The Impact of International Trade on the Wages of Canadians

by

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This paper represents the views of the author and does not necessarily reflect the opinions of Statistics Canada.

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Abstract

Developments in the relative wages of more and less educated workers during the early 1990s are examined using the Survey of Labour and Income Dynamics. Particular attention is paid to the role of international trade in determining the wage differential between workers with post-secondary certification and those without. It is shown that in the absence of the relatively greater growth in the supply of more educated workers, the gap between the wages of more and less educated workers would have increased. After controlling for some of the most likely influences on real wages it is found that international trade has a significant positive impact on the wages of both more and less educated workers. However, the impact on the more highly educated seems to be some four times stronger, roughly the same as the impact of technological change.

JEL Classification: F17, J31, O3

Key Words: International trade, returns to education, skilled-unskilled wage differentials.

1. Introduction

Developments in the relative wages of more and less educated workers during the early 1990s are studied in this paper, with particular attention being paid to the impact of international trade. The experiences of workers with post-secondary certification are contrasted with the experiences of those without. There is a consensus in the United States that the differential between these two groups has been widening in favour of educated workers over the 1980s and 1990s, but there is still dispute over this issue in Canada. For example, while Baldwin and Rafiquzzaman (1998) show a widening of education differential, Freeman and Needels (1991) argue that the rise is next to nil, and Murphy, Riddell and Romer (1998) present evidence for a declining education premium over the same period. Nevertheless, Freeman and Needels (1991) and Murphy, Riddell and Romer (1998) admit that the education premium would have increased significantly were it not for a greater growth in the supply of the more educated labour.

In fact, I find this to in part be the case. After correcting for changes in labour supply, the wage differential between more and less educated workers would indeed have been on an upward trend. Moreover, the finding of no increase or even a decrease in the wage premium to higher education cannot be counted as evidence against the hypothesis that trade liberalization is leading to wider disparities in wages. It could just be that the downward influence on wages caused by the growth in labour supply is greater than the upward influence caused by changes on the demand side due to trade. After holding a number of the most likely factors influencing real wages constant, I find that international trade has a significant positive impact on the wages of both more educated and less educated workers, but also that the impact on the more educated seems to be some four times stronger (roughly the same as the impact of technological change).

The paper is structured as follows: in Section 2 I introduce and discuss the data sources; in section 3 I summarize some key statistics and offer a descriptive analysis; in Section 4 I discuss the existence and nature of the wage premium to higher education in Canada; and finally in Section 5 I examine econometrically the relationship between this wage premium and international trade.

2. Data Sources

The data come from the person file of the Survey of Labour and Income Dynamics (SLID). The SLID is a longitudinal survey conducted by Statistics Canada that follows individuals and families across Canada, collecting information on their labour market experiences as well as income and family circumstances. It is also designed to offer representative cross-sectional estimates of the population. My analysis uses this information from 1993 to 1996, on about 31,000 persons aged 16 and over.

The provision of information on the same person through time and the measurement of changes experienced by that person is a distinguishing feature of the SLID data. By controlling for individual specific effects and by recording changes in the labour market status of the respondents this survey makes possible analyses of the causes of change in the labour market status of Canadians.

I restrict the sample to individuals between the ages of 18 and 64, and also exclude workers who are self-employed and those working without pay. Workers with a real wage rate above $100 and

below $4 an hour in 1992 dollars are considered to be outliers and are also excluded. Weighted data are used throughout the analysis.

The only industry level information provided by the SLID is a code indicating the industry of employment of each job holder: specific characteristics, in particular the degree of openness to international trade or technology use, are not provided. This information is central to the issues being addressed. The master SLID file does provide relatively detailed industry codes—three digit Standard Industrial Classification (SIC)—and I therefore link measures of trade openness, technology, and capital-labour ratios from other sources at this industrial level and by year.

The trade data are from the International Trade Division of Statistics Canada. These data record total values of Canada's exports and imports for three digit SIC industries. However, given that some 80% of Canada's exports and some 70% of imports are to and from the United States, the data to a larger extent represent Canada-U.S. trade. To convert this information into a trade openness variable I add up the exports and imports for every industry and then divide the sum by the total output produced by that industry. Output for three digit SIC industries was obtained from CANSIM. Since trade data is not available for all industries the sample size is reduced quite significantly from a size of over 80,000 person-years to a size of 19,040 person-years.

The data on technology and capital-labour ratios was obtained from files maintained by the Micro-economic Analysis Division of Statistics Canada. The data contains information on the use of 22 separate technologies by establishments in the manufacturing sector. Moreover, the variables for labour supply and unemployment rate by worker types were obtained from the Labour Force Survey (LFS) data files and merged to the SLID data sample by year, sex, age and education groups.

3. Summary Statistics

Table 1 presents summary statistics for some of the key variables in the sample. It shows that real wages (in constant 1992 dollars) have declined for both educated and less educated workers over the four-year period. More noteworthy is the fact that the relative wages of educated to less educated workers have fallen by some four percentage points between 1993 and 1996. In Section 4 I argue that the values presented here will understate the correct level of relative wages if the increasing relative supply and decreasing relative unemployment rate of educated workers over the period are taken into account.

Information on the "years of schooling" reveals that between 1993 and 1996 the average years of schooling completed by both educated and less educated workers has remained essentially constant. This is also reflected in the values for "years of experience" for both types of workers since potential experience is defined as age minus six minus years of schooling. Job tenure decreased quite dramatically for both types of workers, particularly for educated workers.

It is important to note the relative labour supply and unemployment rates of more and less educated workers: the first is rising, the latter falling. In a simple demand and supply diagram the first pushes the relative wages of the educated workers down; the latter suggests that the sluggish demand for less-skilled workers corresponds with a quantity adjustment (that is, higher unemployment) rather than a price adjustment (lower wages). Both of these factors, therefore, imply that the relative real wage rate of educated workers would have been a lot higher in their

absence. In Section 4 I derive the relative wage of educated/less-educated workers in the absence of these two factors.

4. The Wage Premium for Higher Education

To see how educational earning differentials have evolved over the period covered by SLID, I calculate the wage premium for educated workers for each year.[1] Table 2 records the education premium first for all workers and then by gender and age (18 to 34, 35 to 44 and 45 to 64 years). The results are mixed. Overall the wage premium declined slightly by 0.25%. However, this masks declines of 2% for women and over 10% for the oldest group, as well as increases of 2% for men, and over 7% for 18 to 24 year olds. Men and the young are in fact more likely to be exposed to international competition due to trade.

It has been suggested that the two major reasons for a smaller rise in the wage premium to higher education in Canada relative to the United States are greater relative growth of educated workers and greater strength of Canadian unions in wage setting (Freeman and Needels, 1991; Murphy, Riddell and Romer, 1998). Table 3 shows that a marked increase in the relative supply of educated workers has indeed occurred between 1993 and 1996. The percentage increase in the relative supply of educated workers for all workers was 19%.

Murphy, Riddell and Romer (1998) find the wage elasticity of the relative labour supply of educated workers to be about 0.75 in Canada. That is, holding everything else fixed, if the relative labour force of educated workers goes up by 1% their relative wage rate falls by about 0.75%. Making use of their measure, in Table 4 I calculate the values by which the skill premium has been suppressed due to the relative labour force growth.[2] I then add these values to the corresponding skill premium values in Table 2 to get Table 5, which records what skill premium would have been in the absence of a relative supply growth of educated labour.

From Table 5 it is obvious that with the exception of workers aged 45 and older the skill premium has increased between 1993-1996 both for all workers as a whole and for every individual category. Furthermore, looking at Table 5 a few observations are in order. First, the increase in the skill premium is higher for men than for women: 3.1% versus 1.4%. Sectors exposed to trade liberalization are male dominated. If trade liberalization indeed does contribute to the rising skill premium then this is in the expected direction.

Second, the increase in the skill premium decreases with age from 10.2% for the youngest group, to 3.1%, and finally to –7.8% for the oldest. This perhaps is due to one of two phenomena: (1) it is the more recent vintages of education that drive the education premium up, and older educated workers do not benefit from this; (2) the older less-educated workers are more protected by their experience and seniority from a decline in their relative wages than their younger counterparts. Looking at the declining education premium of workers 45 and older it is even possible that for these workers, work experience (rather than education) is more and more recognized.

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[1] The wage premium (in percentage) for workers type i over workers type j in year t is calculated as: $\dfrac{wage_t^i - wage_t^j}{wage_t^j} * 100$, where $wage_t^I$ is the real wage of workers type i in year t.

[2] For example between 1993 and 1994 relative supply of all educated workers increased by about 10% ((0.855-0.777)/0.777)*100. Multiplying that by 0.75 will give us the 7.53 skill premium suppressed due to a relative increase in supply.

Next I turn to investigating the second reason for a relatively milder increase in education premium in Canada: the impact of unionization on the wages of less educated workers. I measure the wage premium for non-unionized workers and then subtract similar measures for all workers given in Table 2. The results are presented in Table 6, and suggest that the skill premium between unionized and non-unionized workers narrowed. Unions don't suppress educated workers' wages, but rather help raise the wages of less-educated workers.

Although Table 6 reveals that unionization narrows the skilled/less-skilled wage gap quite significantly, it does not provide any evidence suggesting that unionization may also contribute toward restraining the rise in the skill premium. If that were true then the values recorded for each category should have been increasing over time, which is not the case. This result is in line with that found by Freeman and Needels (1991) examining the data from the Survey of Consumer Finance for 1976, 1980, 1987 and 1988 and the Census of Population for 1971, 1981 and 1986.

It can also be argued that the changes in skill premium recorded in Table 5 understate the market shifts against the less educated if changes in market conditions alter both their labour utilization and their rates of pay (Freeman and Needels, 1991). More specifically, we ask if the relatively smaller increases in skill premium in Canada were offset by a smaller less-educated to educated labour utilization differential. Table 7 records the percentages by which the less-educated unemployment rates exceed those of educated workers in order to address this question.

The evidence shows that the relative employment prospects of less-educated workers worsened over the period 1993-1996. It should be noted that the increase in the relative unemployment rates for male and younger less-educated workers was more dramatic: 17.2% for men, 29.9% and 13.3% for workers aged 18-24 and 25-44 respectively. As discussed above these are the categories of workers who are relatively more exposed to volatilities due to trade liberalization.

The evidence in Table 7 is consistent with the proposition that Canada has responded to the deteriorating job market for the less educated with a relatively greater quantity adjustment than with wage adjustment. Had price adjustment been the sole source of change the wage premium documented in Tables 2 and 5 would have been a lot higher (Freeman and Needels,1991).

The increase in wage differentials reported in Tables 2 to 5 could be due either to a leftward shift in relative supply or a rightward shift in relative demand of skilled workers, or some combination of both. Over the period the wage differential has widened, and relative supply actually shifted to the right, leaving the conclusion that the change in wage differential would have been higher in the absence of a relative supply change.

This suggests that the widening in the wage differential between education levels is most likely a result of a positive relative demand shift. In particular, this is portrayed by a rising share of educated workers in total employment for all workers, both sexes and all age groups in Table 8. Trade intensity is one of the factors that has the potential to shift relative demand in favour of educated workers.

5. Trade, Education, and Wages

Little research has been done on investigating the changes in skill premium in Canada. There is a consensus in the literature that there has been a positive shift in relative demand for skilled (or, educated) workers (Gera, Gu and Lin, 1999). The disagreement, nevertheless, surfaces when it comes to explaining the factors behind the positive demand shift.

The two most familiar explanations for a rightward shift in the relative demand for skilled workers in Canada are trade liberalization and a skilled-biased technological change, the latter being more popular than the former. To investigate the relative contribution of trade and technologies to changes in skilled/less-skilled wage differential we run the following semi-log multivariate regression:

$$W_i^t = \alpha_1 + \beta_1(TRADE_j^t) + \beta_2(E*TRADE_j^t) + \pi_1(TECH_j) + \pi_2(E*TECH_j)$$
$$+ \eta(CAPITAL_j^t) + \theta(LS_k^t) + \mu(UNEMP_k^t) + \rho(TENURE_i^t) + \sigma(TENURE_i^t)^2 \qquad (1)$$
$$+ \psi(EXP_i^t) + \xi(EXP_i^t)^2 + \delta(FT_i^t) + \upsilon(SEX_i) + \phi(UNION_i^t) + \tau_1(Y1994)$$
$$+ \tau_2(Y1995) + \tau_3(Y1996)$$

where W_i^t is the log of real wages for worker i in time t; E is a dummy variable that takes a value of 1 if an individual ever received a post-secondary degree, certificate or diploma, ranging from community college graduates to PhDs, and 0 otherwise (namely those without certification beyond High School). Since less-educated workers are the reference group, the coefficients on E and any continuous variable interacted with E measure the differential effect of being an educated worker relative to less-educated worker. $TRADE_j$ is the variable representing trade intensity by 3-digit SIC level (the subscript j represents industries) and is equal to total exports plus total imports divided by total output by industries. $E*TRADE_j$ is $TRADE_j$ interacted with E. $TECH_j$ is a technology variable for industry j. It is a dummy variable taking a value of 1 if an industry is technology-intensive and 0 otherwise. $CAPITAL_j^t$ is the physical capital intensity in industry j in time t.

The variable that represents technological intensity assigns a value of 1 to industries with an above average percentage of plants using any of the technologies and 0 otherwise. This also corresponds observation by observation to a dummy variable that assigns a value of 1 to industries that use any of the first four of six technology groups: Design and Engineering, Fabrication and Assembly, Inspection and Communications, Integration and Control, Automated Material Handling Systems and Manufacturing Information Systems.[3] Thus the technology variable can take either of the above definitions. LS_k^t is total labour force (in thousands) of groups of workers possessing characteristics k at time t, and is used as a proxy for the labour supply variable. $UNEMP_k^t$ is the unemployment rate in the economy of groups of workers possessing characteristics k at time t. $TENURE_i^t$ is on-the-job tenure in months of individual i in time t. EXP_i^t is potential experience in years in time t. FT_i^t and $UNION_i^t$ are dummy variables taking, respectively, a value of 1 if individual i is either full-time or unionized in year t, and 0

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[3] See Baldwin and Rafiquzzaman (1998) for more detail on the types of technology that fall into the six groups. Design and Engineering, Fabrication and Assembly, Automated Material Handling Systems, Inspection and Communications, Manufacturing Information Systems, and Integration and Control.

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otherwise. Similarly, *SEX$_i$* takes a value of 1 if an individual is male and 0 otherwise. *Y1994-Y1996* are dummy variables for each year to capture for trend (or business cycle) effects.

The least squares regression results are presented in Table 9. The variable *CAPITAL* is not included in the models depicted in the first two columns, whereas, in the latter two it is. The data for *CAPITAL* was not available for 1996, thus, the regressions that include this variable are run on fewer observations.

The coefficients on *TRADE* and *E*TRADE* are positive in all four regressions in both tables implying that trade has had a positive impact on real wages as a whole. This perhaps is due to trade putting pressure on domestic industries to become more competitive and therefore more productive, enhancing the marginal productivity of labour. Moreover, the significantly positive coefficients on *E*TRADE* support the hypothesis that trade widens the wage differential across education levels. According to the results in Table 9 a 1% increase in the trade-to-output ratio will widen the wage gap between more and less educated workers by about 2% to 3%. However, it is important to note that the widening of the educated to less-educated wage differential does not come at the expense of the less-educated workers as both workers benefit from trade. However, in relative terms the educated benefit more.

As expected the coefficients on technology (TECH1 and ETECH1 respectively) are quite significant for both education levels and its impact on the more educated is some three to four times higher than that on less-educated.[4] The magnitude of the impact of trade on the wages of the more educated as opposed to less-educated is in a similar range. This result is in line with that found by Baldwin and Rafiquzzaman (1998) but in sharp contrast to Gera, Gu and Lin (1999) who find that technology has a much more favourable effect on the relative wages than trade does.

 Gera, Gu and Lin (1999) find strong evidence that advanced technologies are biased toward the use of skilled labour and thus conclude that skill-biased technological change perhaps is the most important factor in shifting the skilled labour relative demand curve to the right. Similarly, Baldwin and Rafiquzzaman (1998) find both trade and technology as contributing factors toward the widening wage differential phenomenon. As they put it:

> "The past twenty years have seen a change in earnings inequality, both in the United States and Canada. The debate over the causes of increasing inequality has focused on whether it is changes in trade patterns or whether it is technological change that is at fault. This paper has demonstrated that both are at work."

The coefficients on all other variables, with the exception of labour supply, are in the expected direction in all of the regressions. Looking at Table 9, they could be interpreted as following: holding everything else constant, an extra year of experience raises the real wage of all workers by about 2%; a month added to on-the-job tenure pushes the real wage up by 0.28%; a full-time job pays an hourly wage that is 11% higher than a comparable part-time job; on average men's wage is 27% higher than that of women; one percent increase in national unemployment rate

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[4] Note the coefficients on TECH1 and ETECH1 in Table 9, column (1) are 0.05 and 0.12 respectively. Thus the impact of technology on the wages of the more educated is=0.12+0.05 and on the less-educated is 0.05 (since less-educated is the reference group). Thus the strength of technology on the relative wages of more educated is calculated as (0.12+0.05)/0.05=3.4.

suppresses real wage rates by 2.3%; unionized jobs pay 12% more than non-unionized; the coefficient on capital intensity, as expected, is positive.

The puzzling part, however, is the positive coefficient on the labour supply: an increase in labour supply of one million individuals pushes real wages up by about 2%. When the more and less educated were analyzed separately—in regressions not reported here— the positive effect of labour supply on the real wages of more educated workers was some 6.5 times stronger than that of less-educated. This perhaps supports some sort of Lucas type positive externality attached to the size of the skilled labour stock.[5] However, the positive coefficient on the less-educated labour supply is puzzling.

6. Conclusion

Developments in the relative wage rates of more and less educated during the early to mid-1990s are studied with particular attention being paid to the role of international trade. The widening of the gap between the wages of these groups occurred for workers in industries more likely to be exposed to international competition brought about by trade.

This wage differential would have been a lot higher in the absence of increases in the relative supply of educated workers and in the absence of quantity adjustment (increasing relative unemployment of less-educated workers) rather than price adjustment (wage changes). Trade is a significant contributor to the rising wage premium due to education, having an impact just as a great as that of technical change.

Often trade with developing countries is implicated as influencing the labour market of industrialized countries, particularly the relative wages of the more and less educated, with less educated workers standing to lose both absolutely and relatively. The results in this paper, however, challenge this conventional wisdom. The analysis is based on data emphasizing Canada-US trade flows, and suggest increased trade flows are a possible cause of the widening in educated/less-educated wage differential. International trade is not necessarily harmful for less educated workers. The real wages of both more and less educated workers go up in response to increased trade liberalization, but the more educated benefit relatively more than their counterparts.

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[5] Lucas (1988) suggests that educated (or skilled) workers are more productive where there is a higher stock of educated (or skilled) labour. This is because educated workers exert positive externality on one another's knowledge (human capital) and hence productivity and wages.

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Table 1: Descriptive statistics of educated/less-educated workers

Variables		1993	1994	1995	1996
real wage rate	☐ educated	19.13 (0.18)	18.72 (0.17)	18.46 (0.18)	18.26 (0.12)
	☐ less-educated	12.25 (0.05)	12.11 (0.05)	12.05 (0.05)	12.01 (0.04)
	educated/less-educated	1.561	1.546	1.532	1.521
Years of schooling	☐ educated	17.5 (0.05)	17.5 (0.04)	17.6 (0.04)	17.6 (0.03)
	☐ less-educated	12.1 (0.02)	12.3 (0.02)	12.4 (0.02)	12.6 (0.02)
	educated/less-educated	1.43	1.42	1.41	1.40
Years of experience	☐ educated	13.3 (0.23)	12.7 (0.23)	12.8 (0.23)	12.5 (0.141)
	☐ less-educated	12.6 (0.09)	12.3 (0.10)	12.3 (0.23)	12.5 (0.06)
	educated/less-educated	1.06	1.03	1.04	1.00
job tenure (years)	☐ educated	9.8 (0.82)	8.3 (2.08)	7.63 (2.06)	7.0 (1.28)
	☐ less-educated	6.8 (0.82)	6.0 (0.79)	5.65 (0.79)	5.5 (0.52)
	educated/less-educated	1.44	1.38	1.35	1.26
Labour supply (thousands)	☐ educated	6,400 (12.33)	6,800 (12.79)	7,100 (13.32)	7,300 (8.59)
	☐ less-educated	8,200 (6.88)	8,000 (7.29)	7,900 (7.90)	7,900 (5.40)
	educated/less-educated	0.78	0.86	0.90	0.93
Unemployment rate (percentage)	☐ educated	8.1 (0.04)	7.6 (0.03)	6.8 (0.03)	7.1 (0.02)
	☐ less-educated	13.7 (0.03)	12.8 (0.03)	11.9 (0.03)	12.5 (0.02)
	educated/less-educated	0.59	0.60	0.57	0.57
Full time/ part-time ratio		4.0	4.0	3.7	3.3
Unionization rate (percentage)	☐ educated	46.0	45.0	43.0	40.0
	☐ less-educated	30.0	28.0	28.0	27.0
	educated/less-educated	1.5	1.6	1.5	1.5
No. of observations	All	16734	16977	15982	36,297
	☐ male	8749	8853	8196	18522
	☐ female	7985	8124	7786	18270
	☐ educated	2262	2391	2327	5686
	☐ less-educated	14472	14586	13655	30611

Standard errors in parenthesis.
Source: author's weighted calculation from the SLID.

Table 2: Education premium (in percentage)

	All workers	Male	Female	18 - 24	Age Groups 25 - 45	45+
1993	51.2	47.4	57.1	42.8	44.3	59.6
1994	47.2	43.6	52.8	36.2	43.4	59.6
1995	51.7	50.6	54.0	46.9	47.0	53.8
1996	51.0	49.9	55.1	49.9	45.5	49.3
Percentage change 1996 - 1993	-0.25	1.57	-2.0	7.1	1.288	-10.3

Source: author's calculation from the SLID data.

Table 3: Relative supply of educated workers

	All workers	Male	Female	18- 24	Age Groups 25 - 45	45+
1993	0.78	0.76	0.80	0.32	1.02	0.73
1994	0.86	0.83	0.89	0.32	1.12	0.85
1995	0.90	0.87	0.94	0.34	1.18	0.89
1996	0.93	0.88	0.98	0.35	1.21	0.92
Percentage change 1996 - 1993	19.0	16.0	22.7	9.1	18.6	24.8

Source: author's calculation from the Labour Force Survey.

Table 4: Skill premium suppressed by relative labour force growth (in percentage)

	All workers	Male	Female	18- 24	25 - 45	45+
1994	7.5	6.7	8.6	1.0	7.2	11.9
1995	3.6	3.4	3.9	2.4	4.2	3.2
1996	2.4	1.5	3.4	3.1	1.9	2.5

Source: author's calculation from Table 3 and the measure of elasticity of the relative labour supply of educated workers of 0.75 found by Murphy, Riddell and Romer (1998).

Table 5: Skill premium adjusted for the relative supply growth (in percentage)

	All workers	Male	Female	18- 24	25 - 45	45+
					Age Groups	
1993	51.2	47.4	57.1	42.8	44.3	59.6
1994	54.7	50.3	61.4	37.3	50.6	71.5
1995	55.3	53.9	57.9	49.3	51.2	57.0
1996	53.3	50.5	58.5	52.9	47.3	51.8
Percentage change 1996 - 1993	2.1	3.1	1.4	10.2	3.1	-7.8

Source: author's calculation from Table 2 and 4.

Table 6: Wage premium suppressed due to unionization (in percentage)

	All workers	Male	Female	18- 24	25 - 45	45+
					Age Groups	
1993	31.6	33.9	13.6	10.5	22.4	33.4
1994	27.4	35.7	5.0	6.0	19.3	36.3
1995	32.7	40.6	7.2	5.8	26.3	27.4
1996	28.8	36.2	7.3	3.0	25.5	15.0

Source: author's calculation from the SLID data.

Table 7: Percentages by which less-educated unemployment rate exceeds that of educated

	All workers	Male	Female	18- 24	Age Groups 25 - 45	45+
1993	86.5	85.4	85.7	68.9	90.9	67.4
1994	84.9	85.2	85.8	87.5	90.6	53.7
1995	94.5	99.5	87.8	95.4	103	54.4
1996	90.5	100	78.3	89.5	103	50.4
Percentage change 1996 - 1993	4.7	17.2	-8.7	30.0	13.3	-25.1

Source: author's calculations from LFS and SLID surveys.

Table 8: Share of skilled (educated) workers in total employment

	All workers	Male	Female	18- 24	Age Groups 25 - 45	45+
1993	0.45	0.45	0.46	0.26	0.52	0.43
1994	0.48	0.47	0.48	0.26	0.54	0.47
1995	0.49	0.48	0.50	0.27	0.55	0.48
1996	0.49	0.48	0.51	0.27	0.56	0.48
Percentage change 1996 - 1993	9.1	8.0	10.5	6.2	8.1	11.8

Source: author's calculations from the Labour Force survey.

Table 9: Least squares regression results with first tyoe technology.

	(1) Ordinary Least Squares Estimates	(2) Maximum Likelihood Estimates	(3) Ordinary Least Squares Estimates	(4) Maximum Likelihood Estimates
Intercept	2.02	2.056	1.99	2.03
	(98.9)	(98.3)	(73.7)	(73.4)
TRADE	0.00775	0.00979	0.00446	0.00544
	(5.71)	(5.44)	(2.29)	(2.07)
ETRADE	0.0305	0.0226	0.0276	0.0202
	(8.24)	(6.68)	(5.77)	(4.61)
TECH1	0.0535	0.0647	0.0599	0.0701
	(6.51)	(5.83)	(5.65)	(4.87)
ETECH1	0.126	0.149	0.113	0.133
	(4.68)	(5.95)	(3.23)	(4.08)
EXP	0.0189	0.0189	0.0204	0.0199
	(18.4)	(19.3)	(15.1)	(15.5)
EXP^2	-0.000331	-0.000324	-0.000347	-0.000339
	(-17.3)	(-17.9)	(-13.9)	(-14.3)
TENURE	0.00289	0.00259	0.00288	0.00259
	(35.6)	(33.3)	(27.8)	(26.1)
$TENURE^2$	-0.00000457	-0.00000405	-0.00000456	-0.00000401
	(-20.4)	(-19.4)	(-16.2)	(-15.3)
FT	0.111	0.104	0.111	0.0931
	(10.4)	(10.3)	(7.73)	(6.86)
LS	0.0000205	0.0000184	0.0000192	0.0000161
	(4.88)	(4.68)	(3.4)	(3.07)
SEX	0.268	0.228	0.265	0.231
	(42.7)	(37.3)	(32.2)	(28.8)
UNEMP	-0.0236	-0.0214	-0.0233	-0.0210
	(-27.5)	(-26.1)	(-21.1)	(-20.0)
UNIION	0.129	0.0953	0.122	0.0930
	(20.3)	(15.1)	(14.7)	(11.4)
Y1994	0.00370	0.00284	0.00628	0.00612
	(0.42)	(0.23)	(0.72)	(0.49)
Y1995	-0.00846	-0.00920	-0.00458	-0.00443
	(-0.94)	(-0.73)	(-0.51)	(-0.35)
Y1996	-0.0171	-0.0174	--------	-------
	(-2.23)	(-1.63)		
CAPITAL	-------	--------	0.00806	0.0116
			(1.91)	(2.02)
Rsq	0.437	0.367	0.441	0.370
Durbin-Wat	1.40	2.10	1.36	2.103
No of obs	19,040	19,039	11,050	11,049

t-ratios in parenthesis.