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*Policy Information Report*

# **A Human Capital Concern:**

## *The Literacy Proficiency of U.S. Immigrants*

Research &  
Development  
Policy Information  
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This monograph is the second in a series designed to take the vast amount of background and assessment information that has been collected from the National Adult Literacy Survey (NALS) and the International Adult Literacy Survey (IALS) and produce a set of papers that deal with topics of interest and importance to a range of constituencies. The first report, *The Twin Challenges of Mediocrity and Inequality: Literacy in the U.S. from an International Perspective*, focused on the literacy performance of U.S. adults in comparison to adults in other high-income countries. The report underscored the fact that our overall performance is mediocre at best and that as a nation we are among the world's leaders in the degree of inequality between our best and poorest performers.<sup>1</sup>

This second report helps us to understand these performance patterns in greater depth by focusing on the literacy proficiencies of the nation's immigrant population. The authors characterize the literacy proficiencies of our nation's foreign born and compare their performance not only with adults born in the U.S. but with their foreign-born counterparts in other high-income countries around the world. This information comes at an important time in our nation's history. New immigration reached historically high levels during the decade of the 1990s, with between 13 and 14 million new immigrants arriving on our shores. These individuals accounted for more than 40% of our nation's population growth over this most recent decade. High levels of immigration are projected for the current decade as well.

The rising share of our nation's population that is foreign born and their increasing diversity in terms of their national origins, their native languages, and their educational experiences challenge us to better understand their English-language proficiencies so that we can better serve them and our nation in the future. Among the findings reported here are the following:

- A majority of our nation's 16-65 year old foreign born demonstrate proficiencies in the lowest literacy level (Level 1) on each of the NALS and IALS literacy scales while fewer than 10% performed in Levels 4 or 5, the highest two literacy levels.

- The average literacy proficiency of the nation's immigrant population is considerably below that of their native born peers in the U.S. and their foreign born counterparts in most other high-income countries that participated in the IALS assessment. And, although literacy of the nation's foreign born is positively associated with educational attainment, language first learned as a child, and years spent learning English, the gaps between the proficiencies of the native and foreign born exist at every educational level.
- The literacy proficiency of the nation's immigrant populations is strongly associated with their labor market behaviors and outcomes. More literate immigrant adults are more likely to be actively participating in the labor force, to find work when they do enter the labor market, to gain access to more highly skilled jobs, and to earn far more per week and per year than their less literate counterparts in the U.S. More years of formal education, stronger English-speaking skills, and more proficient literacy skills significantly raise the earnings of immigrant adults.
- In terms of lifelong learning, we see that the more literate immigrant adults are also more likely to be enrolled in education and training programs, to visit public libraries, to participate in civic and community affairs, and to keep abreast of public affairs.

Throughout our history, we have seen both intense debates about immigration policies and practices, as well as the indisputable impact that immigration has had on the course of our country's development. These debates are likely to continue as the current wave of immigration brings both a large group of individuals with low literacy skills and limited employment potential at the same time other segments of the immigrant population are filling our most selective and highly skilled employment fields. Going forward, we need to consider how immigration policies relate to high school graduation rates, overall literacy rates, quality improvements in our labor force, and reductions in wage and income inequalities.

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<sup>1</sup> Andrew Sum, Irwin Kirsch, and Robert Taggart, *The Twin Challenges of Mediocrity and Inequality: Literacy in the U.S. from an International Perspective*, Policy Information Center, Center for Global Assessment, Educational Testing Service, 2002. ([www.ets.org/research/pic/twinchall.pdf](http://www.ets.org/research/pic/twinchall.pdf))

This report provides valuable information that should help inform such deliberations. However, this study raises significant questions that need to be explored in the future. For example, the impact of immigration must be considered over time. What are the literacy patterns of the children and grandchildren of immigrants in succeeding generations? Also, immigrants and their entering literacy skills are widely disparate. How should we disaggregate immigration data to best inform policy decisions?

What is clear is that the majority of the immigrant population is lacking literacy skills sufficient to be successful in this society. A spirited national debate is needed about how best to boost the human capital skills of existing immigrant populations as well as about some of our current immigration policies. As a nation, we need to invest more in those individuals we allow to immigrate into the U.S. so that they are better assimilated into our schools, labor markets, and social institutions.

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## Executive Summary

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Findings from two national literacy assessments — the National Adult Literacy Survey and the International Adult Literacy Survey — have been used to produce comprehensive profiles of the literacy proficiencies of the U.S. and international adult populations. Reports have also been published on selected subgroups in the U.S., including the older population, the federal and state inmate population, and the labor force.

During the 1990s, a record number of new foreign immigrants (13.7 million) came to the U.S., generating more than 40% of the nation's resident population growth over the decade. As the foreign-born share of the population rises, knowledge of the literacy proficiencies of this population group becomes indispensable for interpreting the overall literacy performance of the nation's adults, trends in the literacy proficiencies of the U.S. population over time, and the potential need for public policies to address existing English literacy and educational deficits among this group.

This report profiles the prose, document, quantitative, and composite literacy proficiencies of the nation's immigrant adults in the 1990s and describes the labor market and social consequences of the results. A brief summary of the major findings is presented here. A more complete summary of the findings and an assessment of their implications for public policy are provided at the end of the report.

- The average literacy proficiency of the nation's adult immigrants is low, falling well below the averages for all U.S. adults. A majority of the immigrant population falls into the lowest proficiency level.
- The average literacy proficiency of immigrants increases with level of education, number of years learning English, and length of stay in the U.S.
- U.S. immigrants had lower average proficiency than immigrants in other higher-income countries even when the level of education is considered.
- Immigrants with higher literacy proficiencies had better labor market outcomes and wages and were less likely to be poor and need government support.
- Immigrants with higher literacy proficiencies were more likely to be involved civically and politically, and more likely to be enrolled in education programs.

During the past decade, an increasing number of empirical studies by economists, educational researchers, and other social scientists have documented the critical importance of human capital for the economic and social success of individual workers, their families, regional economies, and nations.<sup>2</sup> As Gary Becker, a Nobel Prize winner in economics and a pioneer in the development of human capital theory recently noted: “This is the ‘age of human capital’ in the sense that human capital is by far the most important form of capital in modern economies.”<sup>3</sup>

There are a variety of human capital investments that make up the human capital stock of society, including the literacy and numeracy proficiencies of its population, formal and informal schooling, vocational/technical/professional training, health, work attitudes, and work experience. The literacy skills of individuals influence a wide variety of outcomes, including educational attainment, employability, earnings, health, and civic behavior.<sup>4</sup> Given their importance, during the 1990s, two major national assessments of the literacy proficiencies of a representative sample of the

U.S. adult population were undertaken.<sup>5</sup> The first of these was the National Adult Literacy Survey (NALS), which was conducted during 1992 by Educational Testing Service for the U.S. Department of Education. The second was the International Adult Literacy Survey (IALS), which was administered in 23 countries around the world, including the U.S., over the 1994-98 period.

Findings of these two national literacy assessments have been used to produce comprehensive profiles of the literacy proficiencies of the U.S. adult population and selected demographic and socioeconomic subgroups, including comparisons with the literacy skills of adults in other countries.<sup>6</sup> Separate reports also were prepared on the literacy proficiencies of the nation’s older population (65 and older) and the federal and state inmate population.<sup>7</sup> Other monographs have analyzed the literacy proficiencies of the nation’s labor force and the links between the literacy skills of workers and their employability, weeks and hours of employment, occupational attachment, and weekly and annual earnings.<sup>8</sup>

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<sup>2</sup> See: (i) Robert J. Barro, “Education as a Determinant of Economic Growth,” in *Education in the Twenty-First Century*, Hoover Institution Press, Stanford University, 2002, pp. 9-24; (ii) Eric A. Hanushek, “The Importance of School Quality,” in *Our Schools and Our Future: Are We Still at Risk?* (Editor: Paul E. Peterson), Hoover Institution Press, Stanford University, 2003, pp. 141-176; (iii) Richard J. Murnane and Frank Levy, *Teaching the New Basic Skills*, The Free Press, New York, 1996; (iv) Susan Mayer and Paul E. Peterson (Editors), *Earning and Learning: How Schools Matter*, The Brookings Institution, Washington, D.C., 1999; (v) Organisation for Economic Cooperation and Development, *The Well-Being of Nations: The Role of Human and Social Capital*, Paris, 2001.

<sup>3</sup> See: Gary S. Becker, “The Age of Human Capital,” in *Education in the Twenty-First Century* (Editor: Edward P. Lazear), Hoover Institution Press, Stanford University, 2002, p. 3.

<sup>4</sup> For a review of links between literacy and health outcomes, See: Rima Rudd, B.A. Moeykens and T.C. Colton, “Health and Literacy: A Review of the Medical and Public Health Literature,” in *The Annual Review of Adult Learning and Literacy* (Editor: John P. Comings et al.), Jossey-Bass Publishers, San Francisco, 1999.

<sup>5</sup> For an interpretation of the literacy scales and performance on the NALS assessment, See: Paul E. Barton, *Becoming Literate About Literacy*, Policy Information Center, Educational Testing Service, Princeton, 1994.

<sup>6</sup> See: (i) Irwin S. Kirsch, Ann Jungeblut, Lynn Jenkins, and Andrew Kolstad, *Adult Literacy in America*, U.S. Department of Education, Washington, D.C., 1993; (ii) Andrew Sum, Irwin Kirsch, and Robert Taggart, *The Twin Challenges of Mediocrity and Inequality: Literacy in the U.S. from an International Perspective*, Policy Information Center, Center for Global Assessment, Educational Testing Service, Princeton, 2002. Comparisons of the literacy proficiencies of the U.S. adult population with those of the other 22 countries participating in the IALS assessment are presented in the following two volumes: (i) Organisation for Economic Cooperation and Development and Statistics Canada, *Literacy in the Information Age: Final Report of the International Adult Literacy Survey*, Ottawa, Canada, 2000; (ii) Albert Tuijnman, *Benchmarking Adult Literacy in America: An International Comparative Study*, Division of Adult Education and Literacy, Office of Vocational and Adult Education, U.S. Department of Education, Washington, D.C., September 2000.

<sup>7</sup> See: (i) Helen Brown, Robert Prisuta, Bella Jacobs, and Anne Campbell, *Literacy of Older Adults in America*, National Center for Education Statistics, Washington, D.C., 1995; (ii) Karl O. Haigler, Caroline Harlow, Patricia O’Connor, and Anne Campbell, *Literacy Behind Prison Walls: Profiles of the Prison Population for the National Adult Literacy Survey*, National Center for Education Statistics, U.S. Department of Education, Washington, D.C., 1994.

<sup>8</sup> See: (i) Andrew Sum, *Literacy in the Labor Force*, National Center for Education Statistics, Washington, D.C., 1999; (ii) 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, 2000.

One demographic group in the U.S. whose literacy skills deserve special consideration is the nation's foreign-born population. Over the past few decades, there has been a substantial influx of new foreign immigrants into the U.S. During the 1990s, a record number of new foreign immigrants (13.7 million) came to the U.S., generating more than 40% of the nation's resident population growth over the decade.<sup>9</sup> As the foreign-born share of the population has risen and is projected to do so over the coming decade, knowledge of the literacy proficiencies of this population group becomes indispensable for interpreting the overall literacy performance of the nation's adults, trends in the literacy proficiencies of the U.S. population over time, and the potential need for public policies to address existing English literacy and educational deficits among this group. This monograph is devoted to a description and analysis of the literacy proficiencies of the nation's immigrant adults in the 1990s based on

the findings of the 1992 National Adult Literacy Survey and the 1994 International Adult Literacy Survey.

For both the NALS and IALS surveys, nationally representative samples of adults in the U.S. were asked to complete a background questionnaire and perform a variety of literacy tasks designed to assess their prose, document, and quantitative proficiencies. (Further details about the surveys are provided later in this report.) One of the background questions asked respondents whether they were born in the U.S. or another country. In the IALS survey, about 13% of adults 16-65 years of age who answered this question (representing approximately 19,871,000 adults nationwide) reported that they were born outside the U.S. or one of its territories while 87% of the respondents (representing about 136,922,000 adults nationwide) were native born. The remainder (representing about 3.5 million adults) did not answer this question.

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<sup>9</sup> The foreign immigrant estimates include persons who migrated to the U.S. from Puerto Rico, the U.S. Virgin Islands, and other outlying territories of the U.S., See: Andrew Sum, Ishwar Khatiwada, Nathan Pond, and Jacqui Motroni, *The New Great Wave: Foreign Immigration in the U.S. and Massachusetts During the Decade of the 1990s*, Paper Prepared by the Center for Labor Market Studies, Northeastern University, for the Teresa and H. John Heinz III Foundation, Washington, D.C., 2002.

## **Overview of the Contents of the Monograph**

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This monograph provides a comprehensive description and analysis of the literacy proficiencies of the adult immigrant population (16-65 years old) in the U.S. in recent years and assesses their implications for the labor force behavior, employment, earnings, incomes, and civic behavior of the immigrant population. The first section will present a brief overview of the unprecedented increase in the nation's immigrant population over the past decade and its impact on the growth of the nation's resident population and civilian labor force. Some of the educational and English-speaking deficits of these new immigrants will be briefly reviewed.

The second section will describe and assess the literacy performance of the nation's immigrant population on each of the four literacy scales, compare their performance to that of the nation's native-born population, and review variations in the literacy performance of the immigrant population across educational subgroups, years spent studying English, and length of stay in the U.S.

The third section will compare the literacy proficiencies of immigrants in the U.S. with those of their counterparts in 19 other high-income countries across the world and identify the percentile rankings of the test scores of the U.S. immigrant population along the literacy skills distribution for all adults in 20 high-income countries around the world.

The fourth section of the monograph will examine the labor force status of immigrants across proficiency levels along each of the four scales at the time of the IALS survey and compare the mean literacy proficiencies of immigrants who were employed, unemployed, and not active in the labor force. The mean proficiencies of immigrants in each labor force activity category will be compared to those of native-born adults in the U.S. and immigrants in the other 19 high-income countries participating in the IALS surveys.

The fifth section of the monograph will examine variations in full-time employment, annual weeks of employment, supervisory responsibilities of jobs, occupational characteristics of jobs, and the weekly and annual earnings of employed immigrants in each proficiency level along selected literacy scales. Both IALS and NALS survey data will be used in conducting this labor market analysis.

The sixth section of the monograph will review findings of the IALS survey with respect to immigrants' own ratings of their reading, writing, and arithmetic skills in their current jobs and in their daily lives.

The seventh section will examine relationships between the literacy and civic practices and the citizenship status of immigrants and their proficiencies on the composite literacy scale.

The final section will summarize main findings of our research and assess their implications for future educational, labor market, training, citizenship, and immigration policies in the U.S.

## ***The Impacts of Foreign Immigration on Population and Labor Force Growth in the U.S.***

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New foreign immigration has played a critical though infrequently recognized role in generating population growth in the U.S. over the past two decades.<sup>10</sup> During the 1990s, 13.56 million net new immigrants arrived in the U.S., accounting for 41.4% of the net increase in the resident population of the nation over the decade.<sup>11</sup> The absolute level of immigration and its share of the net increase in the resident population of the nation over the decade were the highest in the past 100 years, exceeding the impacts of new immigration during the Great Wave of immigration over the 1890-1910 period.<sup>12</sup> The contributions of foreign immigration to population growth, however, varied considerably by geographic region and state. In the Middle Atlantic region (New Jersey, New York, and Pennsylvania), new immigration accounted for all of the region's population growth, and it generated 86% and 65% of the growth in the resident population of New England and the Pacific region, respectively. At the other end of the distribution, new immigration was responsible for slightly under one-fifth of the population growth in the Rocky Mountain region and only 11% of the growth in the East South Central region.<sup>13</sup>

The educational backgrounds, English-speaking proficiencies, and national origins of the nation's

newest immigrants raise serious questions about their English literacy proficiencies. Of all 18-64 year old foreign-born persons who arrived in the U.S. during the decade of the 1990s, nearly 40% still lacked a high school diploma or a GED certificate, a ratio nearly four times as high as that among the native born.<sup>14</sup> At the same time, it should be noted that 23% of these new adult immigrants held a bachelor's or higher academic degree at the time of the 2000 Census, only one percentage point below the share of the native born with bachelor's or higher degrees (24%).

The national origins of these new immigrants in recent decades also differ considerably from those who arrived prior to 1970.<sup>15</sup> Among those who arrived in the 1990s, 45% were from Mexico, Central America, or South America and 26% were from Asia. Only 2% came from Canada, and fewer than 2% came from English-speaking countries in Western Europe. At the time of the 2000 Census, nearly 33 million adults ages 18-64 reported that they spoke a language other than English, a gain of more than 11 million over the decade. Of this group of 33 million immigrants, 15.5 million, or nearly half, reported to the Census Bureau that they had limited to modest English-speaking abilities.<sup>16</sup>

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<sup>10</sup> See: (i) Andrew Sum et al., *The New Great Wave, 2002*. (ii) Andrew Sum, Neeta Fogg, Paul Harrington, et al., *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.

<sup>11</sup> The immigrant estimates include persons born in Puerto Rico or one of the outlying territories of the U.S. The estimates are based on the recently released 1-100 PUMS sample from the 2000 Census.

<sup>12</sup> Andrew Sum et al., *The New Great Wave, 2002*.

<sup>13</sup> This latter region consists of the states of Alabama, Kentucky, Mississippi, and Tennessee.

<sup>14</sup> These estimates are based on an analysis of the 2000 Census PUMS files for the U.S. by Andrew Sum and Ishwar Khatiwada at the Center for Labor Market Studies of Northeastern University in Boston. Persons holding a GED certificate are treated as the equivalent of a regular high school graduate by the U.S. Census Bureau.

<sup>15</sup> Nationally, of those immigrants still living in the U.S. at the time of the 2000 Census but who arrived prior to 1970, nearly 40% were from Europe and 8% from Canada.

<sup>16</sup> Those persons stating they could not speak English or could not speak it well are categorized as limited English-speaking.

New foreign immigration played an even larger role in generating growth in the civilian labor force of the nation over the 1990s decade.<sup>17</sup> An above average proportion of the nation's new immigrants were of working age, and many were in the 20-39 year old age group which has high rates of labor force participation. Over the decade, nearly 6.8 million new immigrants joined the labor force of the nation, accounting for nearly 50% of the growth in the nation's labor force. Among males, new immigrants accounted for more than 70% of labor force growth. Their contribu-

tion to labor force growth during the past decade was the highest in the post-World War II era.<sup>18</sup> From 1990-2000, the impact of new immigration on labor force growth varied considerably by geographic region, ranging from a low of 12% of labor force growth in the East South Central region to a high of 372% in the Middle Atlantic region, according to U.S. Census data. All of the growth in the resident civilian labor force of the Pacific, New England, and Middle Atlantic regions took place as a consequence of new foreign immigration over the decade.

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<sup>17</sup> The civilian labor force consists of the working-age members (16+) of the civilian, non-institutional population who were employed or unemployed.

<sup>18</sup> See: (i) Andrew Sum, et al., *Immigrant Workers and the Great American Job Machine*, 2002. (ii) Andrew Sum, Mykhaylo Trubs'kyy, et al., *Immigrant Workers in the New England Labor Market: Implications for Workforce Development Policy*, Report Prepared for the U.S. Department of Labor, Employment and Training Administration, New England Regional Office, Boston, October 2002.

## The National Adult Literacy Survey and the International Adult Literacy Survey

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Over the past decade, two key national literacy assessments took place in the U.S., allowing estimates to be made of the literacy proficiencies of a representative sample of the entire adult population (ages 16 and older). In 1992, the National Adult Literacy Survey (NALS) was undertaken in the U.S. by Educational Testing Service (ETS) for the U.S. Department of Education.<sup>19</sup> The NALS survey was the largest and most comprehensive assessment ever undertaken of the literacy proficiencies of the nation's entire adult population (16 and older). Many of the literacy concepts and measures underlying the NALS assessment were originally developed by ETS in two earlier national assessments of the nation's young adult population (21-25 years old) and of unemployed and economically disadvantaged adults served by unemployment insurance and employment and training programs funded by the U.S. Department of Labor.<sup>20</sup> The NALS assessment provided information on the literacy proficiencies of a sample of 26,091 adults 16 and older, including a sample of 1,147 adults in federal and state prisons as well as supplemental samples from 12 states yielding state representative samples.<sup>21</sup> In addition to assessing participants' literacy skills, the NALS gathered extensive background information on their demographic and socioeconomic characteristics (e.g., their age, gender, nativity status, schooling, labor force status, and household income) as well as on their literacy practices.

Following upon the NALS, a pioneering effort was undertaken to develop and conduct the first-ever comparative, international assessment of adult literacy.

This assessment effort became known as the International Adult Literacy Survey (IALS) and involved the joint efforts of participating national governments, their statistical agencies and research bureaus, and the Organisation for Economic Co-operation and Development (OECD), with technical support from Statistics Canada, Educational Testing Service, and the National Center for Education Statistics in the U.S. Department of Education.<sup>22</sup> As with the NALS, a comprehensive background questionnaire in the IALS assessment captured information on respondents' demographic and socioeconomic characteristics, their labor market and schooling behavior, and their literacy practices.

The international assessments took place in three stages, beginning in 1994 and continuing through 1998. A total of 23 nations took part in the IALS project; most were in North America and Western Europe, but other countries included Australia, Chile, and a variety of Eastern European nations (Hungary, Slovakia, Poland). Our analysis of the IALS data in this study is confined to the U.S. and 19 other high-income countries (including multiple linguistic groups in several of these countries). In most countries, the universe consisted of adults in the 16-65 age group who were neither living in institutions (jails, prisons, nursing homes) nor homeless.<sup>23</sup> The number of 16-65 year old sample respondents in these 23 countries ranged from a low of 1,239 in Portugal to a high of 8,204 in Australia.<sup>24</sup> After reviewing several approaches to measuring literacy, the original participating countries decided to adopt the definition and framework for measuring literacy that was used in the NALS survey. This definition was the following:

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<sup>19</sup> For a review of the purposes, design features and findings of the National Adult Literacy Survey (NALS), See: (i) Irwin S. Kirsch et al., *Adult Literacy in America*, 1993. (ii) Karl O. Haigler, et al., *Literacy Behind Prison Walls*, 1994. (iii) Andrew M. Sum, *Literacy in the Labor Force*; 1999. (iv) Helen Brown, et al., *Literacy of Older Adults in America*, 1995.

<sup>20</sup> See: (i) Irwin S. Kirsch and Ann Jungeblut, *Literacy Profiles of America's Young Adults*, Educational Testing Service, Princeton, New Jersey, 1986; (ii) Richard L. Venezky, Carl F. Kaestle, and Andrew M. Sum, *The Subtle Danger: Reflections on the Literacy Ability of America's Young Adults*, NAEP Rep. 16-CAEP-01, Princeton, NJ: Educational Testing Service, 1987; (iii) Irwin S. Kirsch, Ann Jungeblut and Anne Campbell, *Beyond the School Doors: The Literacy Needs of Job Seekers Served by the U.S. Department of Labor*, Educational Testing Service, Princeton, New Jersey, 1992.

<sup>21</sup> For further information on the sample size and design of the NALS survey, See: Irwin S. Kirsch et al., *Adult Literacy in America*, pp. 5-7.

<sup>22</sup> For a review of the purposes, design features, sample design, timing, and findings of the International Adult Literacy Surveys, See: (i) Organisation for Economic Cooperation and Development and Statistics Canada, *Literacy, Economy, and Society*; (ii) Organisation for Economic Cooperation and Development and Statistics Canada, *Literacy in the Information Age*. Key findings of the Canadian survey are presented in Statistics Canada, *Reading the Future: A Portrait of Literacy in Canada*, Statistics Canada, 1996. For another comparison of the literacy proficiency of Americans with that of other populations, See: Albert Tuijnman, *Benchmarking Adult Literacy in America*, 2000.

<sup>23</sup> In a few countries, persons under 16 and older than 65 were included in the survey. For example, Australia surveyed individuals from age 15 to age 74. However, the findings presented in this report are restricted to the 16-65 population.

<sup>24</sup> For a review of sample design issues, See: Organisation for Economic Cooperation and Development and Statistics Canada, *Literacy in the Information Age*, 2000, pp. 107-121.

*Using printed and written information to function in society, to achieve one's goals, and to develop one's knowledge and potential.*

In operationalizing this definition, the NALS and IALS assessments measured respondents' proficiencies along three literacy scales: prose, document, and quantitative. Each scale was constructed to range from 0 to 500. A brief description of the tasks and skills underlying each of the three literacy scales is presented below.

*Prose literacy* – the knowledge and skills needed to understand and use information from texts that include editorials, news stories, poems, and fiction; for example, finding a piece of information in a newspaper article, interpreting instructions from a warranty, inferring a theme from a poem, or contrasting views expressed in an editorial.

*Document literacy* – the knowledge and skills required to locate and use information contained in materials that include job applications, payroll forms, transportation schedules, maps, tables, and graphs; for example, locating a particular intersection on a street map, using a schedule to choose the appropriate bus, or entering information on an application form.

*Quantitative literacy* – the knowledge and skills required to apply arithmetic operations, either alone or sequentially, using numbers embedded in printed materials; for example, balancing a checkbook, figuring out a tip, completing an order form, or determining the amount of interest from a loan advertisement.

The estimated proficiencies of respondents on the three literacy scales were also combined to produce a composite proficiency score. A simple average of the estimated prose, document, and quantitative scores was used to represent the composite performance of each respondent.<sup>25</sup>

Scores on each of the three literacy scales were characterized in terms of five levels (Table 1), with Level 1 representing the lowest level of proficiency and Level 5 the highest. Respondents scoring in Level 1 or 2 can best be characterized as possessing very limited to limited literacy proficiencies. While few of the adults in Levels 1 or 2 would be considered “illiterate” in the historical meaning of that term (an inability to write one’s own name or to read a very simple passage), few have the skills believed to be needed to succeed in today’s more technologically sophisticated economy, to gain access to high-wage jobs, or to actively participate in civic and political life. For example, adults who scored in the Level 1 to Level 2 range are performing below the average proficiencies of adults who terminated their education after graduating from high school or earning their GED. In fact, those in Level 1 are performing below the average score of adults who dropped out of high school and never earned a diploma or its equivalency.

**Table 1:**  
**Range of Scale Scores Corresponding to Each Literacy Level**

Level	Score Range
1	0 – 225
2	226 – 275
3	276 – 325
4	326 – 375
5	376 – 500

As a result, a number of national and state organizations in the U.S., including the National Governor’s Association, have identified Level 3 proficiency as the minimum standard for success in today’s labor markets.<sup>26</sup>

<sup>25</sup> The authors felt that a composite scale would be useful in summarizing and presenting some of the results. We also felt it was justified given the similarities in means and standard deviations across the literacy scales.

<sup>26</sup> See: 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.

## The Literacy Proficiencies of Immigrants in the U.S.

Estimates of the mean proficiency scores of the foreign born on each of the four scales are displayed in Table 2, together with estimates of the mean scores for the native born.<sup>27</sup> The mean scores of immigrant adults in the U.S. on each of the four scales were quite low. The mean scores ranged from a low of 204 on the document scale to a high of 217 on the quantitative scale. The mean score on the composite scale was only 210. As expected, there were very substantial gaps in mean test score performance between the native born and foreign born on each of the four scales. The size of these gaps ranged from just under 69 points on the

quantitative scale to 76 points on the prose and document scales. Each of these differences in mean test score performance was statistically significant at the .01 level. To place these findings on mean test score gaps in comparative perspective, we also calculated their size in standard deviation units (Table 3). On each of the four scales, the differences in mean test score performance between the native and foreign born were equal to 1.0 to 1.1 standard deviations. From both a statistical perspective and an educational policymaking standpoint, these are extraordinarily large differences.

**Table 2:**

**Comparisons of the Mean Proficiency Scores of the Native Born and Immigrants in the U.S. by Proficiency Scale**

Proficiency Scale	Native Born	Immigrants	Native-Immigrants	Sig. Level of Difference between Means
Prose	285.7	209.6	76.1	0.01
Document	279.9	204.0	75.9	0.01
Quantitative	286.0	217.4	68.6	0.01
Composite	283.9	210.3	73.6	0.01

Source: IALS survey, 1994.

**Table 3:**

**Size of Proficiency Score Differences Between the Native Born and Immigrants in the U.S. in Standard Deviation Units**

Proficiency Scale	Difference	S.D.	Diff/S.D.
Prose	76.1	68.6	1.10
Document	75.9	71.4	1.06
Quantitative	68.6	67.7	1.01
Composite	73.6	67.9	1.08

Note: Standard deviations are those for all U.S. adults on each scale.  
Source: IALS survey, 1994.

<sup>27</sup> Performance on each of the three scales – prose, document, and quantitative – was given a weight of one-third in determining the score on the composite scale.

The proficiency scores of immigrants also can be used to assign them to one of the five levels of literacy performance. Given the small numbers of persons overall who achieved a Level 5 proficiency, we com-

bined the number of respondents who achieved a Level 4-5 performance on each scale. The percentage distributions of the foreign born across proficiency levels on each of the four scales are displayed in Table 4.

**Table 4:**  
**Percentage Distribution of Immigrants and Native Born Adults in the U.S. by Level on Each Proficiency Scale**

<b>Foreign Born</b>				
<b>Proficiency Scale</b>	<b>Level 1</b>	<b>Level 2</b>	<b>Level 3</b>	<b>Levels 4-5</b>
Prose	54.6	18.6	19.1	7.6
Document	54.1	19.6	19.2	7.0
Quantitative	52.7	16.9	19.4	11.0
Composite	52.8	18.4	21.0	7.8

<b>Native Born</b>				
<b>Proficiency Scale</b>	<b>Level 1</b>	<b>Level 2</b>	<b>Level 3</b>	<b>Levels 4-5</b>
Prose	13.9	27.1	35.1	23.9
Document	17.5	27.6	33.6	21.3
Quantitative	14.9	26.8	33.3	25.0
Composite	15.0	27.0	35.8	22.2

Source: IALS survey, 1994.

On each of the four literacy scales, a substantial majority of the foreign born fell into Levels 1 or 2, indicating the existence of highly deficient (Level 1) to quite limited (Level 2) proficiencies. For example, on the prose scale, 73% of the foreign born achieved only a Level 1 or 2 performance, while nearly 70% of them did so on the quantitative scale and 71% on the composite proficiency scale.

While nearly 53% of the foreign born demonstrated a Level 1 composite proficiency, only 15% of the native born did so, and slightly over 71% of the foreign born fell into the two lowest levels on the composite proficiency scale in comparison to 42% of the native born. Relatively few of the foreign born were able to achieve a Level 4 or 5 performance on each scale. Only 8% obtained a Level 4 or 5 performance on the composite literacy scale in comparison to 22% of the native born.

Rather than examine the mean proficiencies of the foreign born on each literacy scale, we analyze their median proficiencies and identify the percentile rankings associated with the median scores of both the foreign and native born. The median test score is that score which divides the distribution of the literacy proficiencies of all U.S. adults into two equal parts. The median score is equivalent to the 50th percentile. Due to the existence of some very low scores on the lower tail of the literacy distribution for the foreign born, their median test scores tend to be slightly higher than their mean scores.<sup>28</sup>

The median proficiency scores of the foreign born were quite low, ranging from a low of 207 on the document scale to highs of 215 on the quantitative and composite scales (Table 5). The median scores of the foreign born on these four scales were 73 to 76 points below the median scores of the native born. The per-

<sup>28</sup> The distribution of proficiency scores for the foreign born, except for the quantitative scale, tends to be modestly skewed to the left. The same is true for the distribution of proficiency scores for the native born, with medians exceeding means.

centile rankings along the U.S. literacy scale distribution associated with the median scores of the foreign born ranged from 16th on the prose scale to 19th on the document scale. Typically, 40% of the foreign born had literacy proficiencies that fell into the bottom 10% of the distribution for all U.S. adults, and a slight majority of all of the foreign born fell into the bottom quintile (20%) of the proficiency distribution (Table 6). Across the scales, approximately three fourths of the foreign born had proficiency scores in the bottom half of the distribution, and only about 5 to 7 percent of them were able to achieve a proficiency score high

enough to reach the top quintile (i.e., top 20%) of the test score distribution for all adults in the nation.

Given the existing educational backgrounds and language skills of the nation's immigrants, including many of those who arrived in the 1990s, their surging numbers have tended to reduce the average level of literacy in the U.S. and made it more difficult for the nation to achieve a number of its key national educational goals. There is an inherent set of tensions between the nation's existing immigration policies and a number of its educational goals, including high school completion rates and adult literacy proficiencies.

**Table 5:**

**Median Scores and Percentile Rankings of Median Scores of the Native Born and Immigrants in the U.S. on Each Proficiency Scale: (U.S. Test Distribution)**

Proficiency Scale	Median Score Native Born	Median Score Immigrants	Percentile Rank Native Born	Percentile Rank Immigrants
Prose	288.4	211.9	55th	16th
Document	282.7	207.5	55th	19th
Quantitative	287.9	215.1	53rd	18th
Composite	289.5	215.1	55th	17th

Source: IALS survey, 1994.

**Table 6:**

**Percent Distribution of Immigrants in the U.S. by Their Scores at Various Points Along the Proficiency Score Distributions**

Percentile of Score	Prose	Document	Quantitative	Composite
In the bottom tenth	41	40	38	41
In the bottom fifth	55	51	53	52
In the bottom half	76	74	70	75
In the top fifth	5	5	7	4

Source: IALS survey, 1994.

## The Literacy Proficiencies of Immigrants by Years of Schooling Completed, Length of Stay in the U.S., and Years Spent Learning English

The average performance of the nation's foreign-born population on the IALS literacy assessment was found to be quite limited, but there was a high degree of dispersion in estimates of individual proficiency around the mean.<sup>29</sup> Knowledge of the sources of this variation would be useful for future educational and immigration policymaking. To identify how the average proficiency scores of the foreign born varied by their human capital traits and their length of stay in the U.S., we estimated mean proficiency scores for the foreign born in selected subgroups representing their schooling experiences, length of stay in the U.S., and length of time spent learning English.

The mean prose, document, quantitative, and composite proficiency scores of the foreign born in seven

educational groups are displayed in Table 7. These educational groups range from those with no years of formal schooling to those possessing a master's or higher degree. On each of the four scales, the mean scores of the foreign born rise steadily and strongly with the number of years of schooling they had completed. For example, on the prose scale, the mean scores of the foreign born ranged from a low of 126 for those with no formal schooling to 209 for those with a high school diploma/GED to a high of 315 for those with a master's or more advanced academic degree. Similarly, on the composite scale, the mean scores ranged from only 120 for those with no formal schooling to 210 for those with a high school diploma to a high of 303 for those with a master's or more advanced degree.

**Table 7:**

**Mean Proficiency Scores of Immigrants in the U.S. by Years of Schooling Completed**

Years of Schooling	Prose	Document	Quantitative	Composite
0	126.4	101.5	130.7	119.5
1-8	145.6	133.5	148.4	142.5
9-11 years, no diploma or GED	185.4	194.8	198.7	193.0
12 Years or GED, no post secondary schooling	208.7	204.5	216.9	210.0
13-15 years including associates degree	243.0	235.1	253.4	243.8
Bachelor's degree	245.2	240.4	258.8	248.1
Master's or higher	314.5	284.9	308.6	302.7

Source: IALS survey, 1994.

The increases in the mean proficiency scores of the foreign born as they completed more years of schooling were quite substantial. The differences between the mean scores of high school graduates and those with only a primary school education ranged from 63 to 71 points across the scales. These differences in mean test scores are equivalent to .8 to .9 standard deviations. The gaps between the mean proficiency scores of master's and other advanced degree holders and those with only a high school education varied from 80 to 106 points on each of the four scales, with these differences

being equivalent to 1.0 to 1.3 standard deviations. Schooling completion and the literacy performance of the foreign born were closely linked, but the relationships between these two variables are mutually reinforcing. Those young adults who have higher literacy and academic achievement test scores are significantly more likely to complete additional years of formal schooling.<sup>30</sup> Future public policy efforts to strengthen the literacy proficiencies and educational attainment of the nation's foreign born will have to go hand in hand.

<sup>29</sup> The standard deviation of the composite proficiency scores for the foreign-born adult population in the U.S. was more than 80 points.

<sup>30</sup> For empirical evidence on this issue, See: (i) Susan Mayer and Paul E. Peterson (Editors), *Earning and Learning: How Schools Matter*, 1999; (ii) Andrew Sum, *Literacy in the Labor Force*, 1999.

How does the performance of immigrants in each educational attainment category compare to that of the native born? To answer this question, we compared the mean composite literacy scores of the native born and foreign born in each of the seven educational subgroups described above. The findings are displayed in Table 8. With one small exception (those with no years of formal schooling, a very tiny group among the native born), the mean score differences between the two groups were quite substantial. In each of the other six educational

subgroups, the mean composite test scores of the native born exceeded those of the foreign born by 35 to 75 points. With the exception of the difference between those foreign-born and native-born individuals holding master's or higher degrees, all of the differences in mean composite proficiencies were statistically significant at the .01 level. The foreign born were characterized by significantly and substantially lower mean composite scores than their native born counterparts in the U.S.

**Table 8:**  
**Mean Composite Proficiency Scores of the Native Born and Immigrants in the U.S. by Years of Schooling Completed**

Years of Schooling	Native Born	Immigrants	Difference	Sig. of Difference
0	126.3	119.5	6.8	—
0-8 years	215.5	142.5	73.0	.01
9-11 years, no diploma or GED	234.9	193.0	41.9	.01
12 years or GED, no postsecondary schooling	277.9	210.0	67.9	.01
13-15 years, including Associate's	298.6	243.8	54.8	.01
Bachelor's degree	323.6	248.1	75.5	.01
Master's or higher degree	338.0	302.7	35.3	—

Note:—implies that the significance test for the difference between the two sample mean scores was not statistically significant at the .05 level.  
Source: IALS survey, 1994.

Findings from the earlier 1992 NALS assessment also can be used to identify the literacy proficiencies of the native and foreign born in selected educational groups. In Table 9, we present estimates of the mean composite proficiencies of the foreign born and the native born in five educational subgroups. For each of these five groups, the mean composite proficiencies of the foreign born also were well below those of the

native born, with the size of the gaps ranging from 23 to 69 points.<sup>31</sup> All of these test score differences were statistically significant at the .01 level or better. Findings on the mean proficiencies of the foreign born and native born for the same five educational attainment groups on the prose, document, and quantitative scales are presented in Appendix A. The gaps in average proficiency are quite considerable for each of these scales.

<sup>31</sup> For several educational groups, especially those with a bachelor's degree, the gap in mean scores between the native and foreign born on the NALS assessment was smaller than that on IALS. The gap between the foreign and native born with bachelor's degrees was 75 points on IALS versus only 45 points on NALS. The NALS estimates are more statistically precise, given their much larger sample sizes.

**Table 9:****Comparisons of the Mean Composite Proficiency Scores of the Native Born and Immigrants in the U.S. by Level of Schooling Completed**

Level of Schooling	Native Born	Immigrants	Difference	Sig. of Difference
Less than High School	225	156	69	0.01
High School Diploma/GED	271	223	48	0.01
1-3 Years College	298	254	44	0.01
Bachelor's Degree	324	279	45	0.01
Post Bachelor's Degree	334	311	23	0.01

Source: NALS survey, 1992, tabulations by ETS.

One might well expect that the English literacy proficiencies of the foreign born would be influenced by the length of time that they had lived in the U.S., especially for those individuals for whom English was not the first language learned. The longer individuals remain in the U.S., the more time they have to acquire and practice English-speaking, reading, and writing skills. Thus, their average proficiencies would be expected to rise along with their length of stay in the U.S.

The mean proficiency scores of the foreign born on each of the four literacy scales are displayed for the following three subgroups based on the number of years that they had lived in the U.S.: less than 5 years, 5-10 years, and more than 10 years (Table 10).

On each of the scales, immigrants who had lived in the U.S. for more than 10 years achieved significantly higher proficiency scores than their peers with less than 10 years of tenure.<sup>32</sup> The size of these differences in mean proficiency scores are typically quite large. Immigrants with more than 10 years of tenure in the U.S. obtained mean scores on each of the four scales that were 34 to 45 points higher than those who had been in the U.S. for less than 5 years. All of these differences were statistically significant at either the .05 or .01 levels. Still, it should be noted that the mean proficiency scores of those immigrants who had lived in the U.S. for more than 10 years were still 57 to 66 points below those of their native-born counterparts.

**Table 10:****Mean Proficiency Scores of Immigrants in the U.S. by Length of Time They Had Lived in Country**

Length of time in the U.S.	Prose	Document	Quantitative	Composite
Less than 5 years	185.2**	177.5**	192.3***	185.1**
5-10 years	178.0***	179.6***	184.1***	180.6***
More than 10 years	219.9	211.5	228.7	220.0

Note: \*\*\*implies significantly lower than more than 10 years at 0.01 level.

\*\* implies significantly lower than more than 10 years at 0.05 level.

Source: IALS survey, 1994.

<sup>32</sup> Somewhat surprisingly, those immigrants who had lived in the U.S. for 5-10 years did not achieve significantly higher scores than their counterparts with less than 5 years tenure. In fact, their mean scores were slightly lower on three of the scales, but the differences are not statistically significant. Some of the newer arrivals were recruited under the H1-B visa program for skilled immigrants and likely raised the average proficiency scores for the new arrivals.

The IALS background questionnaire also collected data from respondents on the age at which they first started to learn English. Responses to this question were combined with data on the actual ages of the foreign born at the time of the survey to estimate the number of years since they first started to learn English. We classified all respondents into three groups based on the maximum number of years that they could have been learning English:<sup>33</sup> 0-9 years, 10-19 years, and 20 years or more (Table 11).

Findings of our analysis of these data reveal that the mean composite proficiencies of the foreign born increased with the number of years since they first started learning English, rising from 163 for those with fewer than 10 years to a high of 243 for those who first started learning English more than 20 years ago, a difference of 80 points or one full standard deviation between the top and bottom performers.

The gaps between the mean composite proficiencies of those foreign-born persons who first studied English more than 20 years ago and their other peers were statistically significant at the .01 level.

**Table 11:**  
**Mean Composite Proficiency Scores of Immigrants in the U.S. by Years of Learning English**

Number of Years	Mean Score
0 – 9	163.5***
10 – 19	187.4***
20 or More	243.1

Note: \*\*\*indicates significantly different from the mean scores of those with 20 or more years since first started to learn English.  
Source: IALS survey, 1994.

<sup>33</sup> The variable is admittedly a crude one since we cannot identify the amount of time or effort that these individuals devoted to learning English within each time period.

## A Multivariate Statistical Analysis of the Composite Proficiencies of Immigrants

The above findings have revealed that the English-based literacy proficiencies of immigrants in the U.S. were positively associated with their educational attainment and the number of years that they had spent learning English. To test the independent effects of formal schooling, the language first learned as a child, and years spent learning English on the composite proficiencies of immigrants, we constructed and estimated a multiple regression model of their composite literacy proficiencies. The regression model was based on the IALS data for the U.S. assessment. The set of seven predictor variables in these regression models of the composite proficiencies of immigrants fall into the following three categories:

- Years of schooling completed (EDCOMP).

- The age at which the respondent first began learning English, including those whose first language was English. These variables are represented by ENG1 to ENG5. This is a set of five dummy variables that indicate the age group at which an immigrant first began to learn English.
- The number of years spent learning English. This variable is measured by the difference between a respondent's current age and the year during which he/she began first learning English. Those who said they did not speak English were assigned a value of zero for this variable.

The definitions of each of these seven variables are presented in Table 12 below.

**Table 12:**

### **Definitions of the Predictor Variables Appearing in the Multiple Regression Models of the Literacy Proficiencies of Immigrants in the U.S.**

Variable	Definition
EDCOMP	Years of schooling completed at the time of the IALS survey
ENG1	A dummy variable representing someone whose first language was English = 1 if yes = 0 if no
ENG2	A dummy variable representing someone who first began starting to learn English between 1 and 6 years old = 1 if yes = 0 if no
ENG3	A dummy variable representing someone who first began starting to learn English between 7 and 13 years old = 1 if yes = 0 if no
ENG4	A dummy variable representing someone who first began starting to learn English between 14 and 21 years old = 1 if yes = 0 if no
ENG5	A dummy variable representing someone who first began starting to learn English at age 22 or after = 1 if yes = 0 if no
YRSENG	Number of years spent learning English up to the time of the IALS interview. Value of this variable equals current age minus the age at which first began to study English

The regression model of the composite proficiencies of immigrants fit the data fairly well, and six of the seven variables in the regression model are statistically significant (see Table 13). The regression model explained nearly 58% of the overall variation in composite proficiency scores, a fairly good statistical fit for a small cross-sectional sample. The key findings of the model are the following:

- Each year of schooling completed by an immigrant adds 6.2 points to the predicted composite proficiency score
- The earlier one began studying English, the higher his/her predicted proficiency score
- Those immigrants whose first language was English scored 124 points higher than those in the base group (i.e., did not speak English at all at the time of the IALS survey). Those who began speaking English before they were six years old scored nearly 80 points higher than the base group, while the additions to the expected proficiency scores were 60 points for those who first studied English between the ages of 7 to 13, and 26 points if they started learning English between the ages of 14 and 21. The estimated effect is 0 for those who did not begin studying English until age 22 or after.
- For each year spent studying English (an admittedly crude variable that does not capture the intensity of one's English instruction), the predicted composite score rises by slightly less than 1 point.

**Table 13:**

**Findings of the Multiple Regression Analysis of the Composite Proficiencies of Immigrants in the U.S.**

Variable	Coefficient	Standard Error	t-statistic
Constant	74.8	7.89	9.48***
EDCOMP	6.2	.56	11.06***
ENG1	124.4	8.94	13.92***
ENG2	80.3	11.79	6.82***
ENG3	59.5	10.16	5.86***
ENG4	26.2	9.65	2.72***
ENG5	7.6	8.7	.87
YRSENG	.86	.24	3.61***

R2 = .578  
 Adj. R2 = .572  
 Degrees of Freedom = 7,554  
 F Statistic = 108.18  
 Sig. F = .01

Notes: \*\*\* sig. at .01 level  
 Source: IALS Survey, 1994.

The findings of the composite proficiency regression model were then used to predict the expected composite proficiency scores of three individual immigrants with quite different schooling and English-language characteristics.

- The first individual is an immigrant who did not speak English at the time of the IALS survey and who had completed only 10 years of schooling. The expected composite proficiency score of this individual was only 137, a low Level 1 proficiency.
- Our second hypothetical individual is an immigrant who started learning English at age 10, graduated from high school, and was 30 years old at the time of the IALS survey. The predicted composite proficiency score of this individual was 226 points, a low Level 2 proficiency.
- Our third individual is an immigrant whose first language was English, who obtained a bachelor's degree, and who was 30 years old at the time of the IALS survey. The predicted composite proficiency score of this individual was 322 points, a near Level 3 performance.

These results reveal very substantial differences in the predicted composite proficiencies of immigrants based on their schooling, the language they first learned as a child, the age at which they first started

learning English, and the number of years they have been learning English. As shown in Appendix B, these same patterns are found with respect to immigrants' prose proficiencies. Clearly, the relationship between schooling and English language speaking is an interactive one. Immigrants with stronger literacy and English-speaking skills are more likely to complete additional years of schooling; and the more years of schooling they complete, the stronger their literacy and English-speaking abilities will be. The earlier an immigrant begins learning English, the higher will be their English-speaking and literacy skills. Other findings in the recent literature clearly reveal that, the later immigrant children arrive in the U.S., the weaker will be their English-speaking skills as adults, and the lower their ultimate educational attainment.<sup>34</sup>

With NALS and 1990 and 2000 Census data, we find that the higher the educational attainment and English-speaking abilities of immigrants or the higher their educational attainment and literacy proficiencies, the greater is their likelihood of employment and of year-round full-time attachment to the labor market, and the higher are their annual earnings. The assimilation of immigrants into U.S. civic life and into career labor markets is critically dependent upon improvements in their English-reading, speaking, and writing proficiencies, and their educational attainment.

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<sup>34</sup> See: Hoyt Bleakley and Aimee Chin, *Language Skills and Earnings: Evidence from Childhood Immigrants*, Department of Economics, MIT and University of Houston, February 2001.

## Comparisons of the Literacy Proficiencies of Immigrants in the U.S. With Their Peers in High-Income Countries

The findings of the IALS literacy assessments also were used to calculate mean composite proficiency scores for foreign born persons in 20 high income countries, including the U.S. (Appendix C provides information about the process used to determine which countries to include in this comparative analysis.) These countries then were ranked from highest to lowest by the mean composite proficiency scores of their immigrant populations (Table 14). The mean composite proficiency scores of the foreign-born populations varied quite dramatically across these 20 countries, ranging from highs of 273 in Ireland and Denmark to lows of 202 in French Canada and 194 in France. The U.S. ranked 18th out of 20 countries on this literacy performance measure, and the mean scores of U.S. immigrants were 68 points or nearly a full standard deviation below the mean scores of the two highest performing countries. From a statistical standpoint, the U.S. tied for 17th place with German Switzerland and French Canada.<sup>35</sup> Immigrants in the U.S. only significantly out-performed their counterparts in one country, France, and the 10.8 point difference between the mean scores of immigrants in these two countries was statistically significant only at the .10 level. Clearly, immigrants in the U.S. lag considerably behind their peers in most other high-income countries as well as their native born counterparts in the U.S.

**Table 14:**  
**Mean Composite Proficiency Scores of Immigrants in 20 High-Income Countries/ Language Groups Ranked from Highest to Lowest**

Country	Mean Score
Ireland	273.6
Denmark	273.2
Norway	269.9
Northern Ireland	267.0
New Zealand	265.7
Canada, English	265.6
Finland	264.2
Sweden	262.4
Germany	256.8
Netherlands	251.4
Italy	250.3
Australia	249.7
Switzerland, French	242.5
Switzerland, Italian	236.0
Belgium (Flanders)	235.3
England	231.9
Switzerland, German	208.2
United States	205.2
Canada, French	202.4
France	194.4
U.S. Rank	18 <sup>th</sup>

Source: IALS survey, 1994.

<sup>35</sup> The differences between the mean composite literacy scores of immigrants in the U.S. and those in German Switzerland and French Canada were not significantly different even at the .10 level.

One might argue that perhaps part of the gap between the literacy performance of U.S. immigrants and their counterparts in the other 19 high-income countries is partly attributable to a weaker educational attainment of U.S. immigrants. To test this hypothesis, we compared the educational distribution of immigrants in the U.S. with those of their peers in the 19 other high-income countries. Each group was assigned to one of four educational attainment groups, ranging from less than a full high school education to a bachelor's or higher degree. The results show that immigrants in the U.S. are better educated than their coun-

terparts in the other high-income countries (Table 15). While nearly 34% of U.S. immigrants lacked a regular high school diploma (or GED certificate), 45% of their counterparts in the other 19 high-income countries did so. Approximately 74% of the immigrants in these other countries failed to complete any years of formal schooling beyond high school, versus only 66% of their peers in the U.S. Furthermore, U.S. immigrants were more likely than their peers elsewhere to have obtained a bachelor's or more advanced academic degree (22% vs. 17%).

**Table 15:**

**The Percentage Distribution of Immigrants in the U.S. and the Other 19 High-Income Countries by Their Educational Attainment at the Time of the IALS Survey**

<b>Educational Attainment</b>	<b>U.S.</b>	<b>19 Other High Income Countries</b>	<b>U.S. – 19 Other Countries</b>
Less than 12 years	33.9	44.5	-10.6
12 years, no college	31.8	29.8	+2.0
13 – 15 years	11.9	8.8	+3.1
Bachelor's or higher degree	22.3	16.8	+5.5

Source: IALS survey, 1994.

Thus, all of the literacy proficiency gaps between immigrants in the U.S. and their counterparts elsewhere were attributable to differences in mean composite proficiency scores within each educational attainment subgroup (Table 16). The gaps between the mean composite scores of immigrants in the U.S. and the other 19 high-income countries were very large in each educational attainment group, ranging from 37 to 50 points across the four subgroups. These mean scale

score differences were equivalent to .62 to .70 standard deviations, very sizable gaps.<sup>36</sup> The comparatively weak literacy/quantitative performance of U.S. immigrants vis-à-vis their counterparts in the same educational groups in other high-income countries needs to be better understood by educational policymakers and researchers if the gaps between immigrant and native-born adults are to be reduced in the near future.

<sup>36</sup> These test score gaps are measured relative to the standard deviations for immigrants from the other 19 high-income countries in each of the four educational attainment subgroups.

**Table 16:****Comparisons of the Mean Composite Proficiency Scores of Immigrants in the U.S. and 19 Other High-Income Countries, All and by Educational Attainment**

<b>Educational Attainment</b>	<b>U.S.</b>	<b>19 High Income Countries</b>	<b>U.S. – 19 High Income Countries</b>	<b>Sig. of Difference</b>
All	209.7	240.4	-30.7	.01
Less than 12 years	148.8	198.9	-50.1	.01
12 years, no college	210.0	255.7	-45.7	.01
13 – 15 years	243.8	280.4	-36.6	.01
Bachelor's or higher degree	265.4	304.2	-38.8	.05

Source: IALS survey, 1994.

As noted earlier, the literacy proficiencies of the foreign born in the U.S. are characterized by a very high degree of dispersion, considerably higher than among the native born. To determine whether this situation was unique to the U.S., we also estimated the standard deviations of the composite scores for the foreign born in the other 19 high-income countries (Table 17). In all countries except Ireland and Northern Ireland, the degree of dispersion in the composite scores of the foreign born was greater than that of the native born. The U.S., with its standard deviation of 80.9 for its foreign born, was characterized by the fifth highest standard deviation among these 20 high income countries. In fact, there was no significant difference between the standard deviations of the test scores of the foreign born in the U.S. and the other four highest ranked nations on this measure (English Canada, French Canada, France, and England). From a statistical standpoint, the dispersion of composite proficiency scores among the foreign born in the U.S. was as high as that of any of the other 19 high-income countries. The degree of inequality in the composite test scores of both the native born and foreign born in the U.S. are among the highest in the industrialized world and contribute to the heightened degree of inequality in earnings and income in our nation.<sup>37</sup>

**Table 17:****Standard Deviations of Composite Test Scores of Foreign Born Adults for the Twenty High-Income Countries/Language Groups Included in the International Adult Literacy Analysis**

<b>Country</b>	<b>Foreign Born</b>
Australia	80.8
Belgium (Flanders)	75.1
Canada, English	84.1
Canada, French	91.3
Denmark	48.2
Finland	77.4
France	81.4
England	92.1
Germany	52.3
Ireland	54.4
Italy	54.8
Netherlands	61.5
Northern Ireland	58.3
Norway Bokmal	72.8
New Zealand	63.6
Sweden	69.2
Switzerland, French	73.6
Switzerland, German	79.5
Switzerland, Italian	60.2
United States	80.9
<b>U.S. Rank</b>	<b>5<sup>th</sup> highest</b>

<sup>37</sup> While the standard deviation of the composite test scores among the native-born in the U.S is lower than that of the foreign-born population, the U.S. ranking is still fourth highest among the 20 high-income countries.

The comparative performance of the foreign born in the U.S. also can be examined via use of the world skills distribution.<sup>38</sup> For adults in the 20 high-income countries combined, a distribution of scores was generated for each of the four scales. The scores at each percentile of the distribution can be identified. The median scores of the native and foreign born in the U.S. can be assigned their percentile ranking along each of these distributions. For the native born in the U.S., the median scores fell at the 55th percentile for the document and quantitative scales, the 57th percentile for the composite scale, and the 61st percentile for the prose scale (Table 18). For the foreign born, however, the median scores were equivalent to only the 17th percentile for each of the four scales. On average, foreign-born adults in the U.S. had prose, document, quantitative, and composite proficiency scores that would have ranked in the bottom fifth of the world skills distribution for high-income countries.

**Table 18:**  
**Percentile Ranking of Median Proficiency Scores of the Native Born and Immigrants in the U.S. Along the World Skills Distribution**

Proficiency Score	Native Born	Foreign Born
Prose	61	17
Document	55	17
Quantitative	55	17
Composite	57	17

Source: IALS survey, 1994, tabulations of the authors.

The mean composite proficiency scores of the foreign born in four educational subgroups were estimated, and the percentile rankings associated with these scores along the world skills distribution were identified. Findings in Table 19 reveal that the mean composite score for those foreign-born persons in the U.S. who were lacking a high school diploma was equivalent to only the 5th percentile, the mean score for high school graduates was equivalent to the 15th percentile, and those with a bachelor's or higher degree achieved a mean composite score that was equivalent to the 41st percentile. In other words, a substantial majority of the nation's foreign born with no post secondary schooling possessed literacy skills that would have fallen in the lower fifth of the world skills distribution.

**Table 19:**  
**Percentile Rankings Along the World Skills Distribution of the Mean Composite Proficiency Scores of Immigrants in the U.S. by Level of Schooling Completed**

Level of Schooling	Percentile Ranking
Less than 12 years of school	5th
12 years, no college	15th
13 – 15 years	29th
Bachelor's or higher degree	41st

Source: IALS survey, 1994, tabulations of the authors.

Given their growing share of the U.S. population, failure to substantially improve the literacy proficiencies of the nation's foreign born will make it more difficult for the U.S. to improve its literacy performance ranking among the world's high-income countries. As revealed in our earlier monograph, *The Twin Challenges of Mediocrity and Inequality*, the U.S. is not currently a world leader on any of the four literacy scales.

<sup>38</sup> For a review of the construction of the world skills distribution and the test scores at various percentiles along the distribution, See: Andrew Sum, et al., *The Twin Challenges of Mediocrity and Inequality*, 2002.

Previous analyses of the NALS and IALS survey data have found positive statistical associations between the literacy proficiencies of adults in the U.S. and other countries and their labor force activity.<sup>39</sup> Those adults with stronger literacy proficiencies were more likely to be active participants in the labor market and to be employed when they did look for work. The IALS background questionnaire contained a labor force section that collected information from all respondents on their labor force and employment activities at the time of the survey and during the previous 12 months. Responses to the questions on current employment status were used to assign each immigrant to one of the three following labor force statuses:

- The employed are those who were working at the time of the IALS survey.<sup>40</sup>
- The unemployed are those who reported that they were unemployed or looking for work at the time of the survey. The IALS survey did not ask these individuals how they were looking for work, or the most recent time period during which they looked for work, or their availability for work. In the Current Population Survey (CPS), to be counted as unemployed, most unemployed persons must have actively looked for a job in the past four weeks and been available to take a job last week.
- Those persons out of the labor force. This group includes all individuals who were classified as neither employed nor unemployed. They include students not looking for work, retirees, persons keeping house, the disabled, and those who did not wish to work at the present time for other reasons.

The data on the current labor force status of immigrants then were used by the authors to estimate values for the following three labor force activity measures:

- The labor force participation rate, which represents the ratio of the total number of employed and unemployed 16-65 year old immigrants to the number of 16-65 year olds in the civilian non-institutional population.
- The unemployment rate, which represents the ratio of the unemployed to the number of persons in the civilian labor force, i.e., the sum of the employed and the unemployed.
- The employment/population ratio, which represents the ratio of the number of employed to the number of immigrants in the population.<sup>41</sup>

Estimates of the values for each labor force activity measure were generated for all immigrants combined and by their proficiency level on the composite skills distribution. At the time of the survey, three of every four immigrants were actively participating in the civilian labor force (Table 20). This rate of participation was only two percentage points below that of native born adults in the U.S. (Table 21). The labor force participation rates of immigrants increased steadily and strongly as their composite proficiency levels improved, rising from 67.6% for those in proficiency Level 1 to a high of 95% for those in proficiency Levels 4 and 5. Similar relationships prevailed among the native born (Table 21). In each proficiency level, however, immigrants were somewhat more likely than the native born to be active participants in the labor force.

<sup>39</sup> See: (i) Andrew Sum, *Literacy in the Labor Force*, 1999; (ii) Organisation for Economic Cooperation and Development and Statistics Canada, *Literacy in the Information Age*, 2000.

<sup>40</sup> Unlike the Current Population Survey, frequently referred to as the CPS household survey, the IALS survey did not attempt to identify those persons who were employed but temporarily absent from their jobs for such reasons as vacations, temporary illnesses, or weather conditions. Such individuals are classified as employed in the monthly CPS household survey.

<sup>41</sup> The employment/population ratio is determined by the product of the labor force participation rate and the unemployment rate:

$$\text{Let } E/P = L/P \cdot E/L,$$

Where  $E/P$  = employment/population ratio

$L/P$  = the labor force participation rate

$E/L$  = the percent of the labor force that is employed

Where  $E/L = 1 - U/L$  where  $U/L$  equals the unemployment rate

**Table 20:****The Labor Force Participation Rates, Unemployment Rates, and Employment/Population Ratios of Immigrants in the U.S. by their Level on the Composite Proficiency Scale (in %)**

Labor Force Variable	Level 1	Level 2	Level 3	Levels 4-5	Overall
Labor force participation rate	67.6	79.1	83.6	95.3	75.0
Unemployment rate	12.8	4.9	0.0	0.0	7.1
Employment/population ratio	59.0	75.2	83.6	95.3	69.7

Source: IALS survey, 1994.

**Table 21:****The Labor Force Participation Rates, Unemployment Rates, and Employment/Population Ratios of Native-Born Adults in the U.S. by their Level on the Composite Proficiency Scale (in %)**

Labor Force Variable	Level 1	Level 2	Level 3	Levels 4-5	Overall
Labor force participation rate	62.2	74.6	77.4	89.4	77.0
Unemployment rate	8.3	5.1	4.4	2.5	4.6
Employment/population ratio	57.0	70.8	74.0	87.1	73.5

Source: IALS survey, 1994.

The overall unemployment rate among all immigrant workers at the time of the survey was estimated to be 7.1%, about 50% higher than the 4.6% unemployment rate among the native born. All of the unemployment among immigrants, however, was concentrated among those workers with Level 1 or Level 2 proficiency (Table 20). The unemployment rate among immigrant workers in Level 1 was 13%; it fell slightly below 5% for those in Level 2, and was 0% for workers in Levels 3, 4, and 5. The absence of unemployment among immigrants with very strong proficiencies is due in part to the operations of H1-B visa programs that bring into the country immigrants with higher level skills to fill jobs in shortage occupations and to the over-representation of well-educated immigrants in occupational fields that have low unemployment rates nationally (scientific, engineering, physical science

occupations). Unemployment rates among the native born also were uniformly lower among those workers with stronger composite proficiencies.

As a consequence of their higher rates of labor force attachment and their sharply lower unemployment rates, immigrants with stronger composite proficiencies were much more likely than their less literate counterparts to be employed at the time of the IALS survey. The employment/population ratios of immigrant adults ranged from a low of 59% for those in Level 1 on the composite proficiency scale to a high of 95% for those in Levels 4 and 5, a 36 percentage point difference from top to bottom (Table 20).<sup>42</sup> Among the native born, the gap in employment rates between those in Levels 4 and 5 and those in Level 1 was also a very substantial 30 percentage points (Table 21).

<sup>42</sup> The E/P ratio of immigrants in Levels 4 and 5 of the composite proficiency scale was significantly higher than that of their counterparts in the three lower proficiency levels at the .01 or .05 levels.

For each labor force subgroup of immigrants, we estimated their mean literacy proficiencies on each of the four scales. Findings are displayed in Table 22. The mean proficiency scores of the employed exceeded those of the unemployed by 65 to 77 points on each of the four scales. All of these differences were statistically significant at the .01 level. The gaps between the mean literacy proficiencies of the employed and those immigrants not active in the labor force at the time of

the IALS survey also were quite large, ranging from 40 points on the prose scale to 47 points on the quantitative scale. Each of these differences was statistically significant at the .01 level. Future efforts to strengthen the labor force attachment and employability of these jobless immigrants will likely require substantive investments in efforts aimed at raising their literacy and quantitative proficiencies.

**Table 22:**

**The Mean Proficiency Scores of Immigrants in the U.S. by their Labor Force Status**

Proficiency Scale	Employed	Unemployed	Not in Labor Force	Employed-Unemployed	Employed-Not in Labor Force
Prose	222.7	157.3	182.7	65.4***	40.0***
Document	218.1	148.2	172.8	69.9***	45.3***
Quantitative	233.0	156.0	185.8	77.0***	47.2***
Composite	224.6	153.8	180.4	70.8***	44.2***

Notes: \*\*\* sig. at .01 level  
Source: IALS survey, 1994.

The literacy proficiencies of employed immigrants also were compared to those of the native born on each of the four scales. The mean proficiency scores of the employed native born were considerably higher than those of immigrants on each of the four scales (Table 23), with the size of these differences ranging from 60 points on the quantitative scale to 69-70 points on the document and prose scales. Each of

these differences was statistically significant at the .01 level. When measured in terms of standard deviation units (i.e., using the standard deviations for the employed native born), these differences in mean scores are quite substantial. Each difference exceeds one standard deviation, with a range from 1.05 standard deviations on the quantitative scale to 1.26 standard deviations on the prose scale (Table 24).

**Table 23:**

**Mean Proficiency Scores of Employed Native-Born and Immigrant Workers in the U.S.**

Proficiency Scale	Native Born	Immigrant	Native-Immigrant	Sig. of Difference
Prose	292.2	222.7	69.5	0.01
Document	287.3	218.1	69.2	0.01
Quantitative	293.5	233.0	60.5	0.01
Composite	291.0	224.6	66.4	0.01

Source: IALS survey.

**Table 24:****Gap Between the Mean Proficiency Scores of Employed Native-Born and Immigrant Workers in the U.S., Standard Deviation Units, by Proficiency Scale**

Scale	Size of Mean Gaps	Standard Deviation	Difference in SD Units
Prose	69.5	55.0	1.26
Document	69.2	58.4	1.18
Quantitative	60.5	57.8	1.05
Composite	66.4	54.8	1.21

Note: Standard deviations are those for employed native born workers.  
Source: IALS survey, 1994.

How well did the literacy proficiencies of the immigrant labor force in the U.S. compare to those of their counterparts in the other 19 high-income countries participating in the IALS assessment? To answer this important question, we compared the mean composite proficiencies of U.S. immigrants in each labor force subgroup to those of their peers in the other 19 high-income countries. For each of the three labor force subgroups, the mean proficiencies of U.S. immigrants fell significantly below those of their counterparts in the other 19 high-income countries combined, but the size of these gaps varied quite widely across the three labor force groups (Table 25).

For the employed, the gap between the mean scores of U.S. immigrants and their counterparts elsewhere was 33 points, which was statistically significant at the .01 level. For the unemployed, however, the gap between the mean composite proficiencies of the two groups was nearly 60 points, and it was a sizable 48 points for those persons neither working nor actively looking for work at the time of the survey. A very substantial share of the unemployed and other jobless immigrant populations in the U.S. had composite proficiencies in Level 1, and many of these individuals fell in the lower end of Level 1, indicating the existence of very substantial literacy deficits.

**Table 25:****Comparisons of the Mean Composite Proficiency Scores of Immigrants in the U.S. and 19 Other High-Income Countries by their Labor Force Status**

Labor Force Status	U.S.	19 Other High-Income Countries	U.S.–19 Other Countries	Sig. of Difference
Employed	224.6	257.1	-32.5	.01
Unemployed	153.8	213.3	-59.5	.01
Out of the Labor Force	180.4	228.5	-48.1	.01

Source: IALS survey, 1994.

Those individuals who were employed at the time of the survey were asked to report whether they were employed full-time (35 or more hours per week) or part-time.<sup>43</sup> The percentage distributions of employed immigrants by full-time/part-time status in each composite proficiency category are displayed in Table 26. Full-time employment rates varied over a fairly

small interval from 79% for those in Levels 4 and 5 to nearly 86% for those in Level 1. None of these differences were large enough, however, to be classified as statistically significant. Employed immigrants with the lowest composite proficiencies were just as likely to be working full-time as their more literate counterparts in the U.S.

**Table 26:**  
**Distribution of Employed Immigrants by their Full-Time/Part-Time Employment Status by Level on the Composite Proficiency Scale**

Employment Status	Level 1	Level 2	Level 3	Levels 4-5
Full-time	85.8	83.2	79.7	78.8
Part-time	14.2	16.8	20.3	21.2

Source: IALS survey, 1994.

The IALS survey also collected information on the employment experiences of respondents in the twelve-month period prior to the interview. For those who were employed at some time over the previous year, information was collected on the number of weeks that they were employed. The employment experiences of respondents were assigned to one of the following four categories: 1-13 weeks, 14-26 weeks, 27-39 weeks, and 40 plus weeks. The percentage distributions of these employed immigrants by weeks worked in each composite proficiency category are displayed in Table 27. The overwhelming majority of these immigrant work-

ers (86 percent) were employed for 40 or more weeks during the previous year. Those employed immigrants with mid- to high-level proficiencies were more likely to work for 40 or more weeks. While 84% of those in Levels 1 and 2 were employed for 40 or more weeks, slightly over 90% of those in Level 3 and 97% of those in Levels 4 and 5 were employed for 40 or more weeks. Year-round, full-time work was more common among the nation's employed immigrants with stronger literacy proficiencies. The greater weeks of work add to both current annual earnings and future earnings from employment via enhanced cumulative work experience.

**Table 27:**  
**Distribution of Employed Immigrants by Weeks Worked in the Prior Calendar Year by Level on the Composite Proficiency Scale**

Weeks Worked	Level 1	Level 2	Level 3	Levels 4-5
1 – 13	6.3	7.3	3.0	.5
14 –26	6.6	5.7	2.8	2.9
27 – 39	3.1	3.0	3.7	.0
40+	84.0	84.0	90.5	96.6

Source: IALS survey, 1994.

<sup>43</sup> Hours worked on all jobs held at the time of the survey were used to identify the full-time status of employed respondents.

## Types of Jobs Held by Employed Immigrants

For all those persons who were employed in the prior year, information was collected on the characteristics of their jobs, including supervisory responsibilities and occupational duties and titles. Distinctions also were made between wage and salary jobs and self-employment positions.<sup>44</sup> In Table 28, the jobs held by immigrants were placed into one of four categories based on the supervisory responsibilities of wage and salary positions and whether the job involved self-employment. Not surprisingly, immigrants with only Level 1 composite proficiencies were the most likely to report themselves as holding wage and salary positions with no supervisory responsibilities. Eighty percent of the jobs held by such immigrants were wage and salary jobs with no supervisory responsibility versus only 53%

of the jobs held by persons with a Level 2 or 3 proficiency and slightly under 50% of the jobs held by the employed with the strongest composite proficiencies (Level 4 or 5). Wage and salary jobs with supervisory responsibilities were held by only 14% of the employed with a Level 1 proficiency versus 34% of those with a Level 2 proficiency, nearly 38% of those with a Level 3 proficiency, and 44 % of those with a Level 4 or 5 proficiency. Overall, fewer than 10 % of the employed immigrants reported themselves as self-employed. While those with the lowest composite proficiencies were least likely to be self-employed, there was no consistent relationship between self-employment and the proficiency levels of the other groups of immigrants.

**Table 28:**

**Distribution of Employed Immigrants in the U.S. by Type of Job Held and Level on the Composite Proficiency Scale (in %)**

Type of Job	Level 1	Level 2	Level 3	Levels 4-5
Wage and salary job, no supervisory responsibilities	79.7	53.4	53.5	48.8
Wage and salary job, some supervisory responsibilities	10.2	16.7	29.0	25.0
Wage and salary job, major supervisory responsibilities	4.2	17.6	8.6	19.2
Self-employed	5.8	12.2	8.8	6.9

Source: IALS survey, 1994.

Employed respondents also were asked to provide a description of the types of job duties they performed at work and an occupational title for their jobs. This information was used by each country's research team to assign an occupational code to each job, using the International Standard Classification of Occupations (ISCO).<sup>45</sup> The percentage distributions of employed immigrants by major occupational category and by composite proficiency level are presented in Table 29. As expected, there were substantial differences in the occupational distribution of employed immigrants across proficiency levels. Overall, slightly more than 28% of all employed immigrants held professional,

para-professional, managerial, or technical positions. The percent of the employed holding such positions, however, varied quite considerably by composite proficiency level, ranging from only 7% of those in proficiency Level 1 to 33% of those in proficiency Level 2 to a high of 73% of those in Levels 4 and 5 combined. The share of jobs in clerical/administrative support occupations also rose with the level of composite proficiency until the top two proficiency levels were reached. Only 5% of immigrant workers with a Level 1 proficiency managed to obtain a clerical/office position versus 19% of those in Level 2 and 26% of those in Level 3.

<sup>44</sup> The IALS survey also noted whether any of these jobs were unpaid jobs in family-owned enterprises. Fewer than .1% of the employed immigrants classified themselves as unpaid family workers; thus, we do not report them separately in this table.

<sup>45</sup> For further details on the occupational and industry coding procedures used in the IALS survey, See: OECD and Statistics Canada, *Literacy in the Information Age*, 2000, pp. 116-117.

**Table 29:****Percent of Immigrant Workers Employed in Selected Major Occupational Groups by Level on the Composite Proficiency Scale**

<b>Occupational Group</b>	<b>Level 1</b>	<b>Level 2</b>	<b>Level 3</b>	<b>Levels 4-5</b>	<b>Total</b>
Professional and Management	6.1	30.4	40.8	56.2	24.1
Technical/para-professional	1.3	2.6	6.6	16.7	4.3
Clerical/administrative support	4.9	18.8	26.1	10.4	13.1
Laborer or helper in agriculture, forestry	1.5	3.1	1.1	0.0	1.6
Service workers/low level sales	36.5	25.5	17.0	12.4	27.2
Craft workers	21.0	11.0	.8	2.0	12.6
Assemblers, fabricators, operatives, general laborers	28.6	8.6	7.5	2.3	17.1

Source: IALS survey, 1994.

Immigrant workers with a Level 1 proficiency were overwhelmingly concentrated in service/low level sales positions (36%) and in blue-collar occupations, both skilled and semi-skilled (50%). The share of the immigrant workforce holding either service-related or blue-collar occupations declined steadily as their composite proficiency levels increased. For example, while nearly one-half of all employed immigrants with a Level 1 proficiency held a blue collar position, only 20% of those with a Level 2 proficiency did so versus 8% of those in proficiency Level 3 and only 4% of those in

the two highest proficiency levels. Immigrant workers have been over-represented in the nation's manufacturing industries in recent years, and the bulk of them hold positions as front-line production workers.<sup>46</sup> In *Literacy in the Labor Force* (based on the NALS survey), it was shown that there were very large gaps between the average literacy proficiencies of front-line workers in manufacturing and other goods-producing industries and those of professionals and managers, a situation creating potential barriers to the development of high-performance work organizations.<sup>47</sup>

<sup>46</sup> See: Andrew Sum, et al., *Immigrant Workers and the Great American Job Machine*, 2002.

<sup>47</sup> See: Andrew Sum, *Literacy in the Labor Force*, 1999, especially Chapter 4.

## ***The Weekly and Annual Earnings of Employed Immigrants by Their Literacy Proficiency Levels***

Among the most important labor market outcomes for immigrant and native-born workers are their weekly wages and their annual earnings from paid employment. The annual earnings of a worker are influenced by his/her cumulative weeks of employment during the year, average hours of work per week of employment, and average hourly earnings. The living standard of the average, non-elderly family in the U.S. is primarily determined by the earnings secured from the labor market.

The background questionnaire that was used in conducting the NALS survey collected information on the weekly earnings of persons who were employed at the time of the survey, their weekly hours of work, their total weeks of employment in the prior 52-week period, and their average weekly earnings from employment over that period.<sup>48</sup> These data were used to construct estimates of three earnings variables: weekly earnings of full-time workers at the time of the assessment, annual earnings from full-time employment over the previous 52 weeks, and average weekly earnings from full-time employment in the prior 52-week period. Findings of our analyses of the first two earn-

ings variables for immigrant and native-born workers are presented below. The results for the analyses of average weekly earnings on jobs held by the immigrant employed in the prior 52-week period are displayed in Appendix D.

The estimated mean weekly earnings of immigrants from full-time jobs held at the time of the NALS survey are displayed in Table 30. These earnings figures were computed for full-time workers by their proficiency level on each of the four literacy scales. On each scale, the mean weekly earnings of full-time immigrant workers rise steadily and strongly with their proficiency level. On the composite scale, these mean weekly earnings for immigrant workers ranged from a low of \$318 for those with a Level 1 proficiency, to \$520 for those in Level 2, to \$632 for those in Level 3, and to a high of \$1,108 for those immigrant workers with a Level 4 or 5 proficiency. All of the differences in mean weekly earnings across each proficiency level were statistically significant at the .01 level. Similar patterns in weekly earnings prevailed for each of the other three literacy scales.

**Table 30:**

***Mean Weekly Earnings of Full-Time Employed Immigrant Workers by Level on Each Proficiency Scale***

<b>Proficiency Scale</b>	<b>Level 1</b>	<b>Level 2</b>	<b>Level 3</b>	<b>Levels 4-5</b>
Prose	\$ 333	\$ 481	\$ 644	\$ 1,070
Document	345	487	655	1,087
Quantitative	307	471	660	1,018
Composite	318	520	632	1,108

Source: NALS Survey, 1992.

<sup>48</sup> The IALS survey unfortunately captured far less information on weekly or annual earnings than the NALS survey, and the available information was coded by earnings quintiles rather than as continuous variables. They are, thus, of far less value for analyzing the earnings of U.S. workers. Besides, the number of sample observations on immigrant workers is far lower for IALS than for NALS.

Findings on the mean weekly earnings of full-time, native-born workers by proficiency level are displayed in Table 31. Here again, we find steady and strong gains in the median weekly earnings of full-time, native-born workers as their proficiency levels increase. On each of the four scales, the mean weekly earnings of those native-born workers with a Level 4 or 5 proficiency were twice as high as those of their peers with only a Level 1 proficiency. For example, on the composite scale, the mean weekly earnings of full-time workers in Levels 4 and 5 were \$792 versus only \$364 for those with a Level 1 composite proficiency.

An interesting finding, however, is that, with the exception of those immigrant workers with a Level 1 proficiency, the mean weekly earnings of immigrants in every other proficiency level exceeded those of native-born workers. For example, on the composite proficiency scale, the mean weekly earnings of immigrant

workers in Level 3 were \$632 versus only \$552 among the native born, and the mean weekly earnings of immigrant workers in Levels 4 and 5 were \$1,108 versus \$792 for the native born (Tables 30 and 31). There appear to be several factors underlying the higher mean earnings of immigrants within these proficiency levels. For the higher proficiency levels, the average immigrant worker has somewhat more years of schooling than the native born, and a higher fraction of immigrant workers are male.<sup>49</sup> Findings of multiple regression analyses of the determinants of the weekly wages of the full-time employed also reveal that, controlling for a wide array of human capital, demographic, and geographic variables, immigrants who lived in the U.S. for six years or more obtained significantly higher (9-10 percent) weekly earnings than their native-born counterparts.<sup>50</sup>

**Table 31:**  
**Mean Weekly Earnings of Full-Time Employed Native-Born Workers by Level on Each Proficiency Scale**

Proficiency Scale	Level 1	Level 2	Level 3	Levels 4-5
Prose	\$ 364	\$ 438	\$ 547	\$ 764
Document	388	464	573	767
Quantitative	349	466	534	776
Composite	364	448	552	792

Source: NALS survey, 1992.

<sup>49</sup> Other research on immigrant workers shows that, among the college educated, immigrants are over-represented in higher paying scientific, engineering, and technical occupations. See: Andrew Sum, et al., *Immigrant Workers in the New England Labor Market: Implications for Workforce Development Policy*, 2002.

<sup>50</sup> See: Andrew Sum, *Literacy in the Labor Force*, 1999, especially Chapter 7, p.250.

The data on total weeks of paid employment in the 52-week period prior to the NALS survey were combined with the data on average weekly wages over this time period to compute annual earnings for each employed respondent. These earnings data are gross earnings from wage and salary employment and self-employment before taxes or any other form of payroll

deductions. Estimates of the mean annual earnings of immigrant workers who were employed full-time over the previous 12 months are displayed in Table 32. Annual earnings estimates are provided for workers in each proficiency level for each of the four literacy scales.

**Table 32:**  
**Average Annual Earnings of Full-Time Employed Immigrant Workers by Level on Each Proficiency Scale**

Proficiency Scale	Level 1	Level 2	Level 3	Levels 4-5
Prose	\$ 14,847	\$ 23,238	\$ 31,176	\$ 49,746
Document	15,754	24,190	31,829	49,391
Quantitative	13,746	23,742	31,179	48,826
Composite	14,228	25,194	31,770	51,105

Source: NALS survey, 1992.

On each of the four scales, the mean annual earnings of employed immigrants rose uniformly and very strongly with increases in their proficiency levels. On the prose scale, the mean annual earnings of employed immigrants increased from slightly under \$15,000 for those in Level 1 to over \$31,000 for those in proficiency Level 3 to a high of nearly \$50,000 for those in Levels 4 and 5. The mean annual earnings of those immigrants with the strongest prose proficiencies were nearly 3.5 times as high as those with the most limited prose proficiencies. Very similar findings prevailed for each of the other three scales. The most proficient immigrants obtained mean annual earnings that were three to four times as high as those of their least proficient counterparts on each of the other three scales. These sharply higher annual earnings of the most proficient immigrants reflect a combination of substantially higher weekly earnings and modestly higher weeks of employment during the year (see Appendix D for findings on the average weekly earnings of employed immigrants). While most of the immigrants in the highest proficiency categories are well educated, their higher earnings are not simply a func-

tion of greater years of educational attainment. Among immigrant workers, particularly those with 10 or more years of tenure in the U.S., there are strong returns to composite proficiencies and English-speaking skills independent of their years of formal schooling.<sup>51</sup>

Findings on the relationships between the mean annual earnings of the native born and their proficiency levels on each of the four literacy scales are presented in Table 33. On each scale, the mean annual earnings of the native born rise uniformly and considerably with their proficiency level. For example, on the composite scale, the mean annual earnings of the native born rose from approximately \$17,400 for those with a Level 1 proficiency to \$26,000 for those in Level 3 to a high of \$37,256 for those in Levels 4 and 5. All of the differences in mean annual earnings across proficiency levels are statistically significant at the .01 level. On each scale, native-born workers in the two highest proficiency levels obtained mean annual earnings that were approximately twice as high as those of their counterparts in proficiency Level 1.

<sup>51</sup> See: (i) Andrew Sum, *Literacy in the Labor Force*, 1999, Chapter 7; (ii) Julia Kroshko, *The Impact of Human Capital Investments on the Earnings of Immigrant and Native Born Women in the Northeast*, M.A. Workshop Paper, Department of Economics, Northeastern University, Boston, Spring 2001; (iii) Kamen Madjarov, *The Determinants of Immigrant Worker Earnings in the Northeast Region of the U.S.*, M.A. Workshop paper, Department of Economics, Northeastern University, Boston, Summer 2003.

**Table 33:**

**Average Annual Earnings of Full-Time Employed Native-Born Workers by Level on Each Proficiency Scale**

<b>Literacy Scale</b>	<b>Level 1</b>	<b>Level 2</b>	<b>Level 3</b>	<b>Levels 4-5</b>
Prose	\$ 17,568	\$ 20,668	\$ 26,318	\$ 36,464
Document	18,555	21,948	26,950	35,803
Quantitative	16,837	21,386	25,126	36,772
Composite	17,396	21,037	25,928	37,256

Source: National Adult Literacy Survey.

Again, however, it is interesting to note that, with the exception of those immigrant workers with a Level 1 proficiency, the mean annual earnings of immigrant workers with a Level 2 or higher proficiency were greater than those of their native-born counterparts in the same proficiency level. Results of earlier multivariate statistical analyses of the NALS earning data revealed that, after controlling for a host of human capital, demographic, and geographic variables, the

annual earnings of immigrant workers with more than five years of stay in the U.S. were 14 to 15% higher than those of their native born counterparts.<sup>52</sup> The personal economic and educational benefits from stronger literacy proficiencies among immigrants are quite substantial.<sup>53</sup> The problem is not a low return to such proficiencies, but rather the low average proficiencies of immigrant adults.

<sup>52</sup> See: Andrew Sum, *Literacy in the Labor Force*, 1999, Chapter 7, pp. 250-251.

<sup>53</sup> For a review of earlier studies estimating the impact of English-speaking proficiencies on the wages and annual earnings of immigrants in the U.S., See: (i) Hoyt Bleakley and Aimee Chin, *Language Skills and Earnings: Evidence from Childhood Immigrants*, 2002; (ii) Bernt Bratsberg and James F. Ragan, Jr., "The Impacts of Host-Country Schooling on Earnings: A Study of Male Immigrants in the U.S.," *The Journal of Human Resources*, Winter 2002: Vol. 37, Issue 1, pp. 63-105; (iii) Barry R. Chiswick and Paul W. Miller, "English Language Fluency Among Immigrants in the U.S.," *Research in Labor Economics*, Volume 17, 1998; (iv) Alberto Darvila and Marie T. Mora, "English Fluency of Recent Hispanic Immigrants to the U.S. in 1980 and 1990," *Economic Development and Cultural Change*, 2000, pp. 369-389; (v) Gregory De Frietas, *Inequality at Work: Hispanics in the U.S. Labor Force*, Oxford University Press, New York, 1991; (vi) Stephen J. Treju, "Why Do Mexican Americans Earn Low Wages?," *Journal of Political Economy*, 1997, Vol. 105, No. 6, pp. 1235-1267.

## The Annual Earnings of Immigrants in 1999

The recently released public use micro-data files from the 2000 Census allow us to examine the annual earnings of employed immigrants in the U.S. during calendar year 1999.<sup>54</sup> Our sample of immigrant workers is restricted to those persons 20 and older who worked at some time during calendar year 1999 and who reported annual earnings of at least \$2,000. These immigrant workers were classified into 30 categories based on their educational attainment at the time of the Census and their self-reported English-speaking skills. The six educational categories range from those lacking a regular high school diploma or GED certificate to those holding a master's or more advanced academic degree. The five English-speaking categories range from those who do not speak English at all to those who only speak English.

Annual earnings of immigrant workers during 1999 varied considerably by their level of schooling and their self-reported English proficiency. For all workers, mean annual earnings were \$33,806. These mean annual earnings ranged from a low of \$20,360 for those lacking a high school diploma to a high of \$67,675 for those holding a master's or higher degree (Table 34). Mean annual earnings also were strongly associated with the English-speaking proficiencies of these workers. Mean earnings were only \$16,345 for those who reported that they could not speak English, rose to \$29,448 for those who reported that they could speak English "well," and peaked at \$43,651 for those who only spoke English.

**Table 34:**

### **Mean Annual Earnings of Employed Immigrants (20 and Older) in the U.S. by Years of Schooling and English-Speaking Proficiency; 1999**

Years of Schooling	English-Speaking Proficiency					
	Only English	Very Well	Well	Not Well	Not at All	All
Less than 12 or 12 but no diploma	\$ 22,884	\$ 23,648	\$ 22,803	\$ 18,690	\$ 15,504	\$ 20,360
H.S. diploma or GED	29,916	27,185	24,610	20,387	17,194	25,358
1-3 years of college, no degree	36,475	30,549	28,047	22,769	19,280	30,526
Associate's degree	37,988	34,045	29,732	24,779	24,371	33,342
Bachelor's degree	56,167	46,824	40,801	33,162	27,016	46,963
Master's or higher degree	78,554	71,089	50,343	33,606	31,983	67,675
All	43,651	40,741	29,448	20,595	16,345	33,806

Note: Sample was restricted to those individuals with at least \$2,000 in annual earnings during calendar year 1999.  
Source: U.S. Census, PUMS files, 1999.

<sup>54</sup> The so-called Public Use Micro Data Samples (PUMS) contain data from the long-form questionnaires for a representative sample of 1-100 households in each state.

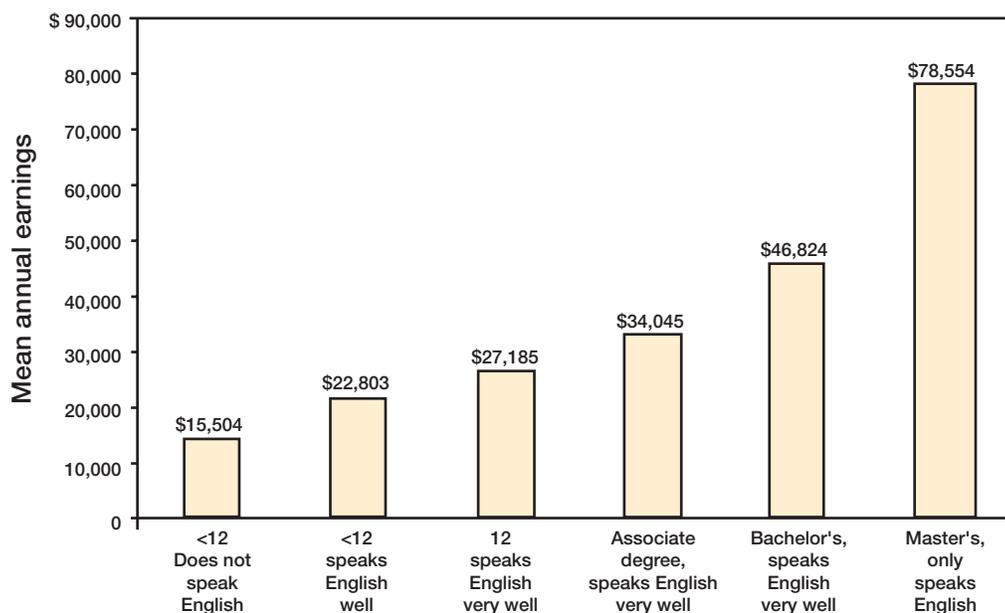
The joint combination of formal schooling and English-speaking proficiency was strongly linked to the earnings of these immigrant workers.<sup>55</sup> For example, an immigrant worker who lacked a high school diploma and could not speak English had mean earnings of only \$15,504. These workers' mean earnings would rise to \$22,803 if they could speak English well and would increase to \$27,185 if they had a high school diploma and could speak English "very well." (See bar Chart 1.) Combining a bachelor's degree with proficient English-speaking skills ("very well") yields mean earnings of \$46,824, and a master's or higher degree together with "only English" provided mean earnings

of \$78,554, which was five times as high as that of the mean earnings level of workers with the least schooling and most limited English-speaking proficiency. These strong relationships between earnings, years of schooling, and English-speaking proficiency are found among men and women alike (see Appendix E).

Clearly, human capital investments in formal schooling and English-speaking skills have large personal economic payoffs in the form of higher annual earnings from employment.<sup>56</sup> These same human capital skills also increase the likelihood of being employed and the amount of labor hours that will be provided during the year.

### Chart 1:

**Mean Annual Earnings of Selected Educational/English-Speaking Subgroups Of Employed Immigrants (20 and Older) in the U.S., 1999**



Source: U.S. Census PUMS files, 1999.

<sup>55</sup> Findings of multiple regression analyses of the annual earnings of these immigrant workers revealed that both formal schooling and English-speaking proficiency had large independent effects on their earnings. For example, among 20-64 year old employed immigrant males in the U.S. in 1999, the inability to speak English well reduced expected earnings by 20 percent, ceteris paribus. See: Kamen Madjarov, *The Determinants of Immigrant Worker Earnings*, 2003.

<sup>56</sup> Earlier analyses of the NALS survey data by one of the authors at the Center for Labor Market Studies revealed that, once the composite proficiencies of an immigrant are entered into the regression model, self-reported speaking and reading ability have no significant impact on earnings. These latter two variables serve as rough proxies for the prose, document, and quantitative proficiencies of immigrants.

## Immigrant Workers' Perceptions of Their Job-Related Reading, Writing, and Arithmetic Skills

For all persons (native born and foreign born) who were employed in the previous twelve months, the IALS survey collected information on their personal ratings of their existing English reading, English writing, and arithmetic skills on their main jobs.<sup>57</sup> Each respondent was asked to rate their skills in one of the following four categories: excellent, good, moderate, or poor.<sup>58</sup> These ratings were then cross-tabulated against the proficiency levels of the employed on selected literacy scales. Findings of our analyses are displayed in Tables 35, 36, and 37.

A majority of the employed immigrants rated their English reading skills as excellent or good. Two-thirds of the responses on this question fell into the excellent or good category, while 13% rated their skills as moderate, and 20% rated their reading skills as poor (Table 35). As expected, the pattern of responses to this question varied widely by prose proficiency level. Nearly 99% of the employed with Level 3 prose proficiencies

and 95% of those with Level 4 or 5 proficiencies rated their English reading skills as excellent or good. In contrast, only 38% of those with Level 1 proficiencies rated their English reading skills as good or excellent. Nearly 42% of those with Level 1 proficiencies rated their English reading skills as "poor." They were the only group of employed immigrants to regard their existing reading skills as poor. This might seem somewhat surprising given the low prose proficiencies of many of those immigrants in Level 2; however, since these questions focused on their main jobs and not for various other types of work, the respondents may well have felt that the jobs they held were not very demanding in terms of literacy skills. As will be noted below, a higher number of those employed immigrants with Level 2 proficiencies did feel that their reading and writing skills were limiting opportunities for advancement at the work site.

**Table 35:**

### Employed Immigrants' Ratings of their English Reading Skills for their Current Jobs by Level on the Prose Proficiency Scale

Rating	Level 1	Level 2	Level 3	Levels 4-5	Overall
Excellent	16.8	45.4	71.9	80.1	40.7
Good	21.1	42.5	26.8	14.6	26.0
Moderate	20.3	11.7	1.2	5.3	13.1
Poor	41.8	0.4	.0	.0	20.3

Note: Those persons citing no opinion were excluded from the analysis.  
Source: IALS survey, 1994.

Responses to a question focusing on the adequacy of existing English writing skills for current job performance followed a similar pattern to those for English speaking skills. Overall, however, fewer of the employed immigrants (59%) rated their writing skills as excellent or good (Table 36). The overwhelming majority (95 to 97%) of those in Level 3, 4, or 5 on the

composite proficiency scale rated their writing skills as excellent or good. In contrast, nearly 3 of every 4 employed immigrants with Level 1 skills and 30% of those with Level 2 skills rated their writing skills as poor or moderate. Among those in Level 1, a majority (53%) considered their writing skills to be poor.

<sup>57</sup> The main job was the job that accounted for the greatest number of hours worked during the past 12 months.

<sup>58</sup> Persons not providing a response to the questions were excluded from the analysis.

**Table 36:****Employed Immigrants' Ratings of their English Writing Skills for Their Current Jobs by Level on the Composite Proficiency Scale**

Rating	Level 1	Level 2	Level 3	Levels 4-5	Overall
Excellent	6.6	33.7	56.6	70.7	30.9
Good	19.0	36.4	39.0	25.9	28.0
Moderate	21.7	26.7	4.4	3.4	16.4
Poor	52.6	3.3	.0	.0	24.6

Note: Those persons citing no opinion were excluded from the analysis.  
Source: IALS survey, 1994.

Responses to the question on the adequacy of arithmetic skills for current job performance were overwhelmingly positive for all groups of immigrant workers, except those in Level 1 (Table 37). Seventy-six percent of all foreign-born respondents rated their arithmetic skills as excellent or good, and 90 to 100% of those in Levels 2, 3, 4, or 5 on the quantitative scale

rated their arithmetic skills as good or excellent. In comparison, only 56% of those in Level 1 on the quantitative literacy scale rated their existing arithmetic skills as good or excellent. Nearly one-fourth of employed immigrants in Level 1 regarded their arithmetic skills as poor, compared with 1% or less in each of the other literacy levels.

**Table 37:****Employed Immigrants' Ratings of Their Arithmetic Skills on Their Current Jobs by Level on the Quantitative Proficiency Scale**

Rating	Level 1	Level 2	Level 3	Levels 4-5	Overall
Excellent	13.9	49.4	58.8	81.7	39.1
Good	41.9	41.1	34.9	18.3	37.2
Moderate	19.5	9.5	5.2	.0	11.9
Poor	24.7	.0	1.1	.0	11.7

Note: Those persons citing no opinion were excluded from the analysis.  
Source: IALS Survey, 1994.

Employed immigrants also were asked to consider whether their existing reading, writing, and arithmetic skills were limiting their job opportunities, including overall occupational mobility and advancement in their firms. Allowable responses were "greatly limiting," "somewhat limiting," or "not at all limiting." Findings of our analyses of their responses to these three questions by proficiency level of the employed are presented in Tables 38 through 40. Some 37% of

employed immigrant respondents claimed that their existing English reading skills were either greatly or somewhat limiting their job opportunities (Table 38). Nearly 65% of those workers with Level 1 prose proficiencies and 18% of those with Level 2 proficiencies felt that their reading skills were constraining their future job opportunities. Fewer than 5% of those with Level 3 prose proficiencies felt this way.

**Table 38:****Employed Immigrants' Perceptions of the Degree to Which Their English Reading Skills Limit Job Opportunities by Level on the Prose Proficiency Scale**

Perceived Limits	Level 1	Level 2	Level 3	Levels 4-5	Overall
Greatly Limiting	32.1	3.8	.0	9.7	17.4
Somewhat Limiting	32.4	13.9	4.5	3.0	19.8
Not at all Limiting	35.5	82.3	95.5	87.3	62.8

Source: IALS Survey, 1994.

A somewhat higher fraction of employed immigrants believed that their current writing skills were reducing their future job opportunities (Table 39). Forty percent of the respondents indicated that their writing skills were either greatly or somewhat limiting

their advancement opportunities. Again, it was those workers in Level 1 (67%) and in Level 2 (28%) who were most likely to feel constrained by their current writing skills.

**Table 39:****Employed Immigrants' Perceptions of the Degree to Which Their English Writing Skills Limit Job Opportunities by Proficiency Level on the Composite Scale**

Perceived Limits	Level 1	Level 2	Level 3	Levels 4-5	Overall
Greatly Limiting	42.2	3.7	.9	8.4	21.3
Somewhat Limiting	24.8	23.9	7.7	6.0	18.5
Not at all Limiting	33.0	72.4	91.4	85.5	60.2

Source: IALS Survey, 1994.

Far fewer immigrant workers regarded their existing arithmetic skills as limiting their future career prospects (Table 40). Only one-fourth of the respondents considered their existing arithmetic skills to be "greatly" or "somewhat limiting" their job opportunities. Practically all of those citing such limitations were in Level 1 or 2 on the quantitative scale, with 45% of those in Level 1 feeling constrained by their ex-

isting arithmetic skills. Overall, very high fractions of the immigrant employed with Level 1 proficiencies regarded their existing reading, writing, and math skills as moderate to poor, and a high share of them (45 to 67%) also believed that their future job prospects were being constrained by their existing proficiencies. Only a modest share of those in Level 2 felt this way.

**Table 40:****Employed Immigrants' Perceptions of the Degree to Which Their Arithmetic Skills Limit Job Opportunities by Level on the Quantitative Proficiency Scale**

Perceived Limits	Level 1	Level 2	Level 3	Levels 4-5	Overall
Greatly limiting	19.7	2.4	1.1	.0	9.9
Somewhat limiting	25.4	14.8	3.3	.0	15.0
Not at all limiting	55.0	82.8	95.6	100.0	75.1

Source: IALS Survey, 1994.

## The Literacy Proficiencies of Immigrants and their Poverty Status

The background questionnaire that was used in conducting the NALS assessment collected information from each respondent on their household's total monetary income in the previous 12 months as well as the number of persons residing in the household at the time of the survey. The information on household income and the number of household residents was used to estimate the poverty/near poverty status of the household of each respondent.<sup>59</sup> The poor are those with household incomes below the federal government's official poverty income thresholds, while the near poor are defined as those persons living in households with incomes between 100% and 125% of the poverty lines of the federal government that are adjusted for family size.<sup>60</sup>

Estimates of the percentages of the foreign-born population that were poor or near poor at the time of the NALS survey by level on the composite proficiency scale are displayed in Table 41. Overall, 30 % of the foreign-born population were categorized as poor or near poor at the time of the NALS survey. The incidence of such income inadequacy problems, however, varied considerably by their level on the composite proficiency scale. Nearly one-half of those foreign-born individuals with Level 1 skills were living in poor/near poor households. The incidence of such income inadequacy problems fell to 22% for those with Level 2 skills, to 13% for those with Level 3 skills, and to only

9% for those with Level 4 or 5 proficiencies. Nearly 70% of all poor/near poor immigrants fell in Level 1 and 87% were in Levels 1 or 2.

**Table 41:**  
**Percent of Immigrants in the U.S. Who Were Poor/Near Poor by Their Level on the Composite Proficiency Scale in the U.S.**

Proficiency Level	Percent Poor or Near Poor
All	30.4
Level 1	48.4
Level 2	21.9
Level 3	12.7
Level 4-5	9.2

Source: NALS survey, 1992.

On each literacy scale, including the composite proficiency scale, those immigrants who were neither poor nor near poor obtained considerably higher mean scores than their poor counterparts (Table 42). The sizes of the differences between the mean proficiency scores of these two groups of immigrants ranged from 63 to 71 points (.8 to .9 standard deviations), and each was statistically significant at the .01 level. The average poor/near poor immigrant obtained a composite proficiency score in the middle portion of Level 1, an extraordinarily weak performance.

**Table 42:**  
**Mean Prose, Document, Quantitative, and Composite Proficiency Scores of Poor/Near Poor and Non-Poor Immigrants in the U.S.**

	Not Poor or Near Poor	Poor/Near Poor	Difference	Sig. of Difference
Prose	245	182	63	.01
Document	245	179	66	.01
Quantitative	252	181	71	.01
Composite	247	181	66	.01

Source: NALS survey, 1992.

<sup>59</sup> Our measures of poverty/near poverty differ somewhat from those of the U.S. Census Bureau since we treat the household as the frame of reference rather than the family. The U.S. Census Bureau treats each member of a non-family household as a household of one in determining their poverty status. Their procedures will likely yield a slightly higher incidence of poverty/near poverty problems.

<sup>60</sup> For a more comprehensive multivariate statistical analysis of the links between the literacy proficiencies of adults and their poverty/near poverty status, See: Andrew Sum, *Literacy in the Labor Force*, Chapter 7.

## ***The Receipt of Government Cash Transfers by Immigrants and the Native Born***

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Given the limited employability and weekly earnings prospects of adults with weak literacy skills, one might well expect that they would be more dependent than their more literate peers on government cash transfers to support themselves and their families.<sup>61</sup> The background questionnaire that was used in conducting the IALS survey captured information on the respondents' receipt of various forms of income during the previous 12-month period.<sup>62</sup> Among these income sources were cash transfers from the federal, state, or local government, including unemployment benefits, AFDC welfare benefits, general relief, or Supplemental Security Income payments for the Aged and the Disabled. The mean composite proficiency scores of individuals receiving and not receiving such cash transfers were estimated for all respondents and for the native and foreign born separately.

For the entire sample, the mean composite proficiency score for those respondents receiving cash income transfers from the government was 259 versus 292 for those not receiving such transfers, a statistically significant difference of 34 points or more than one-half of a standard deviation (Table 43). Among the foreign born, the gap between the mean composite

proficiency scores of those receiving and not receiving cash public transfers was a more substantial 66 points, which also was statistically significant at the .01 level.<sup>63</sup> Two-thirds of the nation's immigrants receiving cash public assistance income had Level 1 proficiencies, and 84% of them had composite proficiencies in Levels 1 or 2. The relative odds of an immigrant with a Level 1 or 2 proficiency receiving some cash income transfers was 2.2 times higher than his peer with a Level 3 or high proficiency. Among the native born, the gap between the mean proficiency scores of those receiving and not receiving cash transfers was a more modest 28 points, but the difference also was highly significant. One-half of the native-born recipients of cash income transfers had composite skills in Levels 1 or 2. Combined with our previous findings on the prose, document, and quantitative proficiencies of poor immigrants, it is quite evident that poverty and economic dependency problems among the foreign born were strongly linked to their literacy proficiencies. An overwhelming majority of the poor and dependent immigrants had very weak literacy and quantitative proficiencies.

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<sup>61</sup> Previous analyses of the NALS survey data have revealed that those adults with limited literacy and quantitative proficiencies were more likely to be recipients of cash public assistance income and that a high proportion of the nation's welfare recipients had only Level 1 or Level 2 proficiencies. *See:* (i) Paul E. Barton and Lynn Jenkins, *Literacy and Dependency: The Literacy Skills of Welfare Recipients in the U.S.*, Educational Testing Service, Princeton, New Jersey, 1995; (ii) Andrew Sum, *Literacy in the Labor Force*, 1999.

<sup>62</sup> These cash transfers could have been received by the respondent or another member of the family over the previous 12-month period.

<sup>63</sup> The absolute size of the gap was equal to more than .8 standard deviations for the composite proficiency distribution for all foreign-born persons in the U.S.

**Table 43:**

**Mean Composite Proficiency Scores of Immigrants and the Native-Born in the U.S. by Their Receipt of Government Cash Public Transfers, Excluding Pensions**

<b>Group</b>	<b>Received Cash Transfers</b>	<b>Did Not Receive Cash Transfers</b>	<b>Difference in Mean Scores</b>	<b>Sig. of Difference</b>
All	258.6	292.4	33.8	.01
Foreign born	184.3	249.8	65.6	.01
Native born	268.7	296.7	28.0	.01

**Distribution of Immigrant and Native-Born Recipients of Cash Public Transfers by Selected Levels on the Composite Proficiency Scale**

<b>Nativity Status</b>	<b>Level 1</b>	<b>Level 2</b>	<b>Level 1 and 2</b>	<b>Level 3 or Higher</b>
Immigrants	65	19	84	16
Native born	23	27	50	50

Source: IALS survey, 1994, tabulations by authors.

One of the goals of our nation's immigration policy should be to encourage more legal immigrants to become citizens and participate fully in American political life, including voting in local, state, and national elections. The right to vote is dependent upon being a U.S. citizen. Part of the decline in the overall voting rate in national elections in recent years has been attributable to the rise in the number of immigrants who have not become naturalized citizens.<sup>64</sup>

To be eligible to become a citizen, an applicant must be a legal resident of the U.S., be at least 18 years old, have lived in the U.S. for at least five years, and pass both a criminal background check and a citizenship test which requires the ability to at least speak, read, and write simple sentences in English.<sup>65</sup> The citizenship test is not a rigorous test of one's English literacy proficiencies, but past research at the national and state level has shown that individuals with more formal schooling, higher level occupational skills, and higher self-reported English speaking proficiencies are more likely to become citizens.<sup>66</sup>

The IALS background questionnaire unfortunately did not include questions to capture information on the visa or citizenship status of foreign-born respondents; however, the recently released public use micro-records from the long-form questionnaires used in conducting the 2000 Census (the PUMS files) do allow

us to analyze the citizenship status of immigrants. We selected all immigrants 20 years and older who had lived in the U.S. for at least five years to conduct this analysis. Citizenship rates were calculated for 30 subgroups of immigrants classified by their level of formal schooling and their self-reported English-speaking ability at the time of the 2000 Census. It should be noted that a fairly large number of these immigrants were undocumented and, thus, not eligible for citizenship. Estimates by demographers at the U.S. Census Bureau and The Urban Institute indicate that there were likely 8 to 9 million undocumented immigrants in the U.S. in 2000.<sup>67</sup>

Overall, 51% of the immigrants who met our initial selection criteria reported that they were U.S. citizens at the time of the 2000 Census (Table 44). Citizenship rates varied quite widely by both years of formal schooling and English-speaking ability. Citizenship rates ranged from a low of 38% for those lacking a high school diploma/GED certificate to highs of 64 to 65% for those with an associate's or bachelor's degree. Only 20% of those immigrants who reported that they could not speak English were citizens, versus 54% of those who claimed that they could speak English well, and a high of 61% of those who claimed that they spoke only English or spoke it very well.

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<sup>64</sup> See: Michael P. McDonald and Samuel Popkin, "The Myth of the Vanishing Voter," Presented to the American Political Science Conference, August – September 2000, Washington, D.C.

<sup>65</sup> For a review of the questions on the citizenship test and the procedures used to administer the test to applicants for citizenship, See: (i) John J. Miller, *The Unmaking of Americans*, The Free Press, New York, 1998; (ii) "Pressed by a Backlog of Applicants, the U.S. is Rethinking Its Test for Citizenship," *The New York Times*, July 5, 1999, pp. A-1, A-19.

<sup>66</sup> For earlier studies of the links between the formal schooling/English-speaking proficiencies and citizenship status of immigrants in the U.S. and Massachusetts, See: (i) John Comings, et al., *New Skills for a New Economy*, 2000; (ii) Philip Q. Yang, "Explaining Immigrant Naturalization," *International Migration Review*, 28 (3), Fall 1994, pp. 449-477.

<sup>67</sup> For recent estimates of the size of the undocumented immigrant population in the U.S., See: (i) Kevin Deardoff, "Evaluating Components of International Migration Estimates of the Foreign Born Population by Migrant Status in 2000," U.S. Census Bureau, Washington, D.C., December 2001; (ii) Jeffrey Passel, "New Estimates of the Undocumented Population in the U.S.," *Migration Information Source*, May 22, 2002, pp. 1-3.

**Table 44:**

**Percent of Immigrants (20 Years and Older) Who Arrived in the U.S. Before 1995 Who Were Naturalized Citizens, by Educational Attainment and English-speaking Ability, 2000**

	<b>English Only</b>	<b>Very Well</b>	<b>Well</b>	<b>Not Well</b>	<b>Not At All</b>	<b>Total</b>
Less than 12 or 12, No Diploma	50.2	49.0	48.7	33.4	19.4	38.5
High School Graduate, GED holder	63.0	57.7	52.3	37.9	22.0	52.4
Some College	64.6	63.4	59.3	42.8	22.4	60.3
Associate Degree	65.3	68.1	63.8	43.1	27.6	64.2
Bachelor's Degree	66.8	68.1	62.3	43.2	30.4	64.8
Master's or Higher	67.6	62.1	54.6	44.0	35.3	61.1
Total	61.5	60.7	53.8	35.7	20.1	51.2

Source: U.S. Census Bureau, PUMS (1% Sample), 2000 Census of Population and Housing, tabulations by Center for Labor Market Studies.

When the educational traits and English-speaking proficiencies of immigrants are combined, the citizenship rates are found to vary from a low of 19% for those immigrants who both lacked a diploma and could not speak English to highs of 68% for those immigrants who spoke English very well and possessed an associate's or bachelor's degree. While part of the explanation for the very low rates of citizenship among those immigrants with limited schooling and English-

speaking proficiencies is attributable to their undocumented status, increased investments in the education and English speaking, reading, and writing abilities of immigrants would likely payoff in terms of higher rates of citizenship. These higher citizenship rates in turn could help increase both future voting rates and political participation among immigrants and contribute to a healthier and more vibrant democracy in the U.S.

## Immigrants' Participation in Selected Educational, Literacy, and Civic Activities

The background questionnaire that was used in conducting the IALS survey collected information on respondents' participation in a diverse array of education, training, literacy, and civic/community activities. To determine how the frequency of participation in such activities was associated with the literacy proficiencies of the foreign born, we analyzed variations in participation rates in such activities across levels on the composite literacy scale. Four such activities are analyzed in this section of the monograph: enrollment in education or training courses, use of public libraries, participation in civic/community organizations, and keeping up with current public affairs.

During the interview, respondents were asked whether they had enrolled in an education or training course over the past 12 months. If they had done so, they were asked to describe the number and types

of courses in which they had enrolled. Approximately one-third of the foreign born had enrolled in at least one such course over the previous 12 months (Table 45). The percent doing so, however, varied quite considerably by their composite proficiency level, ranging from only 18% for those with a level 1 composite proficiency to 31% among those with a Level 2 proficiency and to a high of nearly 60% among those with a Level 4 or 5 proficiency. Of those who had enrolled in at least one such course, the fraction taking two or more courses also increased with their composite proficiency level, ranging from a low of 17% among those in Level 1 to a high of 65% for those in Levels 4 and 5. Clearly, those foreign born persons with the strongest composite proficiencies were the most likely to be acquiring additional human capital through investments in education and training.

**Table 45:**

**Percent of Immigrants in the U.S. Taking an Education or Training Course in Past 12 Months by Level on the Composite Proficiency Scale**

Proficiency Level	Percent Taking At Least One Course	Of Those with a Course, Percent with Two or More Courses
1	18.0	17.3
2	31.1	49.9
3	54.0	60.5
4-5	59.0	65.1
All	31.2	45.6

Source: IALS survey, 1994.

Respondents also were asked to report on their frequency of use of public libraries, with allowable responses ranging from daily to never during the past year. Those foreign-born individuals with the most limited composite proficiencies were by far the most likely to report never using the public library. Nearly 71% of those with a Level 1 proficiency claimed that

they never used a public library, versus only 21% of those in Level 3 and only 15% of those in Levels 4 and 5 (Table 46). Use of the public library at least once per month was reported by only 13% of the foreign born with Level 1 proficiencies, versus 24% of those in Level 2 and 40% of those in Level 3.

**Table 46:****Frequency of Immigrants' Participation in Various Literacy and Civic Activities by Level on the Composite Proficiency Scale (in %)**

<b>Activity</b>	<b>Level 1</b>	<b>Level 2</b>	<b>Level 3</b>	<b>Level 4-5</b>
<i>Use a Public Library</i>				
• Daily	.3	4.7	2.0	8.8
• Weekly or every month	12.9	18.9	38.0	22.8
• Several times per year	15.9	29.3	38.5	53.8
• Never	70.9	47.0	21.4	14.6
<i>Participate in Voluntary or Community Organizations</i>				
• Daily	.9	1.1	2.9	1.0
• Weekly or every month	12.4	28.8	38.0	30.4
• Several times per year	7.5	19.9	17.4	24.1
• Never	79.2	50.2	41.6	44.4
<i>Frequency of Following Current Events or Public Affairs</i>				
• Most of the time	26.9	51.7	71.8	72.7
• Some of the time or now and then	51.6	42.2	21.8	27.3
• Hardly at all	21.5	6.0	6.4	0.0

Source: IALS survey, 1994.

Frequency of participation in voluntary or community organizations also was associated with the strength of the composite proficiencies of the foreign born. Nearly 80% of those in Level 1 reported that they never participated in such organizations, versus only 50% of those in Level 2, and 42 to 44% of those in Levels 3 through 5. Participation in such organizations on a monthly or more frequent basis was cited by only 13% of the foreign born in Level 1, versus 30% of those in Level 2, and 41% in Level 3 before declining back to 31% of those in Levels 4 and 5.

When asked how frequently they followed current events or public affairs, 22% of those in Level 1 reported “hardly at all,” versus only 6% of those in

Levels 2 and 3, and none of those in Levels 4 and 5. The share of the foreign born claiming to follow such events “most of the time” ranged from a low of 27% for those in Level 1 to 52% for those in Level 2 to highs of 72 to 73% for those in Levels 3 to 5. In summary, engagement in educational, training, literacy, and civic activities was consistently weakest among those immigrants with the most limited composite proficiencies. Their far more limited participation in human-capital building activities will reduce their future employability and earnings prospects while their sharply reduced civic engagement will weaken American democracy. An uneducated and ill-informed immigrant population is unlikely to contribute to the future strengthening of democratic institutions in America.

## Immigrants' Ratings of Their Current Reading, Writing, and Arithmetic Skills Needed for Daily Life

Respondents to the IALS survey also were asked to rate their current English reading and writing skills and their arithmetic skills needed to cope with daily life. Their responses were assigned to one of four categories: excellent, good, moderate, and poor. For pur-

poses of analysis, we combined the "good" and "moderate" responses into one category. The distributions of the responses to this set of questions by the composite proficiency levels of the foreign born are presented in Table 47.

**Table 47:**

**Immigrants' Ratings of Their English Reading and Writing Skills and the Arithmetic Skills Needed in Daily Life by Their Level on the Composite Proficiency Scale (in %)**

Activity	Level 1	Level 2	Level 3	Level 4-5
<i>Reading Skills</i>				
• Excellent	5.0	39.5	67.9	90.5
• Good to Moderate	41.3	56.0	32.1	9.4
• Poor	53.7	4.5	.0	.0
<i>Writing Skills</i>				
• Excellent	5.1	39.6	68.0	90.6
• Good to Moderate	41.2	56.0	31.3	9.4
• Poor	53.7	4.5	.5	.0
<i>Arithmetic Skills</i>				
• Excellent	5.0	39.9	68.9	90.5
• Good to Moderate	41.1	55.5	30.6	9.4
• Poor	53.9	4.6	.5	.0
<i>Satisfaction With Reading and Writing Skills in English</i>				
• Very satisfied	60.6	69.3	83.8	97.2
• Somewhat satisfied	39.4	30.7	16.2	2.8
• Somewhat or very dissatisfied	.0	.0	.0	.0

Source: IALS survey, 1994.

On average, across all three questions, those foreign-born individuals who had Level 1 composite proficiencies were far more likely than their more literate peers to report that their English reading, English writing, and arithmetic skills were poor, while those with Level 4 and 5 proficiencies were overwhelmingly likely to report that their English reading, English writing, and arithmetic skills were excellent. For example, nearly 54% of the foreign-born adults with a Level 1 composite proficiency reported their English reading skills as poor while only 5% of their peers in Level 2 did so, and none of those in Levels 3, 4, or 5 did so. At

the same time, slightly over 90% of the foreign born with Level 4 or 5 composite proficiencies rated their English reading skills as excellent versus 68% of those with Level 3 skills, 40% of those with Level 2 skills, and only 5% of those with Level 1 skills. A nearly identical pattern of results prevailed with respect to the self-ratings of English writing and arithmetic skills.

When asked to assess their degree of satisfaction with their existing reading and writing skills, a majority of the respondents in each proficiency level reported that they were "very satisfied." The proportion doing so varied with their composite proficiency level,

however, with the shares of respondents providing such ratings ranging from 61% for those with a Level 1 proficiency to a high of 97 % for those with a Level 4 or 5 proficiency. What is rather surprising, however, is that not one foreign-born respondent reported that they were “somewhat dissatisfied” or “very dissatisfied” with their existing English reading and writing skills, despite the fact that a slight majority of those with only a Level 1 proficiency rated their reading, writing, and arithmetic skills as “poor.” These findings

raise a number of important questions as to whether these individuals would be willing to devote the time and effort needed to improve their literacy skills and what types of incentives might be needed to get them to do so. To be effective, literacy instruction for immigrants may have to be devoted to assisting them in achieving specific skills that would help them be more efficient in carrying out daily tasks and in acquiring skills needed for occupational advancement at the workplace.

This research monograph was designed to provide both an objective description and a critical assessment of the literacy proficiencies of the adult immigrant population in the U.S. based on two unique national literacy assessments: the International Adult Literacy Survey of 1994 (IALS) and the National Adult Literacy Survey of 1992 (NALS). A summary of key research findings and a discussion of their public policy implications in a variety of arenas is presented below.

### Summary of Key Findings

(i) Findings of the IALS assessment revealed that the mean proficiencies of the nation's adult immigrants (16-65 years old) on each literacy and quantitative scale were quite low, falling well below the averages for all U.S. adults, which themselves are mediocre at best.<sup>68</sup> A majority of the nation's immigrants (53 to 55%) fell into the lowest proficiency level on each of the four scales, and typically three-fourths of them performed in the two lowest proficiency levels, indicating the existence of very limited English literacy proficiencies.

(ii) The mean proficiency scores of the nation's immigrant population on each of the four scales were substantially below those of their native-born counterparts. The size of these mean proficiency score differences ranged from 68 to 76 points, equaling or exceeding one standard deviation. On each of the four scales, the typical immigrant (median performer) achieved a proficiency score that would have ranked at the 16th to 19th percentile of the test score distribution for all U.S. adults. The mean proficiency scores of the foreign born increased with their years of formal schooling, the number of years since they first started learning English, and the length of their stay in the U.S.

(iii) The mean composite proficiencies of the foreign born in the U.S. were considerably below those of their counterparts in the other 19 high-income countries participating in the IALS survey. These findings held true for each major educational subgroup of immigrants, with the size of the gaps in mean composite scores ranging from 37 to 50 points. Immigrants in

the U.S. achieved mean test scores that were only at the 15th percentile for the world skills distribution on each of the four scales. On the world composite skills distribution, immigrants in the U.S. who lacked a high school diploma had a mean score that was equivalent to the 5th percentile versus a 15th percentile rank for high school graduates and a 41st percentile rank for those holding a bachelor's or higher academic degree. There is a need for further research on the sources of the comparatively weak literacy performance of U.S. immigrants relative to those of other nations. To what extent are the weaker proficiencies of U.S. immigrants attributable to our greater reliance on immigrants from non-English speaking countries, their lower exposure to English-speaking skills in their home country, and to lower investments in the literacy proficiencies of immigrants here relative to those received by immigrants in other countries?

(iv) The labor force behavior of immigrants in the U.S. was strongly associated with their literacy performance. Immigrants with stronger composite proficiencies were much more likely to be active participants in the labor force and less likely to be unemployed when they did seek work. Employment rates of adult immigrants ranged from a low of 59% for those with a Level 1 composite proficiency to a high of 95% for those with a Level 4-5 proficiency. The mean composite proficiency score of the employed exceeded that of the unemployed by 71 points, or nearly one full standard deviation, and of those not active in the labor force by 44 points.

(v) The mean literacy scores of the employed immigrant population in the U.S. fell considerably below those of their native-born counterparts on each of the four scales. The size of these differences in mean test score performance exceeded one standard deviation on each of the four scales. The mean composite test scores of the employed foreign born in the U.S. also were 30 or more points below those of their counterparts in the other 19 high-income countries, with even larger mean test score gaps prevailing for the unemployed.

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<sup>68</sup> See: Andrew Sum, et al., *The Twin Challenges of Mediocrity and Inequality*, 2002.

(vi) When employed, there were no discernible differences in full-time employment rates among immigrants by proficiency level at the time of the IALS survey; however, the employed with composite proficiency levels of 4 or 5 were more likely to work 40 or more weeks in the prior year than their less proficient peers. Employed immigrants with stronger literacy proficiencies also were more likely to obtain jobs with supervisory responsibilities, and they were considerably more likely to become employed in professional, para-professional managerial, and technical occupations with higher literacy and schooling qualifications. Employed immigrants with only a Level 1 proficiency on the composite scale were substantially over-represented in service and semi-skilled blue collar occupations.<sup>69</sup>

(vii) The mean weekly wages of full-time employed immigrants rose steadily and strongly with their performance on each of the four literacy scales.<sup>70</sup> Those immigrants with a Level 4 or 5 proficiency obtained mean weekly earnings that were three or more times as high as those of their peers with only a Level 1 proficiency. There were similar strong associations between the annual earnings of employed immigrants and their literacy proficiencies, with the mean annual earnings of employed immigrants with a Level 4 or 5 proficiency exceeding the mean annual earnings of their counterparts with a Level 1 proficiency by multiples of three to four. In each proficiency level on the composite scale, except Level 1, however, the mean weekly and annual earnings of employed immigrants exceeded those of their native-born counterparts.

(viii) Immigrants with stronger literacy proficiencies were considerably less likely to be members of poor/near poor families or to be dependent on cash public transfers from federal, state, or local government to support themselves or their families. While 48% of immigrants with a Level 1 proficiency were members of poor/near poor families, only 13% of

those with a Level 3 proficiency were, and only 9% of those with a Level 4 or 5 proficiency experienced such income inadequacy problems.

(ix) On average, immigrants with strong composite proficiencies were more likely to be actively engaged in literacy-related activities (visiting libraries), to be participating in civic and community organizations in their communities, and to be following political and public affairs on a more frequent basis. Immigrants with stronger composite proficiencies also were much more likely to have attended an education or training course over the 12 months prior to the IALS survey and to have enrolled in multiple courses when they did so. Those immigrants with stronger literacy proficiencies were acquiring more human capital, both on and off the job, which will have positive consequences for their future employability and earnings.

### **Implications for Public Policy**

(i) A national need to address English-language and literacy proficiency deficits of the immigrant population has increased over the past decade as a large new wave of immigrants reached our shores, many with limited formal schooling in their own countries and weak English-speaking skills. Nearly 40% of all 18 to 64 year old immigrants who arrived in the U.S. in the 1990s lacked a high school diploma or a GED. Between 1990 and 2000, the number of 18 to 64 year olds who reported to the Census that they spoke a language other than English increased from 21.7 to 32.8 million, a gain of 11.1 million or 51% over the decade.<sup>71</sup> The number of these immigrants who reported that they either did not speak English at all or not well rose even more sharply, increasing to just under 8.3 million by 2000, a gain of 71%. They were joined by another 7.2 million individuals who reported that they spoke English “well.” This group has been found by previous researchers to be significantly less likely to work than their immigrant peers who speak English “very well,”

<sup>69</sup> A relatively high fraction of immigrants with low proficiencies were also employed in skilled blue collar occupations.

<sup>70</sup> All of the weekly and annual earnings estimates are based on the NALS survey data.

<sup>71</sup> These estimates are based on the findings of the 1990 and 2000 Census and were published by the U.S. Census Bureau on its website. See: [www.census.gov](http://www.census.gov).

to earn significantly less when they do work, and to be less likely to become U.S. citizens. Many members of this group would likely benefit from English-as-a-second language or adult basic education services.

(ii) There is a critical need to improve our information base on the performance of key federally funded education, employment, and training programs in serving the immigrant population and improving their literacy, educational, and labor market outcomes. A number of major nationally-funded employment and training programs of the U.S. Department of Labor, including those funded under the Workforce Investment Act of 1998, do not capture any information on the nativity status, visa status, or citizenship status of program enrollees and provide very limited information on their reading and math proficiencies at entry or exit.<sup>72</sup> The national information base on state-operated adult basic education programs funded by the U.S. Department of Education does capture information on selected demographic characteristics of program participants, enrollments in English-as-a-second language programs and adult basic education programs, and a number of key educational outcomes, but it does not identify the specific numbers of immigrants enrolled in these programs, their national origins, their citizenship or visa status, or their English-reading, writing, and math skills gains during their course of participation.<sup>73</sup> Immigrants clearly accounted for a high share of all enrollees in these adult education programs during the 2000-2001 program year, since enrollments in English as a Second Language (ESL) programs alone represented 42% of all enrollments in these programs.<sup>74</sup> It would be highly desirable to track the true extent of immigrant enrollments in these programs, their English-reading and writing proficiencies at entry and exit, and their educational, employment, and citizenship outcomes.<sup>75</sup> There is a critical need for more comprehensive impact evaluations of the effectiveness

of adult basic education programs for the nation's immigrants, including experimental design evaluations using randomly assigned treatment and control groups with multiple intervention strategies.

(iii) As revealed earlier in this paper, only slightly more than one-half of all immigrants 20 and older with a least five years of tenure in the U.S. in 2000 were naturalized citizens. The citizenship rates of these immigrants were found to vary systematically with their years of formal schooling and their English-speaking proficiencies. Better-educated and more English-proficient immigrants were substantially more likely to be citizens than their less educated and less literate counterparts. Very similar citizenship patterns held true for Mexican immigrants, who had a sharply lower overall citizenship rate in 2000 (30%).<sup>76</sup>

There are diverse forces at work underlying the low rates of citizenship among the nation's immigrants, including the existence of a large pool of undocumented immigrants (8 to 9 million) who are not eligible for citizenship. Among those eligible, however, limited formal schooling and weak English-speaking and English-reading proficiencies serve as effective barriers to becoming U.S. citizens. A more concerted campaign should be undertaken in conjunction with state and local adult basic education agencies, community-based literacy organizations, churches, and community colleges to bolster the literacy, English-speaking, reading, and writing skills of immigrants, and to enable more of them to become citizens and active participants in the political lives of their communities. Increasing citizenship rates among existing immigrants could help improve voter turnout in future national and state elections in the U.S. and strengthen citizen participation in national, state, and local politics. A more literate and politically involved immigrant population could help strengthen American democracy in the near future.

<sup>72</sup> The national management information system for this program is known as the Workforce Investment Act Standard Record Data (WI-ASRD). The Wagner-Peyser labor exchange programs run by states with national DOL funding also fail to capture such data on immigrant characteristics. Some states do capture this information on the MIS systems for their One Stop Career Centers.

<sup>73</sup> See: U.S. Department of Education, Office of Vocational and Adult Education, *Adult Education and Family Literacy, Program Year 2000-2001, Report to Congress on State Performance*, Washington, D.C., 2003.

<sup>74</sup> *Ibid*, p. 13.

<sup>75</sup> The individual student records on the MIS systems of individual states can be used to conduct this analysis at the state level, but separate identifiers for immigrant status, citizenship status, and the national origins of immigrants are needed. For an example of the types of analyses that can be conducted, See: John Comings, et al., *New Skills for A New Economy*, 2000.

<sup>76</sup> For example, at the time of the 2000 Census, citizenship rates among Mexican immigrants in the U.S. varied from lows of 11 to 13 percent among those with 12 or fewer years of schooling and who could not speak English to highs of 60 percent among those with Associate or Bachelor degrees who could speak English very well.

(iv) The NALS and IALS assessments were designed to estimate the literacy and quantitative proficiencies of the adult population (16 and older) of the nation. There are also a variety of national assessments of the literacy performance of school-age children in the U.S. including the National Assessment of Educational Progress (NAEP), which provides on-going assessments of the reading, writing, math, and science proficiencies of U.S. students ages 9, 13, and 17. Unfortunately, only a few of the NAEP assessments (e.g., reading in 1992) appear to have captured information on the nativity status of the student test takers. The 1992 assessments in reading revealed that foreign-born students, on average, scored significantly below their native-born counterparts.<sup>77</sup> For example, eighth grade students who were born abroad had a mean scale score in reading that was 19 points or .5 standard deviations below that of their native-born counterparts. The mean reading score of foreign-born twelfth graders was 14 points or .4 standard deviations below that of their native-born counterparts.<sup>78</sup>

More recent NAEP assessments have provided information on the test scores of students classified as limited English-proficient (LEP). Results from recent reading and writing assessments reveal that students characterized by their schools as limited English-proficient score quite poorly on these tests.<sup>79</sup> For example, the results of the 1998 and 2002 reading assessments for the nation's eighth graders revealed that these LEP students obtained mean reading scale scores that were 1.3 standard deviations below those of their peers who were not classified as LEP students. On the NAEP writing assessments for eighth graders in 1998 and 2002, the mean scale scores of LEP students were 1.3 and 1.1 standard deviations, respectively, below those of their other classmates.

The weak academic achievement among limited English-speaking students is likely to prove to be a key factor in their dropping out of high school before graduation. Our analysis of the school enrollment/educational attainment of 16-19 year old immigrants in the U.S. in 2000 revealed that those youth with limited English-speaking proficiencies (i.e., those who do not speak English or do not speak it well) were considerably more likely than were their English-proficient counterparts to have dropped out of high school before receiving a diploma. Fifty-seven percent of the limited English speaking versus only 11% of those teens who reported speaking English well or English only had dropped out of high school by the time of the 2000 Census.<sup>80</sup> Additional and more efficient educational and English-as-a-second language investments in immigrant children and the native-born sons/daughters of immigrants are likely to be needed to boost their English literacy proficiencies and ultimate educational attainment.

(v) The findings of the 1992 NALS survey, the 1994 IALS survey, and the 2000 Census of Population and Housing regarding the literacy proficiencies and educational attainment of the nation's immigrant population reveal the existence of a number of serious tensions between current national immigration policy, educational policy, and the achievement of labor market goals for the native-born population. Immigrants, especially well-educated legal immigrants, have made important contributions to the nation's economy, its skilled work force, and its social life over the past decade. Even at the low skill end of the labor market, immigrants have contributed in important ways to labor force growth in many regions and states and to the prevention of skill shortages and accompanying wage pressures during the economic boom of the mid to late 1990s.

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<sup>77</sup> See: U.S. Department of Education, National Center for Education Statistics, "The 1992 NAEP Reading Report Card: NAEP Data," website. (<http://nces.ed.gov/nationsreportcard/>)

<sup>78</sup> Both of these differences in mean reading test scores were statistically significant at the .01 level.

<sup>79</sup> See: U.S. Department of Education, National Center for Education Statistics, "NAEP Data for Reading and Writing Grade 8, 1998 and 2002," website. (<http://nces.ed.gov/nationsreportcard/naepdata/>)

<sup>80</sup> Previous research has shown that the younger the age of an immigrant child coming to the U.S., the greater is their English-speaking abilities later in life and the greater the likelihood that he/she will complete more years of schooling and achieve superior labor market outcomes. See: Hoyt Bleakley and Aimee Chin, *Language Skills and Earnings*, 2001.

The very weak literacy proficiencies of many immigrants and the limited formal schooling of many recent immigrants do, however, conflict in a very direct manner with a number of the nation's educational goals. Among the educational goals established by the nation's governors at the 1989 Education Summit in Charlottesville, Virginia were the attainment of a high school graduation rate of at least 90% by the year 2000 (Goal 2) and that "by the year 2000, every adult American will be literate and will possess the knowledge and skills necessary to compete in a global economy" (Goal 6).<sup>81</sup>

The findings of the NALS and IALS assessments have revealed that the absolute and comparatively weak literacy performance of many immigrant adults seriously complicates the task of achieving Goal 6, and the IALS and 2000 Census findings indicate quite starkly that very high fractions of recent immigrants, including adults and teens, lack the high school diplomas needed to achieve Goal 2. The conflict between the achievement of national educational goals and current immigration policy is particularly severe for undocumented immigrants, who often have both limited schooling and literacy skills. National policymakers need to openly address these important tradeoffs between educational goals and existing immigration policies.

Similar tensions exist between current immigration policy and desirable national labor market goals. The U.S. currently lacks a specific set of labor market goals to guide national economic policy. Empirical research, however, has revealed that the increased supply of poorly educated immigrant workers has placed added pressures on the wages and annual earnings of native-born dropouts and on high school graduates, thereby depressing their real wages and living standards and contributing to an increase in the working poor.<sup>82</sup> An immigration policy supportive of economic growth and reduced wage inequality would curtail the importation of less educated and less skilled workers, especially among the undocumented immigrant population which has grown substantially over the past decade due in large part to a lack of adequate enforcement policies by the U.S. Immigration and Naturalization Service (INS) and other federal/state agencies.<sup>83</sup> Our nation's human capital would clearly benefit from an objective and sustained national policy debate on the benefits and costs of immigration and the need for immigration reforms to make national educational, labor market, and immigration policies more compatible with each other.

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<sup>81</sup> See: National Education Goals Panel, *The National Education Goals Report: Building A Nation of Learners*, U.S. Government Printing Office, Washington, D.C., 1994.

<sup>82</sup> See: (i) George J. Borjas, *Heaven's Door: Immigration Policy and the American Economy*, Princeton University Press, Princeton, New Jersey, 1999; (ii) Andrew M. Sum and W. Neal Fogg, *The Changing Workforce: Immigrants and the New Economy in Massachusetts*, Massachusetts Institute for A New Commonwealth, Boston, 1998; (iii) Steven A. Camorata, *The Wages of Immigration: The Effect on the Low-Skilled Labor Market*, Center for Immigration Studies, Washington, D.C., 1998; (iv) David Jaeger, *Skills Differences and the Effect of Immigration on the Wages of Natives*, U.S. Department of Labor, Bureau of Labor Statistics, Washington, D.C., 1998.

<sup>83</sup> See: Vernon Briggs, *Mass Immigration and the National Interest*, M.E. Sharpe, Inc., Armonk, New York, 1996.

## APPENDIX A

### **The Mean Proficiencies of the Native Born and Immigrants in the U.S. by Years of Schooling Completed: Findings from the NALS Survey**

In the main body of the monograph, findings of the NALS survey on the mean composite proficiencies of native- and foreign-born adults by years of schooling completed were presented. In this appendix, we present findings from the NALS survey on the mean proficiency scores of the native and foreign born on the prose, document, and quantitative scales. On all three scales, the mean scores of the native born exceeded

those of the foreign born in each schooling group, and all of these differences were statistically significant at the .01 level. The absolute size of the mean proficiency gaps were largest for those adults lacking a regular high school diploma or GED certificate and smallest for those adults holding a master's or more advanced academic degree. Table A-1 presents the findings for the prose, document, and quantitative scales.

**Table A-1:**

#### **Comparisons of the Proficiency Scores of Native-Born and Immigrant Adults in the U.S. by Level of Schooling Completed**

Level of Schooling	Prose Scale			Sig. of Difference
	Native Born	Immigrants	Difference	
Less than high school	229	157	72	0.01
High school diploma/GED	273	222	51	0.01
1-3 years college	300	262	38	0.01
Bachelor's degree	327	276	51	0.01
Post bachelor's degree	339	311	28	0.01
Level of Schooling	Document Scale			Sig. of Difference
	Native Born	Immigrants	Difference	
Less than high school	224	157	67	0.01
High school diploma/GED	267	222	45	0.01
1-3 years college	294	263	31	0.01
Bachelor's degree	319	275	44	0.01
Post bachelor's degree	328	305	23	0.01
Level of Schooling	Quantitative Scale			Sig. of Difference
	Native Born	Immigrants	Difference	
Less than high school	224	155	69	0.01
High school diploma/GED	273	226	47	0.01
1-3 years college	300	258	42	0.01
Bachelor's degree	326	286	40	0.01
Post bachelor's degree	336	318	18	0.01

Source: NALS survey, 1992.

## APPENDIX B

### **Multiple Regression Analysis of the Prose Proficiencies of U.S. Immigrants: Findings from the IALS Survey**

In the text of this monograph, we described the findings of a multivariate statistical analysis of the composite proficiencies of U.S. immigrants. The same set of seven predictor variables also were used to predict

the prose proficiencies of U.S. immigrants. The results of the multiple regression analysis are displayed in Table B-1.

**Table B-1:**

#### **Findings of the Multiple Regression Analysis of the Prose Proficiencies of Immigrants (Age 16-65) in the U.S., 1994**

<b>Variable</b>	<b>Coefficient</b>	<b>Standard Error</b>	<b>t-statistic</b>
Constant	80.0	8.15	9.81***
EDCOMP	5.8	.58	10.05***
ENG1	122.9	9.23	13.30***
ENG2	68.8	12.18	5.65***
ENG3	50.7	10.49	4.83***
ENG4	16.1	9.96	1.62*
ENG5	.6	9.02	.06
YRSENG	1.2	.25	4.79***

Notes: \*\*\* sig. at .01 level

\* sig. at .10 level

R2 = .558

Adj. R2 = .553

Degrees of Freedom = 7,554

F = 100.1

Sig. F = .001

Source: IALS survey, 1994.

Five of the seven predictor variables, including years of schooling and years spent studying English, were statistically significant at the .01 level, and the variable ENG4 representing an immigrant who first began studying English between ages 14 and 21 was statistically significant at the .10 level. Each year of schooling would raise the expected prose proficiency score of immigrants by nearly 6 points. An immigrant whose first language was English would be expected to score 123 points higher than an immigrant who could not speak English at the time of the IALS survey. Each

year that has passed since one first began studying English would raise the expected prose score by approximately 1.2 points. The regression model was able to explain between 55 and 56% of the variation in the prose proficiencies of U.S. immigrants. The findings of the multiple regression model were used to predict the prose proficiency scores of three hypothetical immigrants. The characteristics of these three immigrants and their predicted prose proficiencies are displayed in Table B-2.

**Table B-2:**

**Predicted Prose Proficiency Scores for Three Hypothetical Immigrants**

	Predicted Score
Individual A: Does not speak English, completed 10 years of school	138
Individual B: Began speaking English at age 10, is now 30 years old., H.S. graduate	242
Individual C: Began speaking English as a first language, 30 years old, holds a B.A. degree	331

Source: IALS survey, 1994, tabulations of the authors.

Individual A is an immigrant who did not speak English at all at the time of the IALS assessment and completed only 10 years of schooling in his home country. This individual's predicted prose proficiency score was only 138 (at the low end of Level 1). Individual B is an immigrant who is 30 years old, began studying English at age 10, and obtained a regular high school diploma. The predicted prose proficiency score of this individual was 242, which is in the middle of Level 2. The third hypothetical immigrant is an

individual whose first language was English, obtained a bachelor's degree, and was 30 years old at the time of the IALS assessment. This individual has a predicted prose proficiency of 331, which is at the low end of Level 4. These findings clearly reveal the large joint impacts of schooling, age at which one first learned the English language, and years spent studying English on the literacy proficiencies of U.S. immigrants in the mid-1990s.

## APPENDIX C

### **The Selection of the 19 Other High-Income Countries for Inclusion in the IALS Comparative Analysis of Immigrants' Literacy Proficiencies**

The International Adult Literacy Survey (IALS) was conducted in 23 countries over the 1994-98 period. In two of these countries, Canada and Switzerland, separate assessments were undertaken for language groups. In Canada, there were separate assessments in French and English. In Switzerland, there were separate literacy assessments in French, German, and Italian. Altogether, IALS assessment data were available for 26 nations/language groups, including the U.S.

Six of the nations participating in the IALS assessment, however, had relatively low per capita outputs

as measured by their Gross Domestic Product. Each of these six countries (Chile, Czech Republic, Hungary, Slovenia, Poland, and Portugal) had a GDP per capita in U.S. dollars of \$10,690 or less in 1998 while each of the other higher income countries had per capita GDPs ranging from \$18,340 (Ireland) to \$40,080 (Switzerland).<sup>84</sup> Our comparisons of the literacy performance of U.S. immigrants with those of their peers in other high-income countries are confined to these 19 other high-income countries/language groups. A listing of the 19 countries is presented in Table C-1 below.

**Table C-1:**

#### **List of the Other 19 High-Income IALS Countries/Language Groups Included in the Prose, Document, Quantitative, and Composite Score Analyses**

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Australia	Germany	Norway
Belgium (Flanders)	Great Britain	Sweden
Canada (English)	Ireland	Switzerland (French)
Canada (French)	Italy	Switzerland (German)
Denmark	Netherlands	Switzerland (Italian)
Finland	New Zealand	
France	Northern Ireland	

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<sup>84</sup> See: The World Bank, *Entering the 21st Century: World Development Report, 1999/2000*, Oxford University Press, New York, 2000.

## APPENDIX D

### **The Average Weekly Earnings of Full-Time Employed Immigrants in the U.S.: Findings from the NALS Survey**

The NALS survey collected data on a variety of weekly earnings measures from employed respondents. Weekly earnings data were collected for jobs held at the time of the survey, and persons employed in the prior 52 weeks were asked to estimate their average weekly earnings over the 52-week period. Data also were made available on average weekly hours of employment in the prior calendar year. We, thus, can estimate average weekly earnings on full-time jobs held in the prior year.

Our estimates of the average weekly earnings of employed immigrants who usually worked full-time during the prior year (1991-92) are displayed in Table D-1 below. Findings are provided for workers in each proficiency level on the prose, document, quantitative,

and composite scales. On each of the four scales, the mean weekly earnings of full-time employed immigrants increased uniformly and strongly with their proficiency level. For example, along the composite scale, mean weekly earnings ranged from a low of \$268 for those in proficiency Level 1, to \$459 for those in proficiency Level 2, to \$567 for those in proficiency Level 3, to a high of \$964 for those in the two highest proficiency levels (4 and 5). Similar patterns prevailed along each of the other three scales. All of the differences between each pair of earnings were statistically significant at the .01 level. Immigrant workers in the U.S. during the early 1990s with strong literacy and quantitative skills substantially outearned their peers with more limited proficiencies.

**Table D-1:**

#### **Average Weekly Earnings on Full-Time Jobs Held by Immigrant Workers During the Prior 12-Month Period, by Level on Each Proficiency Scale**

<b>Proficiency Scale</b>	<b>Level 1</b>	<b>Level 2</b>	<b>Level 3</b>	<b>Levels 4-5</b>
Prose	\$ 278*	\$ 427*	\$ 618*	\$ 981*
Document	294*	439*	576*	915*
Quantitative	259*	433*	560*	902*
Composite	268*	459*	567*	964*

\*All differences between each pair of weekly earnings in a given row are statistically significant at the .01 level.  
Source: NALS survey, 1992.

## APPENDIX E

### **The 1999 Mean Annual Earnings of Employed Male and Female Immigrants in the U.S. by Years of Schooling and English-Speaking Proficiency: Findings from the 2000 Census**

In the text of the monograph, estimates of the 1999 annual earnings of employed foreign-born persons in the U.S. were presented. These earnings estimates, based on the findings of the 2000 Census of Population and Housing, were provided for employed immigrants 20 years of age or older in 30 educational/ English-speaking proficiency subgroups. Each employed immigrant was assigned to one of six educational attainment categories and one of five English-speaking proficiency categories, ranging from those who could not speak English at all to those who only spoke English. The ratings of English-speaking proficiency were based on self-reports of household members, not on any objective assessment of their speaking abilities.

In the tables below, we provide similar 1999 annual earnings estimates for immigrant men and women separately. The estimates are restricted to those employed immigrants 20 and older who earned at least \$2,000 during the calendar year. An analysis of the findings reveals that, for both immigrant men and women, annual earnings are strongly associated with their educational attainment and English-speaking proficiency. The absolute and relative size of the mean earnings gaps between those immigrants with the most schooling (master's degree or higher) and highest English-speaking proficiencies and those with the least schooling (high school dropouts) and most limited English-speaking abilities are extraordinarily large. The top earnings groups among both men and women obtain mean annual earnings five to six times as high as those of the bottom earnings group.

**Table E-1:**

#### **Mean Annual Earnings of Immigrant Men and Women (20 and Older) in the U.S. by Years of Schooling and English-Speaking Proficiency: 1999**

Years of Schooling, by gender	English-Speaking Proficiency					Total
	English Only	Very Well	Well	Not Well	Not at all	
<b>Men</b>						
Less than 12 or 12 but no diploma	\$ 24,208	\$ 25,063	\$ 24,055	\$ 18,993	\$ 14,501	\$ 20,850
HS diploma or GED	35,597	29,906	26,723	21,124	16,040	27,510
1-3 years of college, no degree	43,608	34,707	30,630	23,758	17,580	34,156
Associate's degree	44,933	38,228	33,391	26,923	26,719	37,769
Bachelor's degree	66,452	52,736	45,014	35,067	26,397	53,056
Master's or higher degree	92,139	80,061	55,442	36,022	33,870	76,406
Total	51,958	45,986	31,660	21,102	15,317	36,670
	English Only	Very Well	Well	Not Well	Not at all	Total
<b>Women</b>						
Less than 12 or 12 but no diploma	\$ 15,941	\$ 15,895	\$ 16,216	\$ 13,790	\$ 10,508	\$ 14,275
HS diploma or GED	20,744	20,045	18,016	14,928	11,092	18,453
1-3 years of college, no degree	26,803	23,028	20,689	16,745	13,958	22,877
Associate's degree	29,067	27,658	22,917	18,982	12,759	26,254
Bachelor's degree	40,009	36,404	30,779	22,784	17,217	35,342
Master's or higher degree	50,403	49,631	35,217	19,278	17,236	46,072
Total	29,553	29,460	21,764	15,118	10,976	24,541

Note: Sample was restricted to those individuals with at least \$2,000 in annual earnings during calendar year 1999. Source: U.S. Census Bureau, Decennial Census of Population and Housing (PUMS 1% Sample), 2000.



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