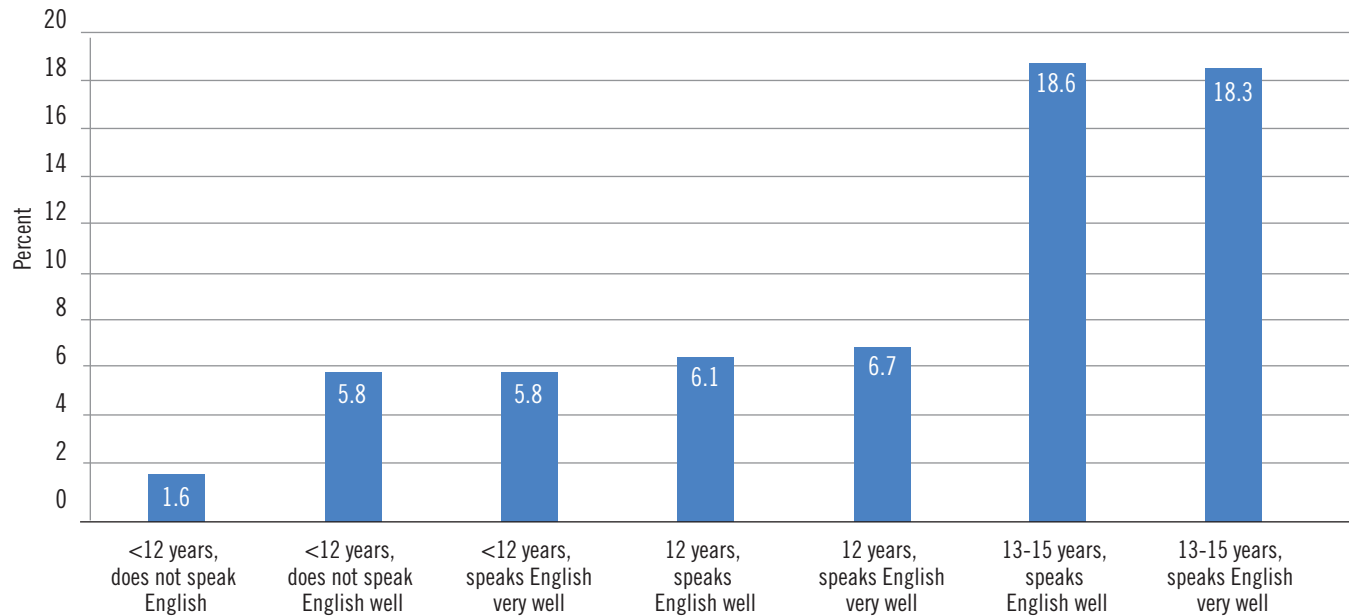
77 For earlier reviews of the links between the formal schooling backgrounds, English-speaking abilities and citizenship rates among immigrants in Massachusetts and the U.S., See: (i) John Comings, Andrew Sum, Johan Uvin, et. al., *New Skills for A New Economy*; (ii) Andrew Sum, Irwin Kirsch and Kentaro Yamamoto, *A Human Capital Concern: The Literacy Skills of U.S. Immigrants*.

78 The large increase in the number of immigrants who are not U.S. citizens has been identified as a key factor in contributing to the lower turnout in national elections. See: Samuel Popkin and Michael P. McDonald, "The Myth of the Vanishing Voter," Paper Presented to the American Political Science Conference, Washington, D.C., 2000.

79 Foreign born persons who were born in one of the outlying island territories (Puerto Rico, the U.S. Virgin Islands) are automatic citizens of the U.S. Thus, they have been excluded from our analysis of citizenship rates of immigrants.

**FIGURE 49:**

School Enrollment Rates of Selected Educational Attainment and English-Speaking Proficiency Groups of 20-64 Year Old Foreign-Born Persons in Massachusetts, 2000



region. The relationships between the educational attainment/English-speaking proficiencies of immigrants and their citizenship status will be presented separately for men and women in the Commonwealth.

In order to be eligible for citizenship in the United States, a foreign-born individual must meet each of the following criteria: be a legal resident of the United States, be at least 18 years old, have lived in the nation for at least five years, and pass both a criminal background check and a citizenship test that requires a minimum level of English-speaking and writing abilities. Given the age and residency requirements for citizenship, we have confined our analysis to those immigrants who were at least 20 years old in 2000 and had lived in the United States for at least five years. With the 2000 Census data, however, we cannot distinguish those foreign-born persons who were legal residents of the U.S. from those who were undocumented immigrants. Based on past nation-

al research on the characteristics of illegal immigrants, it is quite likely that an above average share of the illegal immigrants are relatively young, poorly educated, and limited in their English-speaking ability.<sup>80</sup>

The citizenship rates of all foreign-born persons 20 years and older with five or more years of residence in the U.S. by years of educational attainment are displayed in Table 73 for Massachusetts, New England, and the entire nation as of April 2000. In Massachusetts, nearly 58 percent of these foreign-born persons were reported to be citizens in April 2000. The citizenship rate of the foreign-born in Massachusetts was somewhat more than 4 percentage points higher than in the U.S. Within Massachusetts, citizenship rates of immigrants rose with years of schooling from a low of 49 percent for those with a primary education up to 63 percent at the Associate and Bachelor degree level, where they peaked (Figure 50).<sup>81</sup> Comparisons of citizenship rates of Massachu-

80 See: (i) Barry R. Chiswick, *Illegal Aliens: Their Employment and Employers*, W.E. Upjohn Institute for Employment Research, Kalamazoo, Michigan, 1988; (ii) Vernon Briggs, *Mass Immigration and the National Interest*, M.E. Sharpe, Inc., Armonk, New York, 2003; (iii) George Borjas, *Friends or Strangers: The Impact of Immigration on the U.S. Economy*, Basic Books Inc., New York, 1990.

81 As will be revealed in our following discussions of the regression results of the citizenship status of immigrants in Massachusetts, the lower rate of citizenship among immigrants with a Master's or higher degree is attributable to the behavior of Ph.D. holders who are significantly less likely to be citizens.

**TABLE 73:**

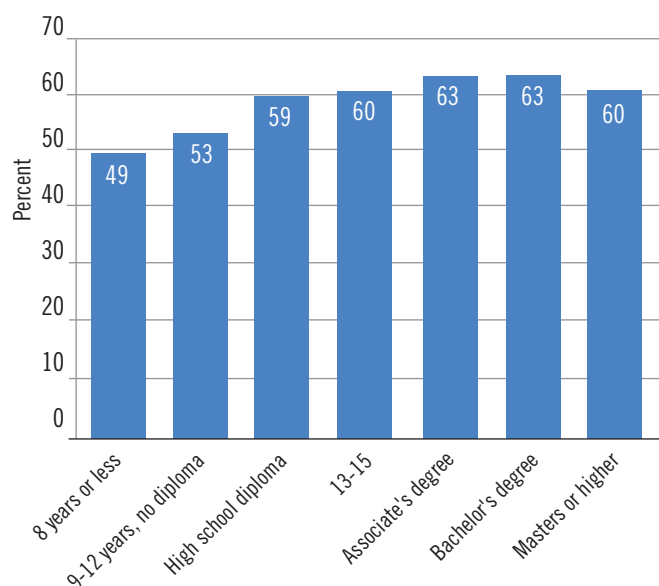
Citizenship Rates Among Foreign-Born Persons 20 Years and Older Who Lived in the U.S. for Five or More Years by Their Educational Attainment: Massachusetts, New England, and the U.S., 2000 (in percent)

EDUCATIONAL ATTAINMENT	MASSACHUSETTS	NEW ENGLAND	U.S.	MA-U.S.
All	57.6	59.7	53.2	4.4
0-8 years,	49.4	52.7	37.2	12.2
9-12 years, no diploma or GED	52.6	55.6	44.3	9.3
High School diploma or GED	59.3	58.5	54.4	4.9
13-15 years, no degree	60.3	62.8	62.3	-2.0
Associate's degree	63.3	65.3	66.0	-2.7
Bachelor's degree	63.5	65.7	67.6	-4.1
Master's or higher degree	59.9	65.0	63.6	-3.7

Source: 2000 Census, 1 percent and 5 percent PUMS files, tabulations by Center for Labor Market Studies.

**FIGURE 50:**

Citizenship Rates Among Massachusetts Foreign-Born Residents 20 and Older by Educational Attainment, 2000 (in percent)

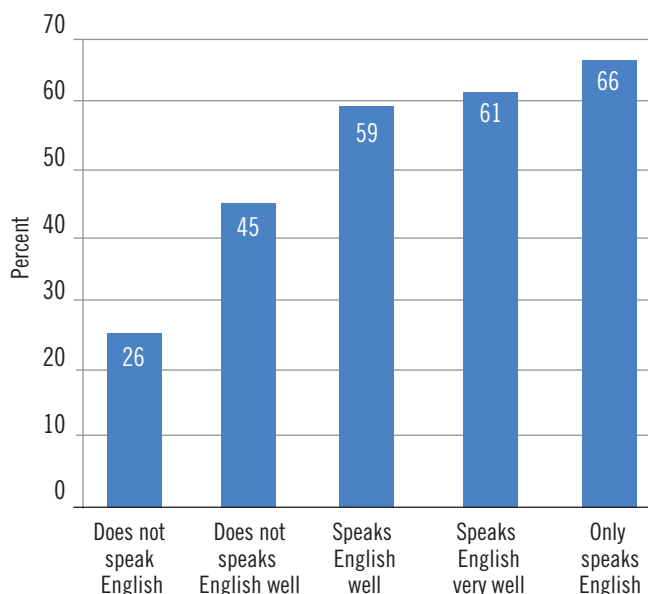


Massachusetts and U.S. adults reveal that Massachusetts immigrants with no post-secondary schooling were more likely to have been citizens than their U.S. counterparts while those with a post-secondary education were less likely to have become citizens, with gaps of 4 percentage points for those with a Bachelor's or higher degree.

Female immigrants in Massachusetts were more likely to have become citizens than their male peers (Table 74). Just

**FIGURE 51:**

Citizenship Rates Among Massachusetts Foreign-Born Residents 20 and Older by English-Speaking Proficiency, 2000 (in percent)



under 60 percent of the foreign-born women in our state were citizens in April 2000 versus 55 percent of the men. Women in each of the seven educational groups appearing in Table 74 were more likely than men to have become citizens, with the gender gaps being largest among those with no post-secondary schooling. Among both immigrant men and women, citizenship rates rose with the level of completed schooling up to the Associate's degree level where they reached

62 and 64 percent for men and women, respectively. Citizenship rates for Associate and Bachelor degree recipients were statistically identical for both men and women in Massachusetts in 2000.

Given the minimum set of English-speaking skills required to pass the citizenship test, one would expect that citizenship rates among immigrants would be positively associated with their English-speaking skills. Findings in Table 75 reveal this to be clearly the case. Citizenship rates among all immigrant adults 20 and older ranged from a low of 26 percent among those who reported they could not speak English to nearly 59 percent for those who spoke English well to a high of nearly 66 percent for those who spoke English very well (Figure 51).<sup>82</sup> Among both men and women, citizenship rates rose strongly and continuously with their English-speaking proficiency. Among women, those who only spoke English were nearly three times as likely to have become citizens as their counterparts who could not speak English (69 percent vs. 27 percent).

The likelihood that adult immigrants became citizens was jointly influenced by their English-speaking skills and their educational attainment (Table 76). In each of the seven educational groups, the percentage share of immigrants who became citizens was lowest among those who could not speak English and highest or tied for highest among those who only spoke English. Combinations of higher levels of English-speaking proficiencies and formal schooling were associated with increasingly higher rates of citizenship among Massachusetts adults immigrants in 2000. For example, the citizenship rate was only 23 percent among those lacking a high school diploma and unable to speak English, rose to 56 percent among high school graduates who spoke English well, increased further to 64 percent among those with an Associate's degree who spoke English very well, and reached a peak of just under 68 percent for those with a Master's degree who only spoke English (Figure 52). The citizenship rate among the last group of immigrants was three times higher than that of the first group.

**TABLE 74:**

Citizenship Rates Among Massachusetts Foreign-Born Residents, 20 Years and Older Who Lived in the U.S. for Five or More Years, by Gender and Educational Attainment, 2000 (in percent)

EDUCATIONAL ATTAINMENT	MEN	WOMEN	WOMEN-MEN
All	55.2	59.9	4.7
0-8 years,	46.8	51.5	4.7
9-12 years, no diploma or GED	49.1	57.7	8.6
High School diploma or GED	55.3	62.6	7.3
13-15 years, no degree	57.6	62.6	5.0
Associates degree	62.2	64.0	1.8
Bachelor's degree	62.8	64.2	1.4
Master's or higher degree	58.5	61.9	3.4

Source: 2000 Census of Population and Housing, 5 percent PUMS files, tabulations by authors.

**TABLE 75:**

Citizenship Rates Among Massachusetts Foreign-Born Residents 20 Years and Older, by English-Speaking Proficiency, Total and by Gender, 2000 (in percent)

ENGLISH-SPEAKING PROFICIENCY	ALL	MEN	WOMEN
Only speaks English	65.6	61.3	69.2
Speaks English very well	61.0	58.2	63.7
Speaks English well	58.6	55.9	61.2
Does not speak English well	45.2	44.0	46.2
Does not speak English	25.7	24.3	26.5

Source: 2000 Census of Population and Housing, 5 percent PUMS files, tabulations by authors.

One might expect that those immigrants who have lived longer in the United States would be more likely to become citizens for a number of reasons. First, the longer immigrants stay in the nation, the better their English-speaking skills become and the more capable they are of passing the citizenship test. Second, the longer an immigrant stays in the U.S., the more one becomes attached to the country and views the

<sup>82</sup> One might ask how immigrants with no self-reported English speaking ability could become citizens, given the limited English skills required to pass the citizenship test. Several explanations are possible. First, many of the immigrants who had no English-speaking ability but were citizens were older than average and, thus, took their citizenship test in earlier years when the test was less demanding. Second, there was a high degree of subjectivity in determining English-speaking skills in past exams. Third, some of the immigrants with no English-speaking ability may be mis-reporting their citizenship status.

**TABLE 76:**

Citizenship Rates Among Massachusetts Foreign-Born Residents, 20 Years and Older by Educational Attainment and English Speaking Proficiency in 2000 (in percent)

EDUCATIONAL ATTAINMENT	ONLY SPEAKS ENGLISH	SPEAKS ENGLISH VERY WELL	SPEAKS ENGLISH WELL	DOES NOT SPEAK ENGLISH WELL	DOES NOT SPEAK ENGLISH
0-8 years	62.7	63.9	61.3	43.7	25.5
9-12 years, no diploma or GED	63.8	55.8	56.8	42.3	23.1
High school diploma or GED	68.4	61.1	55.5	47.0	24.6
1-3 years of college	63.8	60.0	60.6	52.1	28.6
Associate's degree	64.9	64.1	66.2	46.3	23.0
Bachelor's degree	64.5	64.5	63.0	52.5	39.4
Master's or higher degree	67.6	58.7	52.6	47.1	42.0

**TABLE 77:**

Citizenship Rates Among Massachusetts Foreign Born Residents, 20 Year and Older by Length of Stay in the U.S., 2000 (in percent)

LENGTH OF STAY (IN YEARS)	CITIZENSHIP RATE
6-10	26.0
11-15	42.3
16-20	53.3
21-25	67.6
26-30	71.4
31-40	73.8
41-50	87.2
51+	94.0

Source: 2000 Census of Population and Housing, 5 percent PUMS files, tabulations by authors.

U.S. as their new permanent home. As they gain permanent residency, they are more likely to become citizens. Findings of our analysis of citizenship rates of immigrant adults (20+) in Massachusetts by their length of stay in the U.S. are displayed in Table 77. The longer that immigrants have lived in the U.S., the greater was their citizenship rate in 2000. These citizenship rates ranged from a low of 26 percent among those who lived in the U.S. for only 6-10 years to 53 percent for those with 16-20 years of tenure to 74 percent for those

with 31-40 years of tenure, and to a maximum of 94 percent for those who lived in the U.S. for 50 or more years.

To estimate the independent effects of English-speaking abilities, educational attainment, and length of stay in the U.S. on the probabilities of immigrants becoming citizens, we constructed a logit regression model of the citizenship status of adult immigrants 20 and older in Massachusetts at the time of the 2000 Census. The citizenship status of immigrants was regressed against a set of 26 variables representing demographic characteristics of immigrants (gender, age, marital status), their educational attainment, English-speaking proficiencies, timing of arrival in the U.S., and the region of the world from which they migrated.<sup>83</sup> Previous national research on the naturalization process has revealed the importance of schooling, English-speaking proficiency, and marital status/presence of children in the home in raising the probability of an immigrant becoming a citizen.<sup>84</sup> A listing of the dependent and independent variables appearing in the logit regression model of citizenship status is displayed in Table 78.

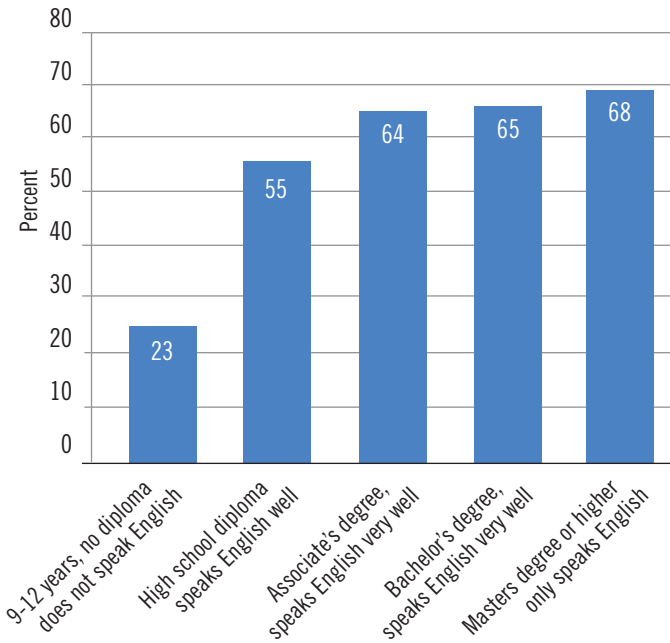
All of the educational variables, two of the three English-speaking proficiency variables, and the two timing of arrival in the U.S. variables were statistically significant, and many of them were quite substantial in size. Immigrants with only a primary school education, holding all other predictor variables constant, were 13 percentage points less likely to have

83 The dependent variable in this regression model is the natural log of the odds of being a U.S. citizen. A logit regression model was used to estimate the coefficients for the predictor variables.

84 See: Philip Q. Yang, "Explaining Immigration Naturalization," *International Migration Review*, 28(3), Fall 1997, pp. 449-477.

**FIGURE 52:**

Citizenship Rates of Massachusetts Immigrants 20 and Older in Selected Educational Attainment/English-Speaking Proficiency Subgroups, 2000 (in percent)



been a citizen than high school graduates (Table 79). Those immigrants with some high school but no diploma were between 8 and 9 percentage points less likely to be citizens than high school graduates. As these immigrants acquired post-secondary schooling, their probability of becoming a U.S. citizen significantly increased, with the exception of those holding a Ph.D. degree. Those immigrants with 1-3 years of college were 7 percentage points more likely to be a citizen than high school graduates while those with Associate, Bachelor, and professional degrees (law, medicine) were 11 to 13 percentage points more likely to do so. A somewhat surprising finding was the estimated negative coefficient for Ph.D. degree holders. Immigrants with Ph.D.s were nearly 7 percentage points less likely to be citizens than their counterparts with only a high school diploma and 19 percentage points less likely to be citizens than either Bachelor or Professional Degree recipients. Only three percent of all adult immigrants in Massachusetts in 2000 had a Ph.D. degree. These individuals may have simply chosen to hold onto their citizenship from their country of birth rather than become a naturalized citizen.

English-speaking proficiencies had significant effects on

**TABLE 78:**

Dependent and Independent Variables Appearing in the Logit Regression Model of the Citizenship Status of Adult Massachusetts Immigrants in 2000

<b>DEPENDENT VARIABLE:</b> The natural log of the odds of being a citizen
<b>PREDICTOR VARIABLE:</b>
Gender [1]
Age group [3]
Educational attainment [8]
English-proficiency [3]
Marital status [2]
Timing of arrival in U.S. [2]
Region of birth [7]

Note: Number in brackets refers to the number of individual variables in this category entered into the model.

the probability of immigrants becoming U.S. citizens, primarily when they had severe English-speaking deficits; i.e., either could not speak English or speak it well. Individuals with such limited English-speaking proficiencies, ceteris paribus, were nearly 20 percentage points less likely to be citizens than their peers who only spoke English. Being able to speak English well or to speak it very well relative to speaking English only had modest negative effects on citizenship, and only the coefficient on the variable “speaks English very well” was statistically significant. The combination of limited formal schooling and weak English-speaking skills had a strong negative effect on the probability of citizenship. An immigrant who lacked a high school diploma and could not speak English well was 28 percentage points less likely to have been a citizen than an otherwise comparable immigrant who had a high school diploma and only spoke English.

Length of stay in the U.S. had a very substantial impact on the probability of citizenship among U.S. immigrants residing in Massachusetts. The base group for this analysis consisted of immigrants who had arrived in the U.S. prior to 1980. Those who arrived between 1990 and 1994 were 46 percentage points less likely to be citizens than the base group while those arriving in the 1980s were 24 percentage points less likely to have been citizens. Longer stays in the U.S. are undoubtedly more highly associated with permanent residency status, which increases the willingness and eligibility of immi-



**TABLE 79:**

Estimated Marginal Increase/Decrease in the Expected Probability of Citizenship Among Adult Immigrants in Massachusetts from Educational Attainment, English-Speaking Proficiency, and Timing of Arrival in U.S.(1)

EDUCATIONAL ATTAINMENT	MARGINAL PROBABILITY CHANGE (IN PERCENTAGE POINTS)
0-8 years	-13.1 **
9-12 years, no diploma	-8.6 **
13-15 years, no degree	+7.4 **
Associate's degree	+10.6 **
Bachelor's degree	+12.7 **
Master's degree	+8.3 **
Professional degree	+12.1 **
Ph.D. degree	-6.6 **
<b>ENGLISH-SPEAKING PROFICIENCY</b>	
Speaks English very well	-2.6 **
Speaks English well	-1.6
Does not speak English well or does not speak at all	-19.2 **
<b>TIMING OF ARRIVAL IN U.S.</b>	
1990 – 94	-46.2 **
1980s	-23.8 **

Note: The base group for the model consists of high school graduates with no college, who only spoke English, and arrived in the U.S. prior to 1980.

grants to apply for U.S. citizenship.

To illustrate the importance of various combinations of demographic, socioeconomic, and human capital traits on the probability of an immigrant being a citizen, we used the findings of the logit regression model to predict probabilities of citizenship for four hypothetical immigrant males (Table 80).<sup>85</sup> The first individual is a 20-34 year old, Central American immigrant with only 10 years of schooling in his own country, who did not speak English well, was not married, and arrived in the U.S. in the 1990s (between 1990 and 1994). Such an individual had a predicted probability of

**TABLE 80:**

Estimated Probability of Citizenship Among Selected Subgroups of Male Immigrants in Massachusetts, 2000

TRAITS OF INDIVIDUAL	EXPECTED PROBABILITY
20-34 years old, 10 years of school, does not speak English well, arrived in U.S. in 1990s, not married, migrated from Central America	.005
35-44 years old, high school graduate, speaks English well, arrived in 1980s, married with children, migrated from Central America	.38
45-54 years old, Bachelor's degree, speaks English very well, arrived in 1980s, married with children, migrated from Central America	.57
55-64 years old, Master's degree speaks English very well, arrived before 1980, married no children, migrated from Asia	.92

being a citizen of less than one percent. Our second Central American immigrant is somewhat older than the first immigrant (35-44), graduated from high school, spoke English well, was married with at least one child under 18, and arrived in the U.S. in the 1980s.<sup>86</sup> The predicted probability of citizenship for this second individual was 38 percent.

Increased schooling, higher English-speaking proficiencies, and being older adds to the expected likelihood of becoming a citizen. Our third hypothetical individual was older (45-54) than our second one, held a bachelor's degree, and spoke English very well. This person had a 57 percent predicted probability of being a citizen. If the male immigrant were 55-64 years of age, held a Master's degree, arrived in the U.S. before 1980, and immigrated from Asia rather than Central America, the predicted probability of citizenship would rise to 92 percent.<sup>87</sup> This last individual's probability of being a U.S. citizen was 184 times higher than that of our first hypothetical immigrant, indicating the extraordinarily large combined impacts of age, education, English-speaking ability, marital status, and timing of arrival in the U.S. on the likelihood of an immigrant becoming a U.S. citizen.

85 The coefficient of the male variable in the regression model was negative and statistically significant. The marginal impact of being a male on the probability of citizenship evaluated at the means for all other predictor variables was -3 percentage points.

86 Immigrants who were married with children had a 10 percentage point higher predicted probability of citizenship in comparison to those who were single, separated, or divorced.

## SUMMARY OF KEY FINDINGS

A summary of key research findings presented in this report and their public policy implications is presented below:

(i) New inflows of foreign immigrants into the state during the 1980s, the decade of the 1990s, and the first three years of the current decade have generated all of the net growth in the state's population. In 2003, slightly over 13 percent of the state's resident population was estimated to be foreign-born, up from 9 percent in 1980. Population projections of the U.S. Census Bureau through 2010 clearly indicate that the state will be dependent on foreign immigration for all of its population growth over the remainder of the current decade. The impact of the foreign-born population on the state's overall population is even greater than the above 13 percent estimate suggests since it excludes all of the native-born children of immigrant parents. In 2000, there were approximately 175,600 children ages 10 and under in Massachusetts who were born in the United States—but whose mother and/or fathers were foreign-born.<sup>88</sup>

(ii) The geographic distribution of immigrants across Massachusetts remains quite varied. Immigrants are much more likely to live in Eastern Massachusetts rather than on Cape Cod, in Central Massachusetts or the Western region with the exception of the Springfield/Chicopee area. Suffolk County's population contains the highest percentage share of immigrants in the state while the lowest incidence of immigrants in the resident population is found in Berkshire County. In 2000, Suffolk County was home for nearly one-fourth of all immigrants in the state even though it contained only 11 percent of the state's entire population. Immigrants also remain heavily over-represented in the state's central cities and in most of its 20 most populous cities whose population growth during the 1990s was overwhelmingly dependent on new foreign immigration. This geographic concentration of immigrants needs to be recognized by state policymakers, workforce development agencies, and educational agencies, especially adult basic education agencies, in determining the future allocation of monies for ESL programs for elementary

and secondary students and adults.

(iii) The immigrant population of Massachusetts, especially those who have come to the state since 1990, is very heterogeneous in terms of their national origins, their educational attainment, and their English-speaking proficiencies. The vast majority of new immigrants since 1990 have come from countries where English is not the official language. The educational attainment backgrounds and English-speaking proficiencies of immigrants from the countries sending the largest number of immigrants since 1990 are very diverse, with Asian, Canadian, and European immigrants often being well-educated and frequently possessing strong English-proficiencies while those from the Caribbean, Central America, and South America frequently lacked high school diplomas from their home countries and had limited English-speaking proficiencies. Limited educational attainment and weak English-speaking proficiencies among recent immigrants frequently went hand in hand.

(iv) A very high fraction (70 percent) of the state's adult immigrant population (20–64 years old) in 2000 experienced at least one of three educational deficits: the absence of a high school diploma/GED, limited English-speaking proficiencies, or relatively weak English-language literacy and numeracy skills. The total number of immigrants facing one or more of these challenges (468,000) vastly exceeds the numbers of foreign-born adults served annually by the state's adult basic education and work force development programs in any recent year.

(v) The English-speaking proficiencies and formal educational attainment of adult immigrants were strongly associated with their labor force participation rates, unemployment rates, and employment rates at the time of the 2000 Census. Even adult immigrants with high levels of educational attainment (bachelor degrees or higher) but limited English-speaking proficiencies were much less likely to be active labor force participants and to be employed at the time of the 2000 Census. Strengthening the English-speaking proficiencies of adult immigrants at all levels of schooling

87 A major part of the increase in the expected probability of citizenship for this person was attributable to their earlier arrival in the U.S. Being from Asia rather than Central America added 10 percentage points to the probability of being a citizen. In the model, Asian immigrants (*ceteris paribus*) were more likely to have become naturalized citizens than those of any other country. European immigrants were the base group for the analysis.

88 See: Andrew Sum, Ishwar Khatriwada, et al., *The New Great Wave: Foreign Immigration in Massachusetts and the U.S.*

could contribute to an increase in the future size of the state's resident labor force and its employed population. There is, however, a need for more rigorous and comprehensive evaluations of the impacts of adult basic education and workforce development programs on the labor market behavior and earnings of immigrants.

(vi) The educational attainment and English-speaking proficiencies of adult immigrants also were found to be positively and strongly related to their ability to secure access to high skilled professional, technical, and management-related occupations, to the intensity of their annual work effort, and their annual earnings from employment during 1999. These human capital investments were found to have strong, independent, statistically significant impacts on the employment and earnings of immigrants.

(vii) The incidence of poverty and low income problems among the state's adult immigrant population was closely linked to their educational attainment and English-speaking proficiencies. The ability of adult immigrants to obtain annual incomes that would secure them a middle class standard of living was also strongly associated with their human capital traits. Immigrant adults faced poverty problems well above those of the native-born. The ability of existing workforce development and educational programs to reduce poverty and other low income problems among the state's immigrants needs to be more carefully assessed. Many of the state's existing workforce development, adult basic education, and post-secondary education programs provide little information on services to immigrants, the types and intensity of services provided, or the outcomes of such services.

(viii) The English-speaking proficiencies of young adult immigrants (16-24 years old) were found to be strongly associated with their educational attainment and school enrollment behavior. Young immigrants with limited English-speaking proficiencies were much more likely to have left high school without obtaining a diploma and much less likely to be attending college than their counterparts with stronger English-speaking proficiencies. Adult immigrants (20-64)

without a diploma and with severe English-speaking deficits were far less likely to have been attending school in 2000 than their peers with stronger English-speaking proficiencies and some post-secondary schooling. The Matthew effect ("human capital begets more human capital") appears to have held true for adult immigrants in the state in 2000.

(ix) The likelihood of an adult immigrant (20 and older) having obtained U.S. citizenship by 2000 was found to be strongly associated with her/her educational attainment and English-speaking proficiencies as well as length of stay in the U.S. National research also has revealed that strong literacy and numeracy proficiencies are positively associated with the civic behavior of immigrants. The ability of citizenship training activities, including those funded under the ABE system, to bolster the willingness and ability of immigrants to become citizens needs to be more carefully evaluated. New approaches for boosting citizenship rates should be implemented.

(x) The state's immigrant population contains a fairly sizable number of undocumented immigrants. Estimates of the size of the undocumented population of the state range from a low of 87,000 to more than 175,000.<sup>89</sup> There is a fair degree of uncertainty about the true size of this undocumented immigrant population, but based on past evidence on the traits of the undocumented many of them will be young (under 30), poorly educated, and lack a strong base of English-speaking skills. Although the hiring of undocumented workers is illegal under national labor law, the absence of any effective national/state enforcement mechanism increases employers' willingness to hire them. The undocumented immigrant population increases the supply of low skilled workers, thereby depressing the wages of both native-born and established legal immigrants in these same jobs.<sup>90</sup> The absence of any legal status reduces the willingness of these undocumented immigrants to voluntarily seek assistance from health, education, and training agencies, thereby preventing them from acquiring the types of skills and health care that would strengthen their longer-term employability and earnings. Even some of the children of these undocumented immigrants will face

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89 Estimates of the size of the undocumented population in the U.S. by Jeffrey Passel suggest that there were 9.3 million such persons in the U.S. in March 2002 with 175,000 living in Massachusetts. See: Jeffrey Passel, "Undocumented Immigrants: Facts and Figure," The Urban Institute, Washington, D.C., 2004.

90 See: George J. Borjas, "Increasing the Supply of Labor Through Immigration: Measuring the Impact on Native-Born Workers," Center for Immigration Studies, Washington, D.C., May 2004.

substantive barriers in improving their own human capital since their inability to provide evidence of their legal status restricts their access to post-secondary educational programs even when they have the academic qualifications to gain entry. Several national and state efforts have been made to provide such youth with the right to attend college and work legally in the U.S. provided they have been living in the U.S. for more than five years and graduate from high school.<sup>91</sup>

(xi) There is a clear and overwhelming need for state and local agencies providing education, employment and training, unemployment insurance, health, and housing assistance services to residents of the state to more systematically track information on the nativity and citizenship status of applicants, the countries of origin of immigrants, and the timing of their arrival in the U.S. Most of the available data bases on the pool of immigrants being served, their characteristics, the types of services received, and the outcomes of such services are quite deficient, with most key data systems failing to collect or to report such data. A State and Local Task Force on Immigrants in Massachusetts should be established to identify the changes in procedures needed to improve the quality of the existing information systems in this critical public policy area.

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91 This bipartisan bill The Development, Relief, and Education for Alien Minors (Dream) Act has been sponsored in the U.S. Senate by Senator Orrin Hatch and Senator Edward Kennedy among others. A House version of the bill was introduced in April 2003 by Representative Chris Cannon (Rep. Utah) with 15 Democratic and Republic co-sponsors.

## APPENDIX A:

### Comparisons of the English-Speaking Proficiencies and Educational Attainment of the “Truly Foreign-Born” Population (20+) in Massachusetts with those Immigrants Born in the Outlying U.S. Island Territories

The definition of the “foreign-born” in this study includes persons born in one of the outlying island territories of the U.S. as well as those born abroad. The outlying island territories include Puerto Rico, the U.S. Virgin Islands, Guam, and the Marianas, but the vast majority of the immigrants from the island territories who were residing in Massachusetts at the time of the 2000 Census were from Puerto Rico.<sup>92</sup> In the text of this monograph, we argued that our decision to include those persons born in the island territories as members of the foreign-born population was partly based on comparisons of the demographic and socioeconomic characteristics of these two groups. In this Appendix, we will compare the English-speaking proficiencies and formal educational backgrounds of those persons 20 and older who were born in one of the outlying island territories and in foreign countries.

The percentage distributions of persons 20 and older born in one of the U.S. island territories and in foreign nations by English-speaking proficiency are displayed in Table 1 and Figure 1. The adult immigrant population from foreign nations (the “truly foreign-born”) actually had modestly better English-speaking proficiencies than those immigrants who had been born in one of the outlying island territories. For example, while 22 percent of the immigrants from foreign nations reported that they only spoke English, only 10 percent of those born in one of the outlying island territories did so. At the other end of the proficiency spectrum, nearly 28 percent of those born in one of the outlying territories reported that they either could not speak English well or did not speak English at all versus only 21 percent of those who were born in a foreign nation.

The percentage distributions of the two immigrant groups by their educational attainment in April 2000 are presented in Table 2 and Figure 2. Those adult immigrants born in foreign nations were markedly better educated than their peers who were born in one of the U.S. island territories. While

**TABLE 1:**

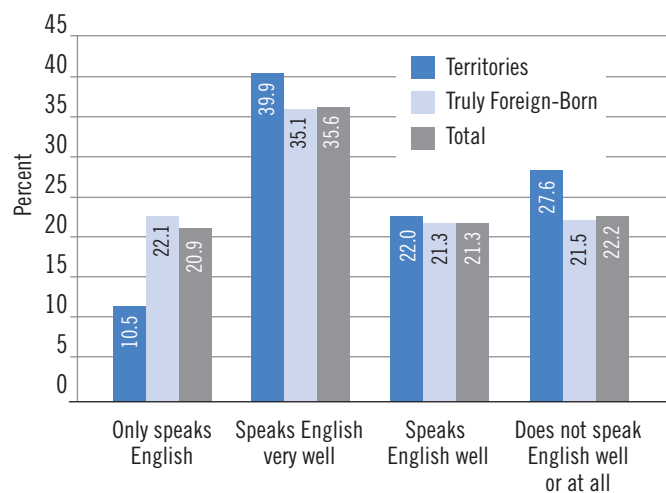
The Percentage Distribution of Massachusetts Residents, 20 Years and Older, Who Were Truly Foreign-Born and Born in One of the U.S. Territories by English-Speaking Ability, 2000

ENGLISH-SPEAKING PROFICIENCY	U.S. TERRITORIES	TRULY FOREIGN-BORN	TOTAL
Only speaks English	10.5	22.1	20.9
Speaks English very well	39.9	35.1	35.6
Speaks English well	22.0	21.3	21.3
Does not speak English well or does not speak English at all	27.6	21.5	22.2

Source: 2000 Census, PUMS data files, tabulations by Center for Labor Market Studies.

**FIGURE 1:**

Percentage Distribution of Massachusetts Resident, 20 Years and Older, Who Were Truly Foreign-Born and Born in One of the U.S. Territories by English-Speaking Ability



nearly one-half of those born in the U.S. island territories lacked a high school diploma, only 30 percent of those born in foreign nations did so. Thirty-one percent of the truly foreign-born held a bachelor’s or more advanced academic degree versus fewer than 8 percent of those born in one of the U.S. island territories. As was true of findings for earlier time periods (1990), the immigrants from the island territories had human capital characteristics more in common with

92 Over 95 percent of the immigrant population in Massachusetts in 2000 from the island territories were born in Puerto Rico.

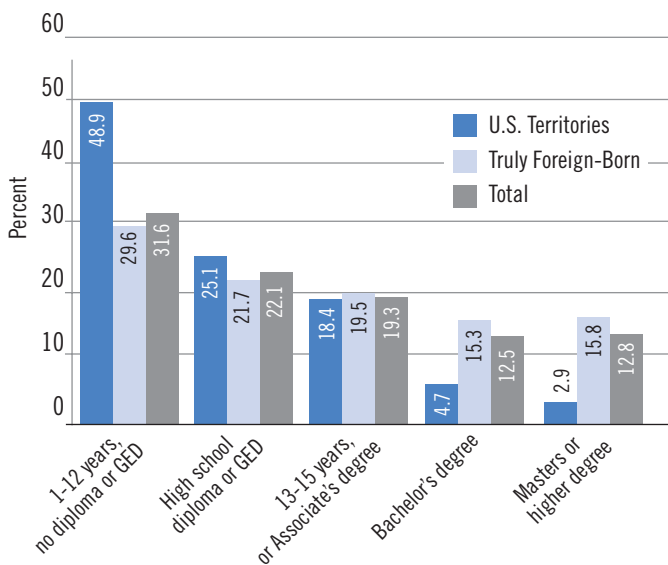
**TABLE 2:**

The Percentage Distribution of Massachusetts Residents, 20 Years and Older, Who Were Truly Foreign-Born and Born in One of the U.S. Territories by Educational Attainment, 2000

EDUCATIONAL ATTAINMENT	U.S. TERRITORIES	TRULY FOREIGN-BORN	TOTAL
1-12 years, no diploma or GED	48.9	29.6	31.6
High school diploma or GED	25.1	21.7	22.1
13-15 years or Associate degree	18.4	19.5	19.3
Bachelor's degree	4.7	15.3	12.5
Master's or higher degree	2.9	15.8	12.8

**FIGURE 2:**

Percentage Distribution of Massachusetts Residents, 20 Years and Older, Who Were Truly Foreign-Born and Born in One of the U. S. Territories by Educational Attainment



those of immigrants from Central and South America than with immigrants from Canada, Europe, and Asia.<sup>93</sup>

Findings on the distribution of the English-speaking proficiencies of immigrants from the island territories within each educational attainment group are presented in Table 3.

The likelihood that such immigrants had a severe English-speaking deficit was strongly associated with their level of educational attainment. Among those lacking a high school diploma, nearly 3 of 8 also had a severe English-speaking deficit; i.e., they either could not speak English or could not speak it well. Slightly over one-fourth of these immigrants from the island territories with a high school diploma also had a severe English-speaking deficit, and one half of them had a modest or severe English-speaking deficit. In contrast, only 2 to 3 percent of the immigrants from the island territories with a bachelor's or more advanced academic degree had a severe English-speaking deficit, and only about one-fifth of them had a modest to severe English-speaking deficit. As was illustrated in the sections on the employment and annual earnings experiences of immigrants, the existence of severe to modest English-speaking deficits among college educated immigrants significantly reduced their access to high skilled professional, managerial, and technical occupations and their annual earnings potential.

## APPENDIX B:

### Estimates of the Number of Massachusetts Immigrants 20-64 Years Old With a Literacy Skills Deficit in 2000

In the MassINC policy monograph on adult basic education titled *New Skills for A New Economy*, estimates were made of the unduplicated number of state residents 16-64 years old who faced a moderate or severe language barrier, lacked a high school diploma, or lacked sufficient literacy skills.<sup>94</sup> In the text of this monograph we made estimates of the following three similar challenges:

- Left high school without obtaining a regular diploma and does not hold a GED certificate or other high school equivalency degree
- Was an immigrant who had a severe English-speaking deficiency
- Was a high school graduate but did not possess a Level 3 literacy proficiency on the NALS literacy scale

93 See: Andrew M. Sum, W. Neal Fogg, et. al., *The Changing Workforce: Immigrants and the New Economy in Massachusetts*, Massachusetts Institute for A New Commonwealth and Citizens Bank, Boston, 1999.

94 See: John Comings, Andrew Sum, Johan Uvin, et. al., *New Skills for A New Economy*, Massachusetts Institute for A New Commonwealth, Boston, 2000.



**TABLE 1:**

Estimated Percent of 16-64 Year Old Immigrants Who Lacked a Level 3 Composite Literacy Proficiency by Years of Schooling Completed, U.S.: 1994

EDUCATIONAL ATTAINMENT	PERCENT BELOW LEVEL 3
Less than 12 years, no diploma	95.8
High school diploma, GED	77.0
1-3 years of college, including Associate's Degree	61.1
Bachelor's degree	60.1
Master's or higher degree	26.5
All	71.2

Source: International Adult Literacy Survey, tabulations by ETS.

Estimates of the number of immigrants lacking a high school diploma and those with a severe English-speaking deficit were made with the use of the PUMS data from the 2000 Census of Population and Housing. The long form questionnaire collected data on respondents that allowed us to estimate the size of these two groups. Unduplicated counts of these two groups were obtained by identifying the number of immigrant dropouts with a severe English-speaking deficit and subtracting this group of dropouts from the estimated number of immigrants with a severe English-speaking deficit to avoid double counting.

Some of the immigrants who graduated from high school (or obtained a GED) and reported that they either only spoke English or spoke English very well will have a literacy deficit, i.e., an inability to achieve a Level 3 or higher proficiency score on a national literacy assessment similar to the NALS or IALS assessments.<sup>95</sup> At this time, we do not have an independent assessment of the literacy proficiencies of the state's adult immigrant population.<sup>96</sup> We developed a methodology to estimate the likely number of 20-64 year old immigrants in Massachusetts with a literacy proficiency below Level 3

based on the findings of the International Adult Literacy Survey (IALS) that was conducted in the United States during 1994.

The estimated fractions of U.S. immigrants ages 16-64 with only a Level 1 or 2 composite literacy proficiency in each of five educational attainment categories are displayed in Table 1.<sup>97</sup> Overall, 71 percent of all immigrants in the U.S. were estimated to fall below a Level 3 composite proficiency, a ratio well above the 42 percent share for native-born adults. The share of immigrant adults in the U.S. who failed to achieve a Level 3 or higher proficiency on the IALS assessment varied widely across educational attainment groups. Nearly 96 of every 100 immigrants who lacked a high school diploma obtained a literacy score below Level 3 as did 77 percent of those with only a high school diploma (Table 1). The fraction of immigrant adults failing to achieve a Level 3 proficiency fell to 60 percent for those with a bachelor's degree and to 26 percent for those with a Master's or higher degree.

Our next step was to obtain an unduplicated count of the number of immigrant adults with a Level 1 or Level 2 composite proficiency. To prevent any double counting of high school dropouts, we eliminated all immigrant dropouts from the analysis since they would automatically be included under the educational challenge. To prevent any double counting of immigrants with a severe English-speaking deficit, we made the following assumptions and calculations:

- We assumed that the percentage share of adult immigrants in Massachusetts with a Level 1 or Level 2 proficiency in each of four educational subgroups would be the same as it was nationally at the time of the IALS assessment in 1994. These percentage shares of immigrants unable to obtain a Level 3 or higher literacy proficiency are displayed under Column B of Table 2.
- We assumed that any adult immigrant with a severe English-speaking deficit would have failed to achieve a Level

95 For a review of the purposes, content, and design features of these two national literacy assessments, See: Andrew Sum, Irwin Kirsch, and Kentaro Yamamoto, *A Human Capital Concern: The Literacy Skills of U.S. Immigrants*, Center for Global Assessment, Educational Testing Service, Princeton, 2004.

96 The state of Massachusetts is currently participating in the new national literacy assessment being conducted by the American Institute for Research and Westat for the U.S. Department of Education. Literacy scores for a small subset of immigrant adults will be available from this national assessment in 2005, but small sample sizes will preclude any detailed analysis.

97 The IALS assessment provided estimates of the proficiencies of adults on three literacy scales: prose, document, and quantitative. The composite score is simply the average of the scaled scores on the three literacy scales.

**TABLE 2:**

Estimating the Number of 20-64 Year Old Immigrants in Massachusetts With No English-Speaking Challenge but with a Composite Proficiency Skills Deficit by Educational Attainment, 2000

	(A)	(B)	(C)	(D)	(E)
EDUCATIONAL ATTAINMENT	NUMBER IN GROUP	PERCENT WITH A LITERACY DEFICIT	PERCENT WITH AN ENGLISH SPEAKING DEFICIT	COL. B-COL. C	COL. D * A
High school graduate, no college	146,233	77.0	19.9	57.1	83,432
1-3 years college, including Associate's degree	128,927	61.1	10.1	51.0	65,725
Bachelor's degree	99,913	60.1	7.6	52.5	52,463
Master's or higher degree	91,437	26.5	4.2	22.3	20,366
Total	466,500	59.1	11.5	47.6	221,986

**TABLE 3:**

The Percentage Distribution of Massachusetts Residents, 20 Years and Older, Who Were Born in One of the U.S. Territories by English Speaking Proficiency Groups and by Educational Attainment, 2000

EDUCATIONAL ATTAINMENT	ONLY SPEAKS ENGLISH	SPEAKS ENGLISH VERY WELL	SPEAKS ENGLISH WELL	DOES NOT SPEAK ENGLISH WELL OR DOES NOT SPEAK IT AT ALL
1-12 years, no diploma or GED	10.0	30.8	21.9	36.5
High school diploma or GED	7.2	43.5	23.9	25.5
13-15 years, Associate degree	12.0	50.8	19.6	17.5
Bachelors degree	19.9	62.4	15.2	2.5
Masters or higher degree	21.5	54.7	21.5	2.3

Source: 2000 Census, PUMS data files, tabulations by Center for Labor Market Studies.

3 or higher composite literacy score. This assumption allows us to subtract the percent of Massachusetts immigrants with a severe English-speaking deficit from the estimated percent of immigrants with a Level 1 or Level 2 composite proficiency in each educational subgroup. The results of the subtraction for these two percentage shares for each educational attainment category are displayed under Column D of Table 2. By multiplying the percent values under Column D by the number of Massachusetts' immigrant adults in each educational attainment category, we can obtain estimates of the unduplicated number of immigrant adults with a literacy deficit.

The total number of immigrants with a literacy deficit (but no educational attainment or English-speaking problem) was estimated to be 221,986 (last row of Column E). When this group of immigrants is added to those who experienced

either an educational or language-speaking deficit, a combined total of 467,000 immigrants ages 20-64 are found to have one of the following three educational problems: lack of a high school diploma, severe English-speaking problems, or a limited literacy proficiency. This combined group was equivalent to slightly more than 7 of every 10 adult, non-elderly immigrants in the state as of April 2000. The presence of such a large pool of immigrants with human capital deficits poses a formidable challenge to the state's adult basic education and workforce development network.

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