

Sizing up employment in clothing manufacturing

Katherine Marshall, Denise Guèvremont and Stéphane Pronovost

From 1989 to 1994 employment in clothing manufacturing dropped by 28% (-31,800 jobs), compared with a 14% decline for all manufacturing. As with many manufacturing industries, this decline has been linked to a number of factors, such as the strength of the economy, market demand for the product, technological advances, trade liberalization and the industry's ability to compete against imports. Clothing has been particularly affected by trade liberalization, having once been one of the most trade-protected industries. Both the 1989 Canada-U.S. Free Trade Agreement (FTA) and the 1994 North American Free Trade Agreement (NAFTA) have gradually reduced tariffs on clothing imports from the United States and Mexico.¹ And in 1995, the Multi-Fibre Arrangement (MFA) began a 10-year phase-out of quotas on imports from low-wage countries.

This article examines employment trends in the clothing manufacturing industry, and reasons for the steady decline in jobs since the late 1980s. Those employed in the industry are profiled, and factors most likely to affect future employment trends are discussed (see *Data sources* and *Definitions*).

Employment is declining

Employment in clothing manufacturing is tied to the industry's ability to compete in the emerging global market, both in the develop-

Katherine Marshall is with the Labour and Household Surveys Analysis Division. She can be reached at (613) 951-6890. Denise Guèvremont and Stéphane Pronovost are with the Fashion, Leisure and Household Products Branch, Industry Canada. They can be reached at (613) 941-6674 and (613) 954-2886, respectively.

Data sources

The Annual Survey of Manufactures surveys all establishments primarily engaged in manufacturing in Canada. Although some establishments may engage in wholesale trade, the bulk of their activity must be in the manufacturing process. Depending on establishment size, short and long questionnaires and tax records are used to collect information on shipments, employment, salaries and wages, cost of materials and supplies used, cost of fuel and electricity used, inventories and commodity data.

The Business Conditions Survey is a voluntary survey mailed to more than 9,000 manufacturing establishments every January, April, July and October. Among other things, the survey asks manufacturers if shortages of skilled and unskilled labour have impeded their production. Responses are weighted by the shipment value of each establishment.

The census collects labour market data from a 20% sample of the population aged 15 and over, excluding residents of institutions.

International trade data from administrative information from Revenue Canada, Customs and Excise and from customs brokers and importers help to calculate the movement of merchandise into or out of Canada (imports and exports).

The 1993 Survey of Innovation and Advanced Technology used a sample survey to cover all sizes of manufacturing establishments in Canada. The information collected dealt with firm characteristics, research and development, innovative behaviour, the intensity of technology use, and the benefits and problems of adopting technologies.

ment of new export markets and in the expansion of existing ones. Quebec has a marked interest in the success of the industry, as it is home to more than half of all clothing manufacturing jobs in the country (see *Regional concentration*).

From 1981 until 1989, employment in clothing manufacturing remained relatively steady, with a net loss of 1,100 jobs; since that time there have been annual decreases (Chart A).³ By 1994, employment stood at 80,400, down from 112,200 in 1989. During those five years employment in production work dropped 31%, compared with a 10% reduction in management positions.

Similarly, the number of clothing manufacturing establishments, which numbered 2,686 in 1989, fell

to 1,760 by 1994, a 34% decrease. This steady decline is not unique to Canada (see *International comparisons*).

The steep drop in employment from 1989 to 1992 coincided with the downturn of the economy. However, the clothing industry fared much worse than other manufacturing industries, dropping 25% compared with 14%. The relatively severe employment loss may be due, in part, to the introduction of the FTA, as apparel imports from the United States increased consistently following its introduction on January 1, 1989 (Industry Canada, 1994).⁴ However, from 1991 onwards Canada has countered this import increase with a steady growth in clothing exports. This may be part of the reason for the slower rate of employment loss since 1992.

Definitions

Advanced manufacturing technology (AMT): 22 new manufacturing technologies belonging to six functional groups. The functional groups and their accompanying individual technologies (in parenthesis) include

- design and engineering (computer-aided design (CAD) and engineering; CAD output to control manufacturing machines; digital representation of CAD output);
- fabrication and assembly (flexible manufacturing cells/systems; numerically controlled and computer-numerically controlled machines; materials working lasers; pick and place robots; other robots);
- automated material handling systems (automated storage/retrieval systems; automated guided vehicle systems);
- inspection and communications (automatic inspection equipment for incoming materials; automatic inspection equipment for final products; local area network for technical data; local area network for factory use; inter-company computer network; programmable controllers; computers used for control in factories);

- manufacturing information systems (materials requirement planning; manufacturing resource planning);
- integration and control (computer integrated manufacturing; supervisory control and data acquisition; artificial intelligence/expert systems).

Clothing manufacturing: establishments primarily engaged in manufacturing clothing. This category, which is major group 24 of the Standard Industrial Classification (1980 SIC), includes men's and boy's clothing (SIC 243), women's clothing (SIC 244), children's clothing (SIC 245) and other clothing and apparel, such as sweaters, occupational clothing, gloves, hosiery, fur goods and foundation garments (SIC 249). Clothing manufacturing is also referred to as the apparel or garment industry.

Employment in clothing manufacturing: includes salaried employees in executive, administrative and sales positions, and production workers paid by the hour. Production positions include markers, cutters, sewers, fusers,

pressers and cleaners, stylists and designers, stock keepers, shippers, packers, sample makers, maintenance workers and other related production workers.

Establishment: the smallest unit capable of reporting certain specified input and output data. For example, workers who have started a home business of selling home-made clothing will not be included.

Registered contractors and sub-contractors hired by an establishment to produce clothing are included in the count. However, any contractors or sub-contractors who, for example, have been paid in cash to avoid taxation, cannot be counted.²

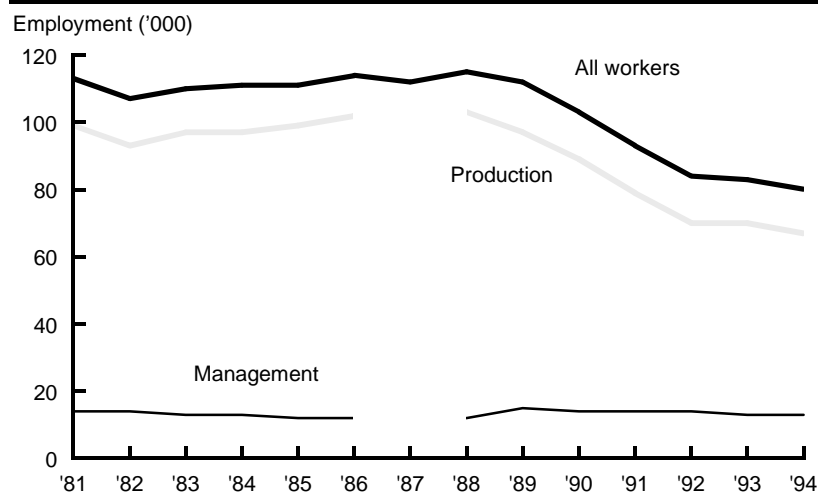
Immigrants: persons who are, or have been, landed immigrants in Canada. A landed immigrant is not a Canadian citizen by birth.

Home workers: refers to paid employees who do most of their work at home.

Employment is female-dominated and low-paying

A striking feature of clothing manufacturing is its high proportion of female employees: three out of four workers, compared with just one in four in all other manufacturing industries (Table 1). Also, 50% are immigrant workers, compared with 24% in other manufacturing. In fact, 37% of clothing manufacturing employees are female immigrants compared with just 7% in all other manufacturing. Proportionately more clothing workers than other manufacturing employees speak neither English nor French (8% compared with 1%), have less than high school graduation (54% compared with 33%), and work at home⁵ (5% versus 2%). Clothing manufacturing also offers the lowest hourly wage for production workers and the lowest average annual salary for management

Chart A
Employment in clothing manufacturing has dropped since the late 1980s.



Source: Annual Survey of Manufactures
 Note: A change in commodity classification systems introduced a break in the time series for 1987. Only total employment estimates were derived for 1987.

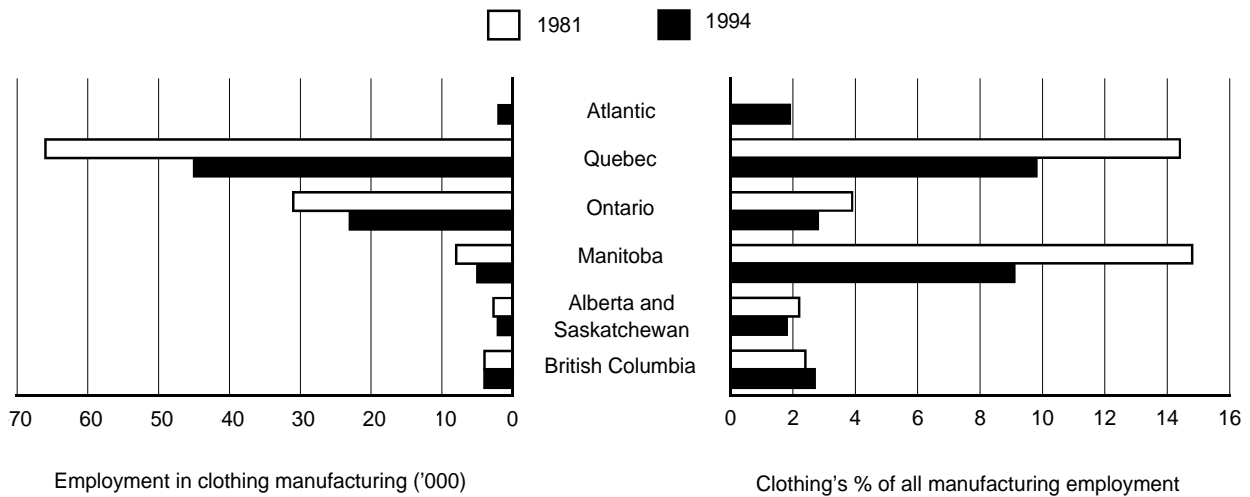
Regional concentration

Clothing manufacturing has a very high geographical concentration, with 95% of jobs located in just four provinces: Quebec (45,200 jobs or 56%), Ontario (23,000 jobs or 29%), Manitoba (4,600 jobs or 6%) and British

Columbia (4,000 jobs or 5%). Although their shares are relatively small, British Columbia and the Atlantic region are the only areas to show an increase in clothing manufacturing employment from 1981 to 1994. These

jobs are more important to Quebec and Manitoba (where they account for 10% and 9%, respectively, of all manufacturing jobs) than to other provinces (less than 3%).

The bulk of clothing manufacturing jobs are in Quebec.



Source: Annual Survey of Manufactures

workers of any manufacturing industry – \$8.92 and \$36,500, respectively. For all other manufacturing the average hourly pay is \$16.11 and the average annual managerial salary is \$47,800. (Notably, the highest hourly wage and annual salary are found in tobacco manufacturing – \$27.98 per hour and \$67,000.)

The high proportion of workers who have low levels of education and/or difficulties with English or French indicates that clothing manufacturing generally offers lower-skill entry-level employment. One-third of clothing workers are sewing machine operators, a lower-skilled job with few language requirements.

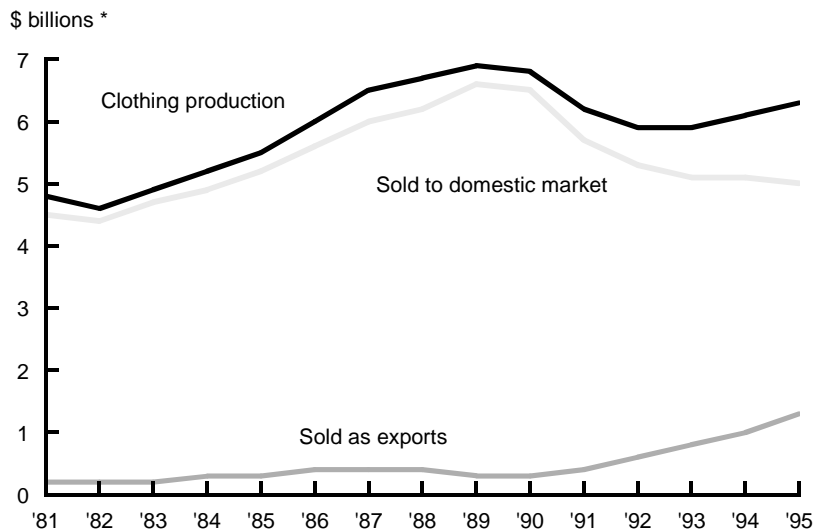
Exports and imports both on the rise

Employment levels in the apparel industry are tied to both domestic and foreign demand for Canadian-made clothing. Similar to the trend in employment, the production of Canadian-made clothing increased throughout most of the 1980s. Production peaked in 1989 at \$6.9 billion, followed by three years of decline to \$5.9 billion in 1992. Unlike the trend in employment, however, clothing output recovered in 1993, 1994 and 1995, pushing production to over \$6.2 billion. Exports have increased steadily since 1990 and reached \$1.3 billion in 1995, accounting for the production gains (Chart B). (Over 90% of

the 1995 exports went to the United States, with Japan [2%] and the United Kingdom [1%] a distant second and third.)

Domestic manufacturers' share of the Canadian market has declined steadily since 1989 while foreign producers' continued to rise. In 1989, imports accounted for only 28% of the Canadian clothing market; by 1995, that share had increased to 42% (Chart C). In 1989, when the FTA was brought into force, imported clothing from the United States accounted for 7% of all imports; by 1995 it accounted for 18%. The only other country to export more clothing to Canada was the People's Republic of China. However, Canada's exports

Chart B
Exports spurred the recent rise in clothing production.



Sources: Annual Survey of Manufactures and International Trade Division
* Measured by the value of total shipments.

Table 1
Selected characteristics * of paid workers

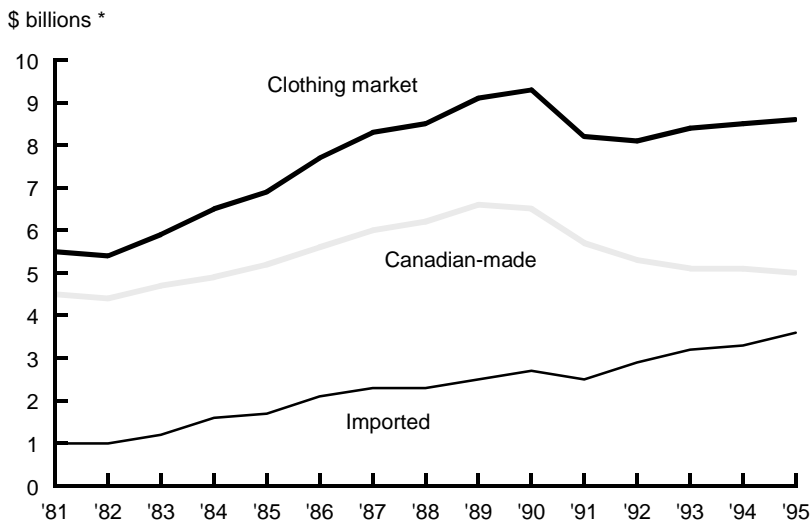
	Clothing	Non-clothing
	%	
Women	75	26
Immigrants	50	24
Female immigrants	37	7
Know neither official language	8	1
Less than high school graduation	54	33
Home workers **	5	2
	Hourly wage	
Production workers	\$8.92	\$16.11
	Annual salary	
Management	\$36,500	\$47,800

Sources: Census of Canada, 1991 and Annual Survey of Manufactures, 1994

* All non-wage characteristics are derived from census data and include both production and management workers.

** Primary place of work is at home.

Chart C
Imports accounted for 42% of the Canadian clothing market in 1995.



Sources: Annual Survey of Manufactures and International Trade Division
* Measured by the value of total shipments.

to the United States have helped increase its positive trade balance with that country – from \$100 million in 1989 to \$550 million in 1995. This has helped reduce Canada's negative trade balance with all countries from \$2.5 billion in 1992 to \$2.3 billion in 1995 (Industry Canada, 1996).

The annual wholesale value of both imported and Canadian-made clothing increased until 1989. Since then, only the former has continued to climb. The decline in the Canadian market in the early 1990s coincided with the recession. Only slight gains in the past few years suggest that Canadians are still buying fewer or less expensive garments than they once did.

Technology affects employment

All manufacturing industries have been affected to varying degrees by

International comparisons

Clothing manufacturing employment has diminished in many industrialized countries, including Canada. This decline reflects a shift in world apparel production in favour of countries with lower costs. Many of the latter, through increased exports to developed countries, have boosted their employment levels. Their share of world exports has risen from 10% in 1955 to 58% in 1992 (Dickerson, 1995).

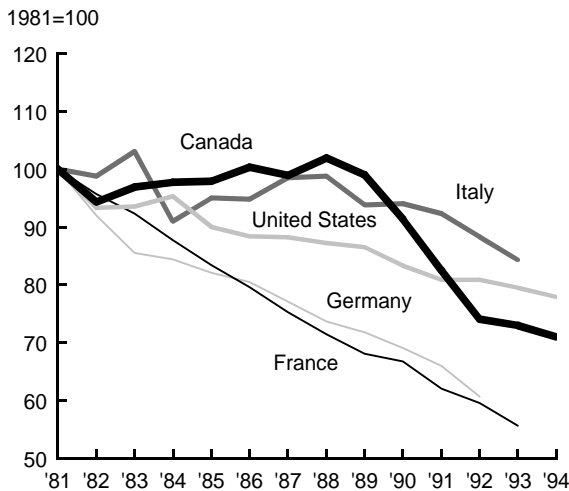
Although Canadian wages in clothing manufacturing are relatively low compared with other domestic manufacturing, they are similar to those in other industrialized countries. Canada ranks high when monthly wages are adjusted for purchasing power parity.

Monthly wages in clothing manufacturing ranked according to purchasing power parity (PPP), selected countries

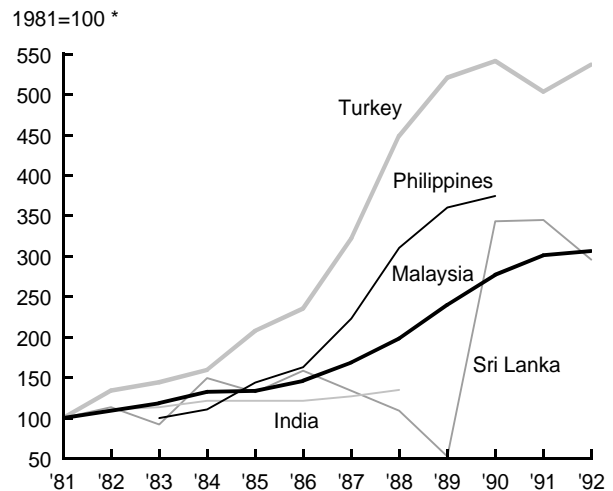
	Monthly wage	Monthly wage PPP * adjusted
	US\$	
Germany, 1994	1,555	1,197
Denmark, 1992 **	1,662	1,111
United States, 1994	1,101	1,101
New Zealand, 1994	971	1,087
Japan, 1993	1,709	1,031
Canada, 1993	1,007	1,028
Austria, 1994	1,259	1,024
United Kingdom, 1993	947	992
Belgium, 1992	1,068	921
France, 1993	1,056	910
Spain, 1992 **	938	848
Mexico, 1994	268	485
Portugal, 1989	194	320

Sources: International Labour Office (ILO); United Nations; OECD
 * PPP is the rate at which the currency of one country must be converted into the currency of another country in order to buy an equivalent basket of goods and services.
 ** Includes footwear.

Employment in clothing manufacturing is declining in industrialized countries ...



and increasing in many developing countries.



Sources: Survey of Manufactures; ILO; OECD
 * Except for the Philippines where 1983=100.

the adoption of advanced manufacturing technology (AMT). In general, state-of-the-art machinery and computers tend to increase labour productivity⁶ (output per person). Certainly, this is true for clothing

manufacturing, although its adoption rate has been slower than many other industries' (see *Technology helps increase productivity*). However, since the production of clothing in Canada has seen only modest

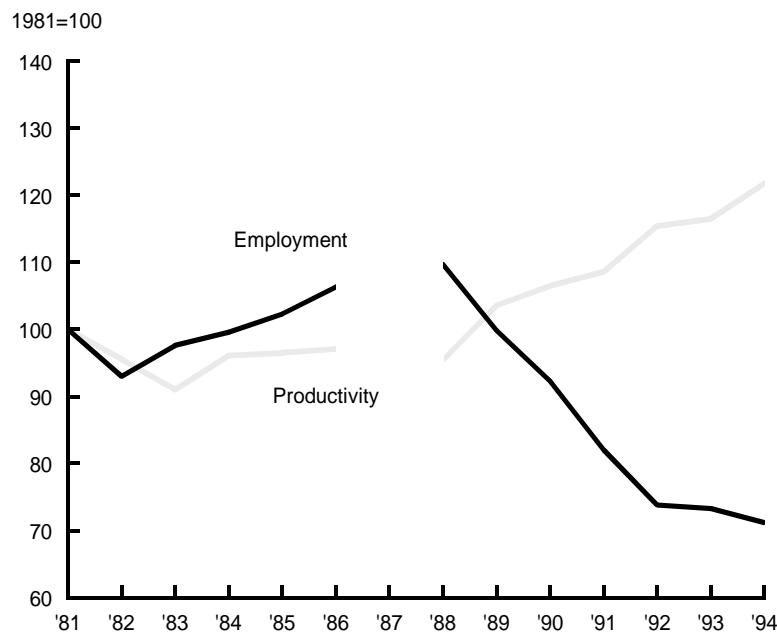
gains in recent years, the concurrent increase in productivity has resulted in a substantial decrease in the need for unskilled labour.⁷ At the same time, AMT has created a need for more skilled labour.

Technology helps increase productivity

Labour productivity in clothing manufacturing has shown annual gains from 1988, the same year employment began to decline. General findings from the 1993 Survey of Innovation and Advanced Technology

support these trends: improvements in productivity were cited as the most important benefit from adopting AMT, and reduction in labour requirements was the reason most often given by manufacturers for doing so.

Labour productivity * in clothing manufacturing has increased since 1988, while employment ** has dropped.



Sources: National Accounts and Annual Survey of Manufactures

* Measured as the ratio of gross domestic product at factor cost by paid production hours; in other words, output per labour unit.

** A change in commodity classification systems introduced a break in the time series for 1987.

Industry slow to adopt AMT

The initial stages of the garment manufacturing process (that is, designing, pattern-making and grading, and fabric-cutting) have been most affected by technology. Computer-aided design and computer-numerically controlled cutting systems have improved production efficiency. Also, automated garment-pressing equipment and sort-

ing and packaging systems have streamlined the final production phase. However, the assembly stage is still labour intensive, having seen few major technological developments. Certain sub-sectors have been quicker to adopt AMT, such as knitting (which is more capital intensive than other sub-sectors) and men's wear (which is less susceptible to style changes).

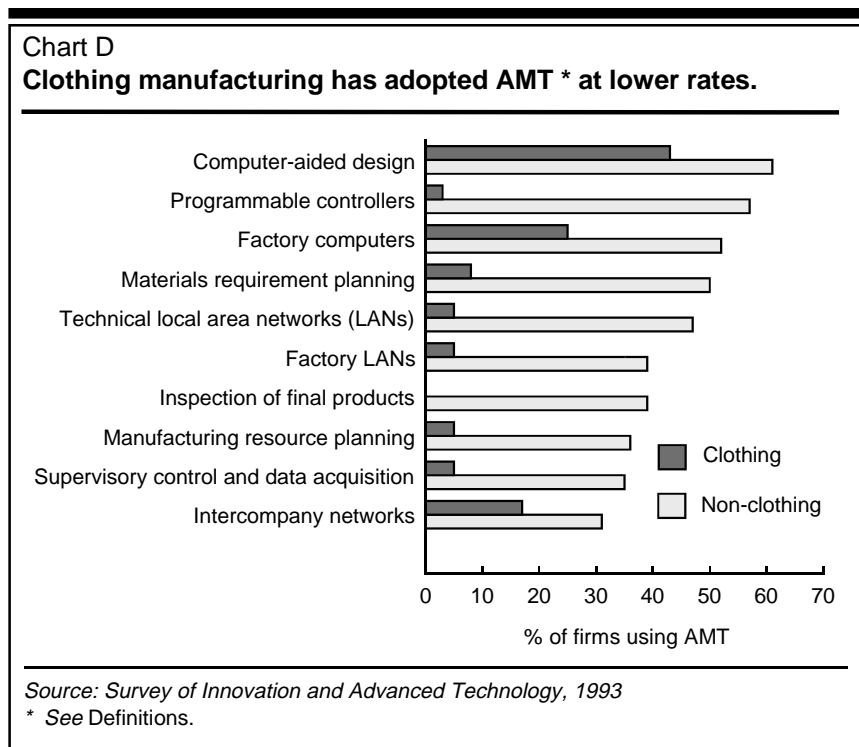
Despite these and other advances, Canada's clothing manufacturing industry lags behind that of Europe and the United States in adopting AMT (Kurt Salmon Associates, 1991). One reason for the lag may be that Canada lacks the major manufacturers of technology for clothing production.

As of 1993, 46% of clothing manufacturers had adopted at least one AMT, compared with 82% of other manufacturers. While only 4% of firms had adopted 10 or more technologies, one-third of all other manufacturers had done so. Similarly, clothing shows much lower adoption rates for the 10 leading advanced technologies. For example, computer-aided design, the technology most embraced by clothing manufacturers (43%), is still used by a greater proportion of other manufacturers (61%) (Chart D).

Among the reasons for the industry's lower rate is the complexity of design required for machinery capable of converting soft, limp fabric into three-dimensional garments. Also, 90% of clothing manufacturing establishments employ fewer than 100 people, which suggests that many may not have the resources to invest in the newest technologies, or would do so only on a replacement or ad hoc basis.

Skilled workers in demand

In general, the acquisition of AMT creates a need for more technically trained people to manage and work with the new technologies. Where the clothing industry differs from other manufacturing is its problem in acquiring the skilled labour now in demand. In 1993, 47% of clothing firms using AMT reported a shortage of skills, compared with 24% of non-clothing firms. Furthermore, over the past 15 years clothing manufacturing has experienced more production difficulties because of skilled labour shortages



(14% of firms reporting difficulties in 1995) than have other industries (4%) (Chart E). Clothing manufacturing also reports more unskilled labour shortages: 3% of firms in 1995, versus virtually no firms for all other manufacturing. The industry's low wage rate may help explain why some firms report such shortages even in recession periods, such as in the early 1980s and 1990s.

Low wages also account for the chronic shortage of skilled workers in the industry. And efforts to train some workers in new technologies and new work methods, such as team work, may be hampered by their education levels and relatively poor communication skills in English or French. Another reason for the shortage is the nature of training programs offered by Canadian schools; the few programs that exist focus more on fashion design than on technical skills. Data gathered from apparel schools showed that in 1995 only

390 of the 1,582 students graduated in production or management (Cariou, 1996). Finally, hiring and keeping skilled labour may be hindered by the "sweat shop" image of the clothing industry. Potential employees may be unaware of the increase in skilled job opportunities.

Tougher competition on the horizon

From 1974 to 1994, most clothing (and textile) products did not fall under the standard world trade rules of the General Agreement on Tariffs and Trade (GATT). Trade was governed by the Multi-Fibre Arrangement (MFA), which allowed participating countries to set quotas on imported textile and apparel products from individual countries. Quotas were intended to prevent developing countries from flooding industrialized markets with low-cost imports. (Canada currently has 43 bilateral clothing import restrictive agreements in

place.) However, as a result of the Uruguay Round of multilateral trade negotiations, quotas on imports of textiles and apparel were to be eliminated over 10 years, starting in January 1995, in all countries covered by the MFA. During the transition period, the remaining quotas will be increased according to a set schedule. Furthermore, the negotiations specified a clothing tariff reduction, from an overall average of 25% to 18%, to be phased in over the same 10-year period (Industry Canada, forthcoming). Although the Canadian industry appears to be adjusting under freer North American trade rules, the effects of dismantling the MFA are still unknown.

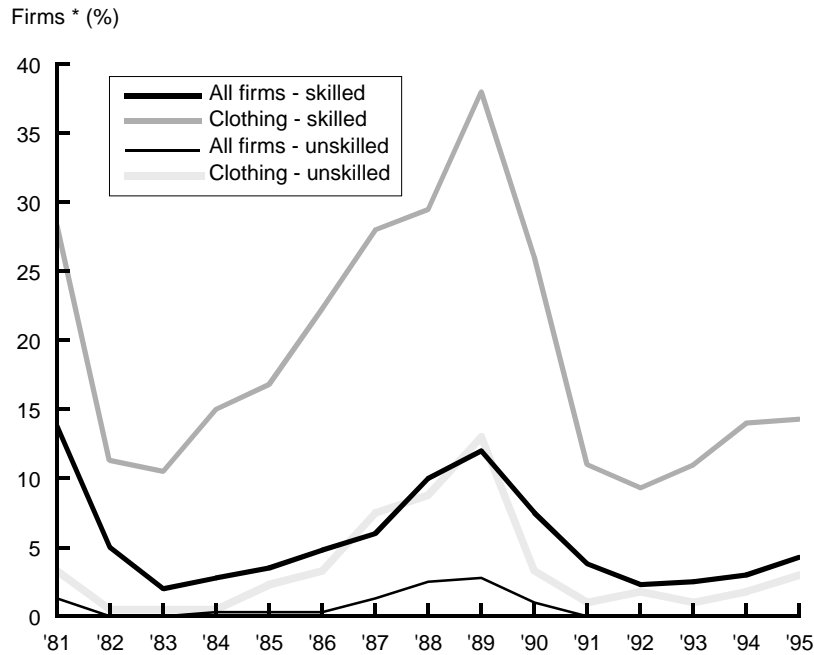
Without doubt, a more liberalized trade environment will affect the Canadian clothing industry. Foreign suppliers will be able to increase their share of the Canadian market. However, the FTA and NAFTA have also made the U.S. market more accessible to Canadian manufacturers. The industry's ability to adjust to a more competitive environment will be critical to its success. Sustained growth in exports to the United States and other developed countries will play a key role in the viability of the clothing manufacturing industry in Canada.

Conclusion

Employment in clothing manufacturing has been steadily declining since 1989, the same year production began to fall. And it has continued to drop despite recent production increases made possible largely by more efficient technology.

Although both production and demand have increased again, the impetus for growth has come solely from rising exports (\$1.3 billion in 1995), as domestic demand has actually decreased annually since 1989. Imports continue to account

Chart E
Chronic shortage of skilled labour hampers production.



Source: Business Conditions Survey

* Percentage of firms reporting production difficulties as a result of labour shortages.

for more of the Canadian market, reaching a market share of 42% or \$3.6 billion in 1995. This increase will likely continue with the phasing out of the Multi-Fibre Arrangement.

In sum, further acquisition of advanced technology, and tougher global competition, will be key issues in determining future employment needs for the Canadian clothing industry. □

■ **Notes**

1 Under the FTA, all clothing tariffs between Canada and the United States (which, with a few exceptions, ranged from 15% to 25% in 1988) will be removed by January 1998 (External Affairs Canada, 1988). Under NAFTA, clothing tariffs between Canada and Mexico (which ranged from 10% to 25% in 1993, with some exceptions) will be phased out by January 2003 (Foreign Affairs and International Trade, 1993).

2 Statistics Canada has estimated the total value of underground economic activity to be between 1% and 5% of the gross domestic product (Smith, 1994). It is not known how much of that can be attributed to the clothing industry.

3 The Survey of Employment, Payrolls and Hours and the Annual Survey of Manufactures, both of which are establishment-based surveys, show similar employment trends. The Labour Force Survey (LFS) also shows employment losses from 1989 to 1992; however, unlike the other two surveys, it reveals employment gains from 1993 to 1995, with a decrease in 1996. The LFS shows generally higher employment counts as well as differing trends mainly because it is a respondent-based survey and therefore captures the self-employed (who accounted for 11% of all employment in clothing manufacturing in 1996, up from 7% in 1993).

4 From 1988 to 1995, apparel imports from the United States grew at an average rate of over 25% annually, while overall imports rose only 4% a year.

5 This refers to paid employees only, not to the self-employed.

6 There may be other reasons for increased productivity. For example, the economic recession in the early 1990s likely forced many inefficient companies to close, whereas more efficient companies survived, thus increasing overall productivity.

7 Paradoxically, selected regions of Canada are experiencing an unskilled labour shortage. For example, in response to a chronic shortage in the Manitoba apparel industry, a Canada-Manitoba agreement recently allowed up to 200 off-shore sewing operators into the province.

■ **References**

Baldwin, J., D. Sabourin and M. Rafiqzaman. *Benefits and Problems Associated with Technology Adoption in Canadian Manufacturing. Survey of Innovation and Advanced Technology 1993*. Statistics Canada, Catalogue no. 88-514-XPE. Ottawa, 1996.

Cariou, D. "Fashion education and training in Canada: An Apparel national survey." *Canadian Apparel Manufacturer Magazine* (May/June 1996): 14-19.

Dickerson, K. G. *Textiles and Apparel in the Global Economy*. 2nd ed. Englewood Cliffs, N.J.: Prentice-Hall, 1995.

External Affairs Canada. *The Canada-U.S. Free Trade Agreement: Tariff Schedule of Canada*. Ottawa: Supply and Services, 1988.

Foreign Affairs and International Trade. *North American Free Trade Agreement: Tariff Schedule of Canada*. Catalogue no. E74-55/1-1993E. Ottawa: Supply and Services, 1993.

Industry Canada. *Sector Competitiveness Frameworks: Apparel*. Ottawa, forthcoming.

---. *Clothing Industry: Statistical Data*. Ottawa, 1996.

---. *NAFTA and the Apparel Sector*. Catalogue no. C2-227/1-1994E. Ottawa: Supply and Services, 1994.

International Labour Office. *1995 Year Book of Labour Statistics*. Geneva: ILO, 1995

---. *1991 Year Book of Labour Statistics*. Geneva: ILO, 1991.

Kurt Salmon Associates, for Industry, Science and Technology Canada (ISTC). *Level of Technology Utilization by Apparel Companies in Canada, the United States and Europe*. Ottawa: ISTC, 1991.

Organisation for Economic Co-operation and Development. *The OECD STAN Database for Industrial Analysis 1975-1994*. 1995 Edition. Paris: OECD, 1996.

Smith, P. "Assessing the size of the underground economy: The Statistics Canada perspective." *Canadian Economic Observer* (Statistics Canada, Catalogue no. 11-010-XPB) 7, no.5 (May 1994): 3.16-3.33.

United Nations. *Statistical Yearbook: 1993*. New York: United Nations, 1995.