



# Briefing Note

Commission for Labor Cooperation

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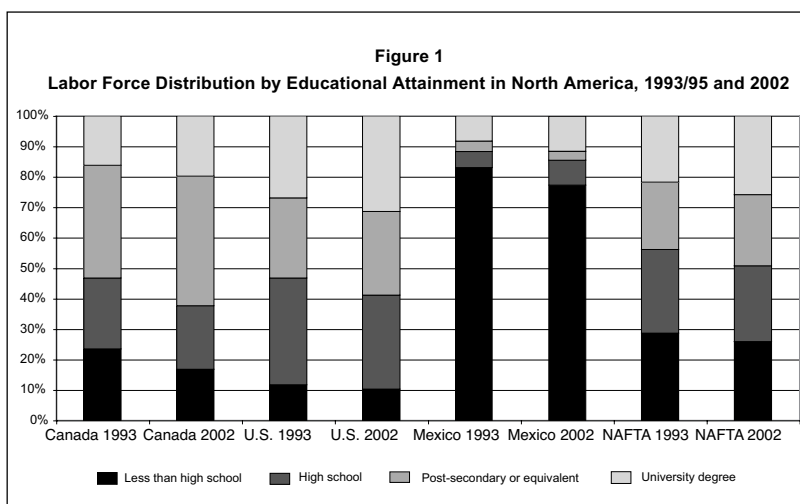
## LABOR FORCE EDUCATIONAL ATTAINMENT ON THE RISE IN NORTH AMERICA

Recent statistics indicate that the North American labor force is better educated than it was 10 years ago, particularly the female labor force. Higher levels of international trade and the increasing use of information and communications technologies (ICT) have been the main catalysts in the growing demand for skilled labor (Gottschalk and Hansen 2002), which in turn has encouraged young people in the three countries to remain in school longer. Similarly, older workers have returned to the classroom to update their knowledge and stay competitive with younger labor force entrants. This note briefly describes the increases in the educational attainment of the North American labor force and discusses the impact of ITC on education and the workplace.

### Labor Force Educational Attainment

In North America as a whole, the number of university graduates as a proportion of the labor force increased significantly between 1993/95 and 2002, from 22% to 26% (see figure 1). In addition, the proportion of persons in the labor force with post-secondary education grew slightly over the same period, from 22% to 23%. On the other hand, the proportion of labor force participants in North America with less than high school education fell from 29% to 26% between 1993/95 and 2002; and the proportion with a high school diploma or the

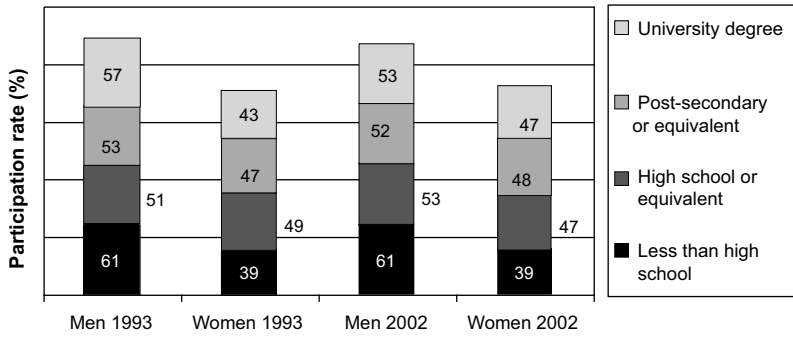
equivalent also dropped slightly in the same period. Although this general trend is partly the result of the factors mentioned in the introduction, it is also necessary to take into account some distinctive factors in the individual countries.



In Canada, the decision made by young people to stay in school longer before entering the labor force has been motivated by the goal of acquiring greater skills to guarantee better jobs and wages, as well as a longer work life (Sunter 2001). Consequently, during the 1990s, an increasing number of young people graduating from high school decided to pursue further education.<sup>1</sup> From 1997 to 2000 alone, the number of university students (aged between 18 and 24) rose by 17%, of whom two-thirds were women (Statistics Canada 2003b). Nonetheless, although the number of women receiving university degrees grew at a slightly faster rate than for men between 1993 and 2002, male labor force participation rates remained higher at all educational levels (see figure 2).

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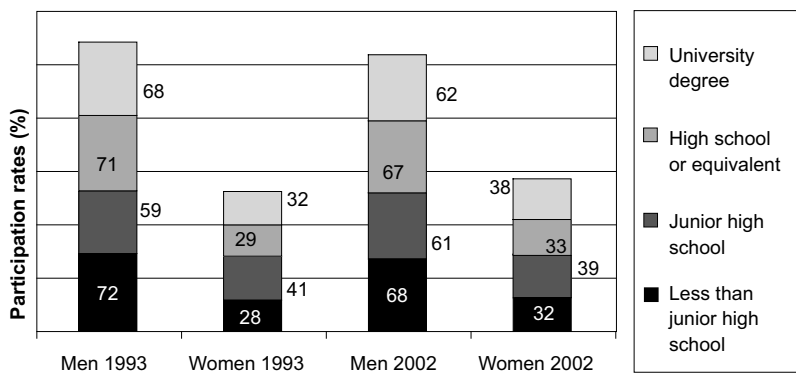
**Figure 2**  
**Labor Force Participation Rates by Level of Education and Sex, Canada, 1993 and 2002**



In the United States, the decision to remain at school after completing high school and before entering the labor force is primarily motivated by the desire to obtain higher wages and more stable employment.<sup>2</sup> Whereas in 1993, 63% of high school graduates immediately continued on to a higher level, by 2002 this figure had risen to 65%. Of the remaining 35%, 80% joined the labor force, but faced a very high unemployment rate. Of all university students enrolled in 2002, 68% were women (Bureau of Labor Statistics 2003), even though most members of the economically active population with a university-level education were still men. In fact, the situation in the United States is very similar to that of Canada, in that women do not constitute a majority at any labor force educational level (see figure 3), despite the fact that, since 1982, more women than men have obtained university degrees (Department of Commerce 2002).

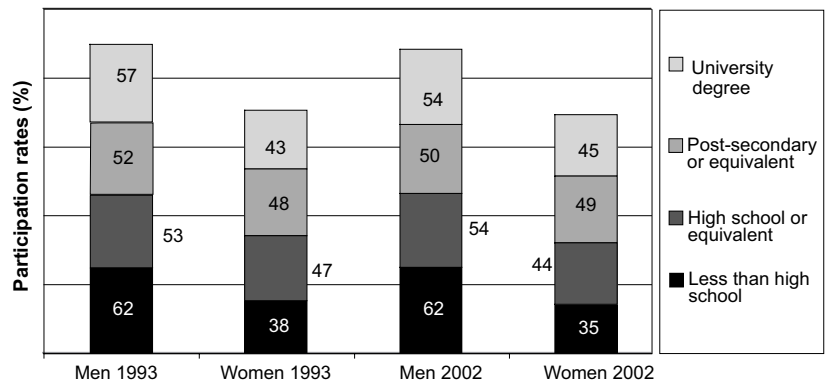
As is the case in Canada and the United States, young people in Mexico are also staying in school longer. For example, the proportion of university

**Figure 4**  
**Labor Force Participation Rates by Education and Sex, Mexico, 1993 and 2002**



graduates in the total labor force increased from 10% in 1993 to 14% percent in 2002, an absolute increase of 2.5 million graduates. On the other hand, the proportion with less than *secundaria* (roughly equivalent to junior high school in Canada and the United States) fell from 61% to 50% between 1993 and 2002, possibly indicating a desire by young people to increase their qualifications before entering the labor force. The increase in educational attainment of young people has been slightly more pronounced among girls than among boys (CONAPO 2000); nonetheless, as in the other two countries, women remain in a minority at all educational levels of the economically active population (see figure 4<sup>3</sup>).

**Figure 3**  
**Labor Force Participation Rates by Level of Education and Sex, United States, 1993 and 2002\***



### The Impact of ICT

With regard to the impact of ICT on education and workplaces in North America, the common denominator in all three countries has been the increasing tendency for young people to choose technical and professional programs in technology-related fields. In Canada, during the period from 1997-1998 to 2000-2001, the number of university students enrolled in engineering and applied sciences increased by 10% and enrollment in mathematics and physical sciences grew by 19%. Moreover, the number of women enrolled in these two fields of study rose by 20% during this three-year period, although only representing 23% and 30%, respectively, of all students in these fields (Statistics Canada 2003a). In the case of

workplaces, a study based on data from the 1999 Workplace and Employee Survey established a clear association between the investment in ICT made by private companies—especially in computer equipment—and their employees’ educational levels. Consequently, the most highly qualified people tend to be hired by the most technologically intensive companies. Likewise, companies with highly trained employees (i.e., those with university and postgraduate studies), tend to invest more in ICT (Statistics Canada 2002).

In the United States, the influence of ICT has increased the number of graduates in computer-related areas, particularly because the Department of Education has developed a very aggressive strategy to promote the number of students, both young people and adults, entering related professions (Cisco Systems 2003). The majority of workers in this knowledge sector have university degrees,<sup>4</sup> while the number of people with incomplete university studies who return to school to obtain a technical degree requiring one or two years’ study is also rising quickly in this sector (Moncarz 2002). This would seem to be a consequence of the rising demand for this type of work in the U.S. economy.

Finally, the trend in Mexico is similar to those in the other two countries. Although the number of

university students enrolled in ICT-related courses was just 7% of the national total in 1993, by 2001 this figure had risen to almost 11%. For 2001-2002, the number of students enrolled in ICT courses was second only to that of law degrees (INEGI 2002). Moreover, student enrollment in technical courses<sup>5</sup> almost tripled between 1992-1993 and 2000-2001 (INEGI 2000a). With regard to participation by gender, available data shows that the percentage of women with technical, professional, and postgraduate education in the area of computer technology was 46% in 2000 (INEGI 2002).

In the case of workplaces, the leading sectors of economic activity (in the private, non-financial sector) in terms of Internet access, e-mail availability, and network connections, during 1999, were the construction, agroindustrial and manufacturing industries (INEGI 2000b). This necessarily implies a considerable investment in training for employees who are less familiar with the use of ICT.

## Conclusion

Generally speaking, the levels of educational attainment of labor force participants in North America have improved over the last decade. The proportion of less educated persons in the total labor force has fallen, while the proportion of university graduates has risen.

## Definitions and Data Sources

**Definitions.** Educational attainment is defined as the highest level of schooling reached by an individual. In order to facilitate the comparison of the three countries, this note uses four levels of educational attainment. 1) “Less than high school” includes, in all three countries, those individuals whose highest level of schooling is less than high school completion (*bachillerato* in Mexico). 2) “High school diploma or equivalent” includes those who have obtained a high school diploma in Canada, those who have obtained a high school diploma or who have the General Educational Development certificate in the United States, and those who have obtained a high school (*bachillerato*) degree or its equivalent in Mexico. (3) “Post-secondary or equivalent” includes those who have undertaken some form of education beyond high school, but less than a university degree. In Canada, this includes those who have undertaken some post-secondary education, whether or not they completed the program. In the United States, this category includes those who have some

university-level education, but not a bachelor’s degree, as well as those who have obtained an “associate’s degree” (equivalent to the first two years of university courses). In Mexico, this category includes those who began, but did not complete, university. (4) “University degree” includes, in all three countries, persons who have obtained a bachelor’s degree or a post-graduate university degree.

**Sources.** For Canada, data is from the Labour Force Historical Review (2002) and refers to persons aged 15 years and older. For the United States, data is from the Current Population Survey (provided by the Bureau of Labor Statistics) and refers to persons aged 25 years and older. For Mexico, data is from the National Employment Survey (Encuesta Nacional de Empleo), adjusted by the Ministry of Labor and Social Welfare, and refers to persons aged 15 years and older. Mexican data is for the years 1995 and 2002 for figure 1 and for 1993 and 2002 for figure 4; Canadian and U.S. data is for 1993 and 2002.

The ICT sector has generated significant changes in the pattern of university and technical-level enrollments in North America during this period, increasing the number of students in technology fields such as engineering, applied sciences, mathematics, and other computer-related areas.

## Notes

<sup>1</sup> In 1995, the proportion of the Canadian population with post-secondary education (48%) was the highest among all OECD countries. The OECD average was 23% (Statistics Canada 2000).

<sup>2</sup> Real earnings of workers with a university degree have increased since 1979, especially for female university graduates, whose earnings rose almost twice as quickly as those of men. On the other hand, the earnings of persons who dropped out of high school to join the labor force generally

declined during the same period (Bureau of Labor Statistics 2000).

<sup>3</sup> Because the majority of labor force participants in Mexico have not completed high school (*bachillerato*), the data in figure 4 is broken down differently than elsewhere in this note in order to provide a more accurate portrait of the situation in Mexico. In particular, a distinction is made between those who have completed junior high school (*secundaria*) and those who have not.

<sup>4</sup> It should be noted that female participation in this sector is quite low. For the 1993-1994 period, almost 72% of university students graduating from computing, programming, systems analysis, and other related courses were men. By 1999-2000, these percentages were essentially unchanged (Department of Education 2001).

<sup>5</sup> Includes both on-the-job training and courses at the high school (*bachillerato*) level.

## References

- Bureau of Labor Statistics. 2000. *Working in the 21<sup>st</sup> Century*. Washington, D.C.: U.S. Department of Labor.
- . 2003. "College Enrolment and Work Activity of 2002 High School Graduates." *News*, 25 June.
- Cisco Systems. 2003. "Cisco's Commitment to Education." *Education in the Internet Economy*. <http://www.cisco.netacad.net/public/workforce/issues/WorkforceBetter.html> [3 November 2003].
- Consejo Nacional de Población (CONAPO). 2000. *Situación actual de las y los jóvenes en México. Diagnóstico sociodemográfico*. Mexico City: CONAPO. [www.conapo.gob.mx/publicaciones/cuaderno2.htm](http://www.conapo.gob.mx/publicaciones/cuaderno2.htm) [3 November 2003].
- Department of Commerce. 2002. *The Big Payoff: Educational Attainment and Synthetic Estimates of Work-Life Earnings*. Washington, D.C.: U.S. Census Bureau.
- Department of Education. National Center for Education Statistics. 2001. *Digest of Education Statistics*. Washington, D.C.
- Gottschalk, Peter and Michael Hansen, 2003. "Is the Proportion of College Workers in Noncollege Jobs Increasing?" *Journal of Labor Economics*, vol. 21, no. 2 (April): 449-71.
- Instituto Nacional de Estadística, Geografía e Informática (INEGI). 2000a. *Estadística básica del sistema nacional de educación tecnológica*. Aguascalientes.
- . 2000b. *Encuesta nacional sobre la conversión informática año 2000 en el sector privado no financiero*, junio 1999 (Tercera etapa). Aguascalientes.
- . 2002. *Estadísticas de tecnologías de la información y las comunicaciones. Tecnologías de información y comunicaciones en el sector educativo y de investigación científica. Formación de especialistas en tecnologías de información y comunicaciones*. Aguascalientes. [www.inegi.gob.mx/est/default.asp?c=3421](http://www.inegi.gob.mx/est/default.asp?c=3421) [3 November 2003].
- Moncarz, Roger. 2002. "Training for Techies: Career Preparation in Information Technology." *Occupational Outlook Quarterly*, vol. 46, no. 3 (fall): 39-45.
- Statistics Canada. 2000. "Education Indicators." *The Daily*, 21 February.
- . 2002. "Working Smarter: The Skill Bias of Computer Technologies." *The Daily*, 6 May.
- . 2003a. "University Enrolment by Field of Study." *The Daily*, 31 March.
- . 2003b. "University Enrolment by Age Groups." *The Daily*, 17 April.
- Sunter, Deborah. 2001. "Demography and the Labour Market." *Perspectives on Labour and Income*, vol. 13, no. 1 (spring 2001): 28-39.

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