

## Canadian Emigration to the United States

David Card  
Department of Economics  
UC Berkeley, and NBER

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### **Abstract**

This paper reviews the historical record of Canadian emigration to the United States and analyses recent changes in the economic incentives for emigration to the U.S., focussing on differences by education. For at least the past 60 years, Canadians living in the United States have been better-educated than those who remained in Canada. This pattern of selective emigration may have intensified recently. Two factors have contributed to rising economic incentives for emigration by better-educated Canadians: the decline in Canadian average incomes relative to those in the U.S., reflected in the fall of the Canadian dollar; and the sharp rise in relative wages of highly-educated young workers in the U.S..

\*Thanks to David Y. Albouy for assistance with Canadian Census data, and to Charles Beach for generous editorial help. The research reported here is part of an ongoing project with Thomas Lemieux: I am extremely grateful for his collaboration and assistance with this paper.

Canada has always been a country of immigrants and emigrants. Figure 1, for example, shows decadal immigration and emigration rates for Canada from the 1850s to the 1990s.<sup>1</sup> During the second half of the 19<sup>th</sup> Century, the country actually lost more people than it gained from international migration. Over the 20<sup>th</sup> Century net migration was positive, but even since 1960 the emigration rate has remained at about one third of the immigration rate. Most of the people leaving Canada go the United States. In 1940, roughly 10 percent of all immigrants in the U.S. – 1 percent of the total U.S. population – were born in Canada. Today, because of the decline in emigration rates from Canada and the rapid rise in inflows from Mexico, Central America, and Asia, Canadians are a proportionally smaller group, accounting for only about 2 percent of all immigrants in the U.S. and less than 0.3 percent of the U.S. population.

Flows of Canadians to the U.S. have long been a topic of interest to the Canadian public and Canadian policy makers.<sup>2</sup> Much of the concern among the latter group has focussed on the social cost of losing highly skilled workers to the U.S. – the so-called “brain drain”.<sup>3</sup> From a broader perspective, however, the characteristics of Canadians in the U.S., including their education, earnings, and even the success of their children, provide many insights into the Canadian economy.

This paper provides a brief overview of an ongoing research project with Thomas Lemieux that evaluates recent changes in the U.S. and Canadian labour markets, and the contribution of changing labour market incentives for immigration between the two countries. I begin with an

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<sup>1</sup>This figure is based on data in Zhao, Drew, and Murray (2000, Table 6). The 1850's decade refers to the period from 1851 to 1861. Rates are expressed relative to the population at the beginning of the decade.

<sup>2</sup>For example, nearly every Canadian can identify a list of prominent ex patriots living in the U.S.. It is safe to say that interest among Americans is minimal. The situation was brought to light in a 1987 article in *Spy Magazine*, “The Canadians Among Us.” The low profile of Canadians was attributed to the fact that ...”(t)hey act like us. They talk like us” and to the excessive politeness of Canadians.

<sup>3</sup>The first Special Study of the nascent Economic Council of Canada (Parai, 1965) addressed the issue of “brain drain.” Zhao, Drew, and Murray (2000) update Parai, and also frame skilled emigration in the context of overall imbalances of supply and demand for skilled workers in Canada.

overview of historical patterns, starting with data from the 1940 U.S. Census. Then, I present a simple framework for comparing wage structures in the two countries and describing changes over time in the relative wage structures on each side of the border. This framework highlights the effect of changes in the U.S. labour market on the economic incentives for highly educated workers to move south.

## I. Historical Perspectives

Tables 1 and 2 present some simple data showing an important historical fact: Canadian emigrants to the U.S. have always had above-average education levels relative to those who stayed home. The data in these tables are drawn from the U.S. and Canadian Censuses, and (for the most recent period) from pooled files of the March Current Population Survey (CPS). Looking first at men (Table 1), Canadians living in the U.S. in 1940 were about as likely as U.S. natives to hold a university degree. This does not seem so remarkable until one looks at the situation in Canada, where only about 3 percent of men had a BA or higher degree, according to published tabulations of the 1941 Canadian Census.<sup>4</sup> By 1970, the fraction of Canadian immigrants with a university degree had risen above the level of the U.S.-born, and currently Canadians living in the U.S. are 60 percent more likely to hold a degree than U.S. natives, and about 2.7 times more likely than men in Canada. Even more striking is the relative frequency of advanced degrees (MA's, Ph.D.'s, law and medical degrees). Currently, about 8 percent of Canadian immigrants in the U.S. have an advanced degree, compared to 3 percent of U.S. men and just over 1 percent of Canadian men.

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<sup>4</sup>I am grateful to Thomas Lemieux for assistance with developing this estimate. The published tables only distinguish people with some post-secondary education (including a first degree), and those with an advanced degree. The fraction of men in these two categories was 5.1% and 1.5% respectively. Based on later data, I suspect that only 1/4 to 1/3 of those with any post-secondary education have a BA. This leads to an estimate of around 3 percent for the fraction with a BA or higher. The tabulations for women show 5.8% with some post-secondary education and 0.5% with an advanced degree, suggesting about 2.0 percent had a BA or higher.

Similar conclusions hold for women, as shown in Table 2, although it took until 1990 for the education level of Canadian women living in the U.S. to surpass the rate of U.S. women. As is true for men, Canadian immigrant women also have relatively high rates of holding an advanced degree: 3 times the rate for U.S. natives, and about 10 times higher than the rate back home.

The data in Tables 1 and 2 point to three main conclusions. First, since at least 1940, Canadian emigrants have been more likely to come from the upper tail of the education distribution. Second, the degree of relative selectivity of the emigrant population seems to have accelerated in the 1980s and 1990s. Third, if anything, the degree of relative selectivity is currently a little higher for Canadian women living in the U.S. than for Canadian men, although historically it was the other way around.

An interesting observation about the selectivity of Canadian emigrants is that the flow of people across the border tends to accentuate, rather than narrow, the education gap between Canada and the U.S.. Although Canada has high education levels by world standards, there is still a substantial shortfall in educational attainment relative to the U.S.. This is illustrated in Table 3, using comparisons between the 1996 Canadian Census and the 1995-2002 CPS. The gap is particularly large at the low end of the distribution: Canada has three times as many high school dropouts as the U.S. relative to its population.<sup>5</sup> Another differences between the countries is in the “some college” range. This group includes people with two- or three-year degrees awarded by community colleges, as well as those who attended a four year college but never graduated. In Canada, it also includes a relatively large subgroup of people who completed apprenticeship and trade certificate programs, despite the fact that not all of them actually graduated from high school. Even including this group

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<sup>5</sup>See Parent (2001) for an interesting comparison of high school completion in the U.S. and Canada. Parent notes that high school completion rates continued to rise in the 1975-2000 period in Canada, but were stable in the U.S., so the gap is closing rapidly.

in the some college category, however, it is clear that the distribution of educational attainment in Canada is shifted to the left relative to the U.S..

## II. Returns to Emigration Circa 1980

To gain some insights into the economic incentives underlying the selective emigration patterns in Table 1 and 2, I will begin with the situation circa 1980. This choice of benchmark dates is driven by the fact that the 1981 Census was the first to collect detailed information on educational attainment and weeks of work, making it easier to draw comparisons with U.S. data. The late 1970s also represented a high point in the relative economic performance of Canada, so changes from that point may be especially salient in policy circles.<sup>6</sup>

Figure 2a provides a simple framework for evaluating the relative economic gains to emigration for Canadian men in different age and education groups.<sup>7</sup> Specifically, the graph plots average log weekly earnings of Canadian men in the U.S. for each of 16 age/education groups (derived from the 1980 U.S. Census) against log weekly earnings of the same groups in Canada (derived from the 1981 Canadian Census).<sup>8</sup> For references purposes the graph also shows a 45 degree line. The points would fall on this line if Canadian men in the U.S. in a given age/education group earned as much as similar men in Canada. In fact, all but one of the points are above the line, implying that for most age/education groups, average earnings of emigrants were higher than in

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<sup>6</sup>For example, real GDP per capita relative to the U.S. peaked in 1975, and remained at historically high levels until the mid-1980s. See Bank of Montreal (1999).

<sup>7</sup>This framework is adapted from Card and Lemieux (1996).

<sup>8</sup>Earnings are expressed in 2000 U.S. dollars U.S.ing the 1980 exchange rate and changes in the U.S. and Canadian CPI since then. The age groups are 21-30, 31-40, 41-50, and 50-64. The education groups are less than high school, high school, some post-secondary, and BA or higher.

Canada. The exception is the group with lowest average wages – young high school dropouts – who were actually earning higher average wages in Canada than in the U.S. in 1980/81.

The tendency of the points in Figure 2a to lie on a line with a slope greater than 1 implies that wage differentials across age/education groups were bigger in the U.S. than Canada as of the early 1980s.<sup>9</sup> Assuming for the moment that there are no differences in unobserved skill characteristics between emigrants and people who remain in Canada, wider pay differentials in the U.S. mean that more highly skilled Canadians have a bigger economic incentive to emigrate, even ignoring the different combination of taxes and social benefits in the two countries. The package of lower taxes and lower social benefits in the U.S. relative to Canada arguably reinforces this incentive.

The issue of unobserved skill differences between Canadians who leave and those who stay is complex, and ultimately difficult to resolve. Standard models of migrant selectivity suggest that conditional on observed characteristics, the gap in unobserved skill between movers and stayers will be larger for skill groups with lower observed skills.<sup>10</sup> To the extent this is true, the evidence in Figure 2a may actually understate the relative economic incentives for emigration of more highly skilled Canadians.

Figure 2b presents a parallel analysis for women. In contrast to men, the data for women suggest that wage differentials in the 1980s were compressed in the U.S. relative to Canada. In particular, Canadian women with a BA or higher education who lived in the U.S. earned lower

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<sup>9</sup>The slope of a regression line fit to the points is 1.24 (standard error 0.07).

<sup>10</sup>Suppose that mean log wages in Canada for a worker with observed skills  $m$  and unobserved skills  $v$  are given by  $\log(w) = m + v$ . Suppose that mean log wages in the U.S. for the same worker are  $\alpha + \beta(m + v)$ , where the coefficient  $\beta$  is greater than 1. Finally, suppose an individual emigrates if the expected difference in mean log wages exceeds a moving cost  $C$ . Then movers are those for whom  $m+v > (C-\alpha)/(\beta-1)$ . If  $C$  is constant this implies a higher expected value of unobserved skill for those who move with lower observed skills.

average weekly wages than comparable women in Canada.<sup>11</sup> It is interesting to speculate whether the contrast between men and women reflects the relatively low pay of teachers and nurses in the U.S. – occupations traditionally held by highly educated women – or whether it is driven by differences in the selection process underlying the emigration decisions of men and women.<sup>12</sup>

### III. Changing Wage Structures in Canada and the U.S. and Implications for Emigration Incentives

How have incentives for emigration changed over the past two decades? One important factor is the rise in average real incomes in the U.S. relative to Canada since the early 1980s. This change has meant that all workers can earn more in the U.S. than in Canada. A second factor is changes in the relative wage structures in the two countries. While relative wage gaps across skill groups have stayed roughly constant in Canada, they have expanded rapidly in the U.S. (see e.g. Katz and Autor, 1999).

Figure 3 illustrates the changing levels of real wages for different skill groups in Canada. As in Figures 2a and 2b, each point in the graph represents a specific age/education group. In Figure 3, however, I have plotted mean log weekly wages in 1996 for Canadian workers (in U.S. dollars) against mean log weekly wages in 1981 (also in U.S. dollars). The figure also shows the 45 degree line, and another line parallel to the 45 degree line but 25 log points lower. The figure makes two simple points. First, measured in U.S. dollars, wages in Canada declined substantially between 1981 and 1996. Since inflation rates have not been too different in the two countries, the decline is equivalent

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<sup>11</sup>The three highest wage groups in Figure 2b – all below the 45 degree line – are women with a university degree age 31-40, 41-50, and 51 and older.

<sup>12</sup>Baker and Fortin (2000) show that in Canada these two occupations do not have particularly low wages. Mincer (1978) and Borjas and Bronars (1991) present models of family migration decision making which suggest different patterns of selectivity bias among the observed wages of immigrant men and women. In future research it would be interesting to compare Canadian emigrants who moved alone, and with a spouse.

to the fall in the value of the Canadian dollar. Second, although there are some differences in wage trends across age and education groups, these were relatively small compared to the overall decline in average wages. Both features are also evident in the evolution of wages for women in Canada over the same period.<sup>13</sup>

The situation in the U.S. labour market was quite different. Figure 4 plots data for U.S. men in different skill groups in 1980 and in 1994-2002. Notice first that as in Canada, average real wages declined in the U.S.. However, the decline was bigger for workers at the bottom of the labour market, and smaller for those at the top, so on average wage differences between groups expanded in the U.S.. Second, the mean wages of younger college graduates (those under the age of 40) actually kept pace with inflation, and rose substantially relative to other workers. Indeed, the economic “return” to a university degree for younger men – measured by the wage gap between those with a BA and those with only a high school diploma – roughly doubled between 1980 and 2000 (see Card and DiNardo, 2002, Figures 7 and 8). Similar changes occurred for women, although the overall decline in real wages was smaller for women, resulting in a roughly 15 percentage point closing of the gap between men and women (Card and DiNardo, 2002, Figure 12).

Putting the pieces together, the combination of declining average wages in Canada relative to the U.S., widening wage inequality in the U.S., and constant wage inequality in Canada imply that the economic incentives for emigration have increased for all Canadians, but especially for younger, highly educated Canadians. Figure 5a shows the same information as in Figure 2a, updated to the late 1990s. (The wider variability in the points in Figure 5a is attributable to the much smaller sample

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<sup>13</sup>In recent work, Thomas Lemieux, Craig Riddell and I have compared patterns of changing wage inequality in Canada using public use samples of the Censuses, and using other data sources (Card, Lemieux and Riddell, 2003). We believe that the absence of a rise in inequality between skill groups is a general feature of the Canadian data, and not specific to the Census.

sizes in the 1995-2002 CPS than in the Census. Each skill group only has 30-100 observations in the pooled CPS files). Relative to the situation in 1980/81, the points lie on an even steeper line that is further above the 45 degree line. The points for the three highest wage groups (all with BA or higher education) are on average 40 log points above the 45 degree line, implying that Canadian emigrants in the U.S. with a college degree earned 40 percent more than similar workers back home in the late 1990s. By comparison, the same three groups had only a 15 percent average wage advantage in the U.S. in 1980/81.

As shown in Figure 5b, the situation for women is murkier, in part because of the very small cell sizes available from the CPS. Nevertheless, all the points are on or above the 45 degree line, and the relative disadvantage of highly educated emigrant women noted in Figure 2b has disappeared. While a complete analysis will have to await availability of data from the 2000 and 2001 Censuses, it seems clear that the overall level of economic incentives for emigration, and the distribution of incentives across different education groups, have changed over the past two decades in a direction to magnify the “brain drain”.

#### IV. A Caveat on Selectivity

As I have noted earlier, comparisons such as those in Figures 2a/2b and 5a/5b rest on the assumption that unobserved skill characteristics (e.g., ambition) are not too different between emigrants and those who remain at home. Many analysts would agree that migrants are systematically different, and that comparisons between the earnings of Canadians in the U.S. and those in Canada reflect both differences in labour market opportunities in the two countries, and differences between movers and stayers. One way to evaluate the mover-stayer component is to compare Canadian emigrants in the United States to U.S. natives with the same observed skills. If

Canadian movers are really highly selected, one might expect them to stand out in the U.S. labor market.

Figures 6a and 6b present an analysis along these lines. Figure 6a plots the average earnings of Canadian men in the U.S. in 1980 (in each of 16 age/education groups) against the average earnings of U.S. natives in the same skill groups. Figure 6b conducts the same analysis for women. The information in these graphs is summarized in Table 4, along with comparable data for 1940 and the late 1990s. Looking at Figure 6a, it seems clear that Canadian men living in the U.S. tend to earn more than U.S. natives, even controlling for age and education. As shown in Table 4, the average wage advantage of Canadian men, controlling for age and education, was 10.6 percent in 1980. For women, the data on Figure 6b suggest much smaller differentials between Canadian emigrants and U.S. natives. This is confirmed in Table 4: on average, Canadian women in the U.S. earned only 3 percent more than similar U.S. natives.

Interestingly, comparisons in 1980 represent a relative low point for the average wage differential of Canadians in the U.S. labour market. In 1940, the adjusted gaps for both men and women were around 22 percent, and in the late 1990s the gaps were both about 15 percent. There are several possible explanations for this “U-shaped” pattern of Canadian differentials. One is that changing forces underlying emigration flows have led to changes in the unobserved skills of Canadians who leave, as well as changes in the observed skills. An alternative is that there are changing economic rewards to characteristics like ambition in the U.S. labour market. Sorting out these alternatives will be an important challenge for future work.

## V. Summary

The results of the analysis here point to five main conclusions. First, Canadian immigrants in the United States are relatively well educated. This has been true for at least the past 60 years. In earlier years, Canadian emigrants were better educated than other Canadians, but not too different from U.S. natives. Over the past couple of decades, however, with convergence in education levels between the two countries and a rise in the relative emigration rate of highly-educated Canadians, Canadians in the U.S. are now substantially more educated than U.S. natives.

Second, outflows of relatively well-educated men and women from Canada accentuate the skill differences between the two countries. The migration process is not closing the skill gap between countries; it is actually contributing to a further widening of the existing gap between average education levels in the U.S. and Canada.

Third, over the 1980s and 1990s, important economic trends have intensified the economic incentives for Canadians to emigrate to the U.S. – particularly Canadians with at least a university education. The remarkable rise in the relative wages of younger college-educated workers in the U.S. has created economic incentives not just for Canadians but for people from all around the world to move to the U.S.. I suspect that Canadian concerns over the brain drain are echoed in many other countries.

Fourth, some of the difference between the earnings of Canadian emigrants in the U.S. and those back home are probably due to the selective nature of the migration process. Compared to U.S. natives with similar observed skills, Canadian immigrants in the U.S. earn more. The wage advantage earned by Canadians in the U.S. decline between 1940 and 1980, and has risen since then, perhaps reflecting changes in the migration decision process, or changes in the rewards to the unobserved characteristics that emigrants have always taken with them.

Finally, comparisons between the U.S. and Canada provide an interesting perspective on the issue of skill shortages. Some Canadians have expressed concerns over an impending skill shortage, and the recent policy focus on the brain drain is partly motivated by a belief that emigration is contributing to a shortage of highly skilled workers. Looking at wages in the U.S. and Canada, however, there is no evidence of a shortage of educated workers in Canada. Indeed, while relative wages of highly educated workers have risen sharply in the U.S. since the early 1980s, they have remained constant in Canada. The market signal that might be expected to help remedy an impending skill shortage – a rise in the relative pay of better educated workers – has not yet occurred.

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Table 1: Percentages of Adult Men with a University Degree

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	US Natives in US	Canadians in US	Canadians in Canada
1940	5.9	5.8	3.0 (est)
1970	14.4	15.0	---
1980	20.4	24.9	11.8
1990	22.7	33.3	---
2000	26.9	44.3	16.0

Addendum: Percent with Advanced Degree

2000	3.3	8.1	1.1
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Notes: 1940-1990 data in columns 1 and 2 are from tabulations of the 1940-1990 US Censuses. 2000 data are from combined samples from the 1995-2002 March Current Population Surveys. Data in column 3 is from tabulations of the 1981 and 1996 Canadian Census. 1940 entry in this column is an estimate based on published tabulations of 1941 Canadian census.

Table 2: Percentages of Adult Women with a University Degree

	US Natives in US	Canadians in US	Canadians in Canada
1940	4.3	3.3	2.0 (est)
1970	9.1	7.6	---
1980	13.9	12.7	7.5
1990	19.0	22.7	---
2000	25.0	36.7	15.2
Addendum: Percent with Advanced Degree			
2000	1.5	5.0	0.5

Notes: see notes to Table 1.

Table 3: Comparisons of Current Educational Attainment in Canada and the US

	Men		Women	
	Canada	US	Canada	US
Dropout	32.2	9.8	28.0	9.1
High School	20.8	34.9	24.3	35.3
Some College	31.1*	28.4	32.5*	30.6
University or Higher	16.0	26.9	15.2	25.0

Notes: Canadian data are from the 1996 Canadian Census, and include only native-born Canadians age 21-64. US data are from pooled samples of the 1995-2002 March Current Population Surveys, and include only US-natives age 21-64.

\*25 percent of Canadian men with “some college” and 20 percent of Canadian women with “some college” lack a high school graduation certificate.

Table 4: Relative Wage Advantage of Canadian Immigrants in the US

	<u>Men</u>		<u>Women</u>	
	Unadjusted	Adjusted	Unadjusted	Adjusted
1940	26.0	21.9	18.3	21.2
1980	17.5	10.6	4.6	3.0
2000	24.3	14.0	27.8	15.7

Notes: Entries represent percentage differences in average weekly wages of 21-64 year old Canadian immigrants and US natives. Unadjusted differences represent differences in mean log wages. Adjusted differences are from a regression model that also includes interactions of age and education dummies. 1940 data are from 1940 US Census. 1980 data are from 1980 US Census. 2000 data are from combined samples from the 1995-2002 March Current Population Surveys.

Figure 1: Canadian Immigration and Emigration Rates, 1981-1998

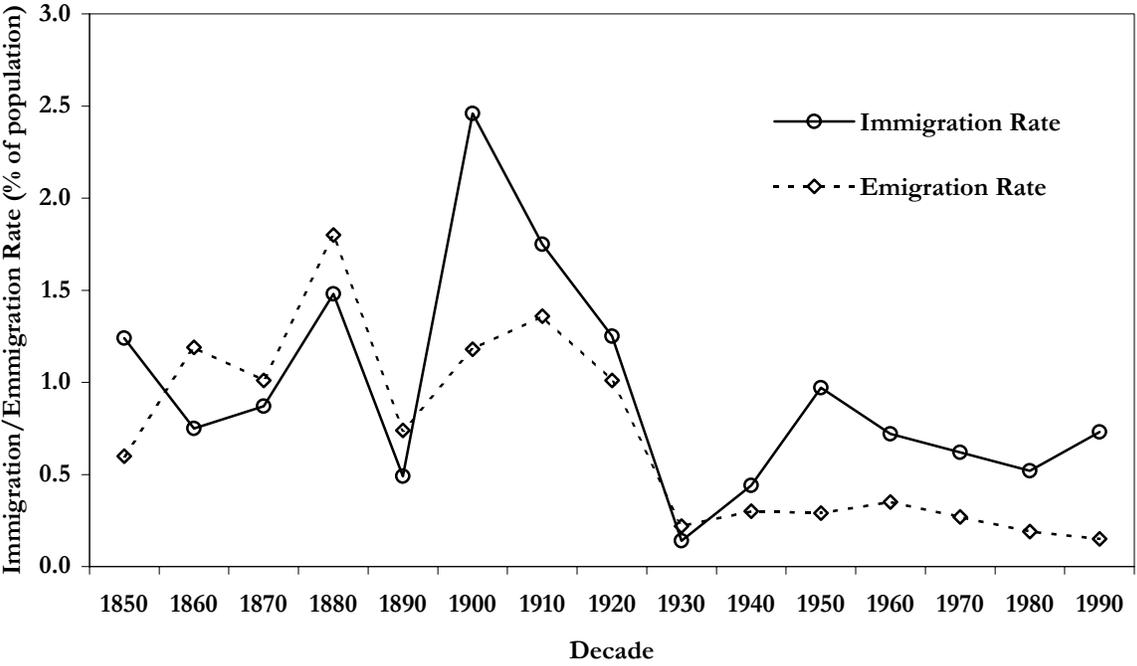


Figure 2a: Gains from Immigration For Canadian Men - 1980/81

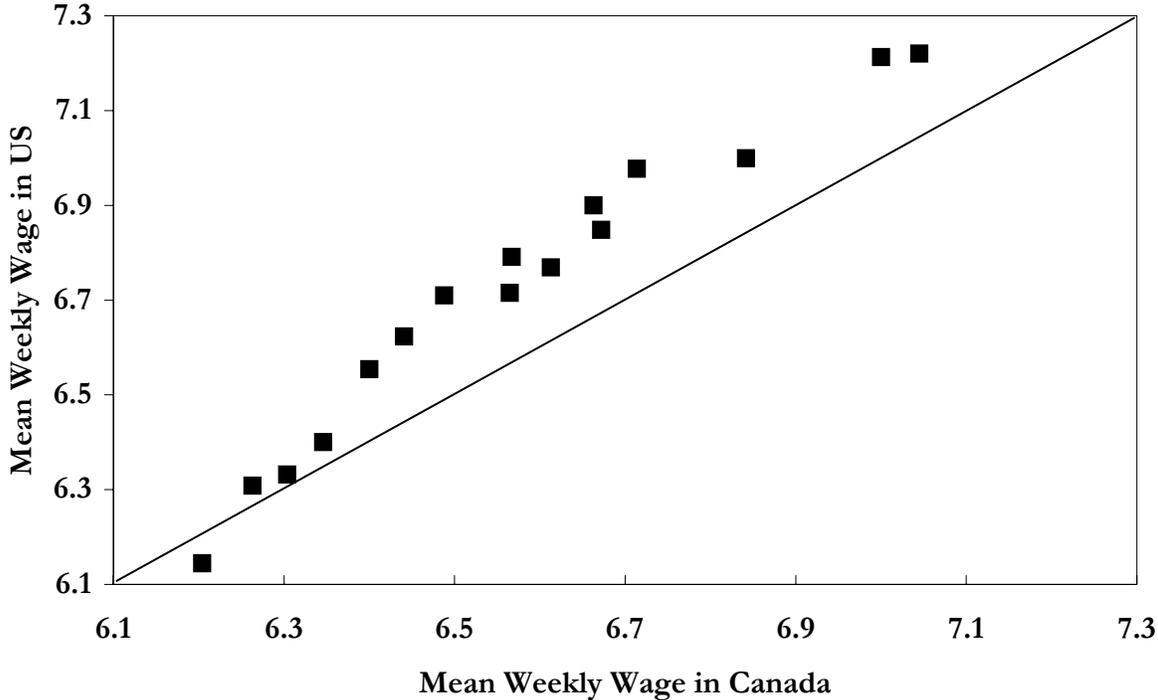


Figure 2b: Gains from Immigration for Canadian Women - 1980/81

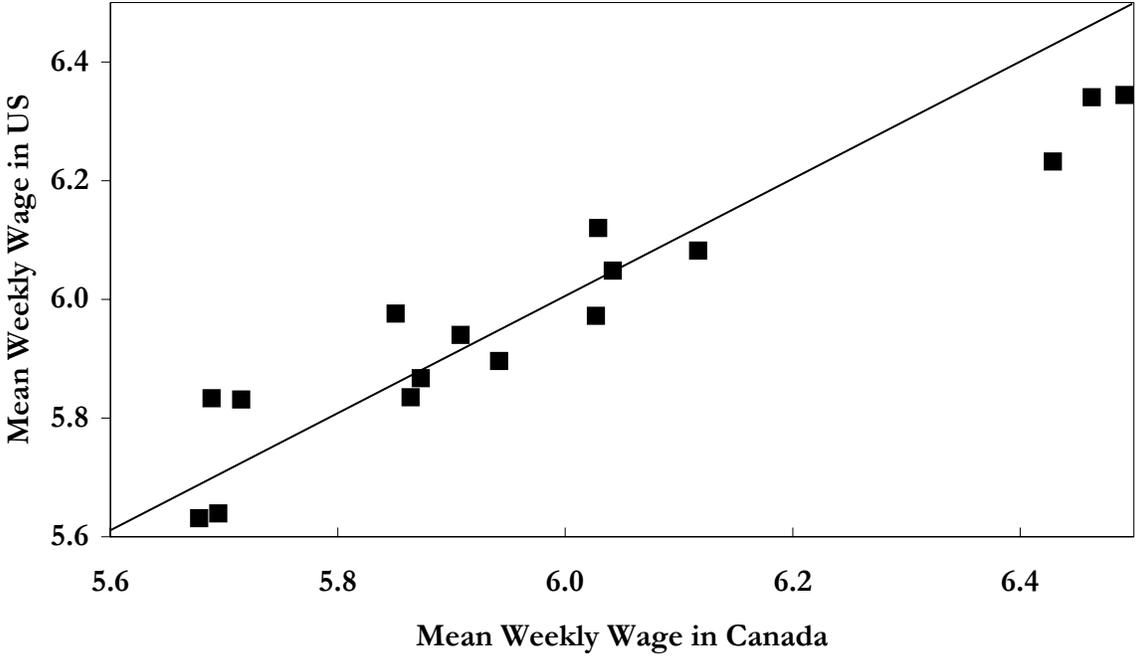


Figure 3: Evolution of Wage Structure: Canadian Men 1981-96

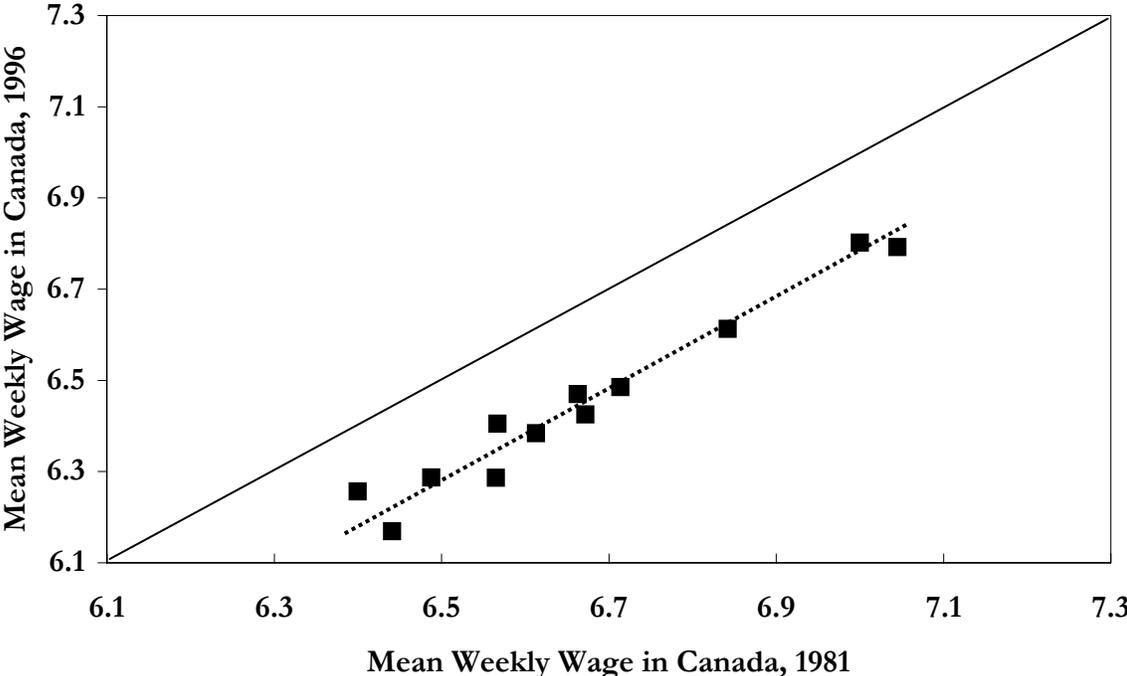


Figure 4: Evolution of Wage Structure, US Men 1980-2001

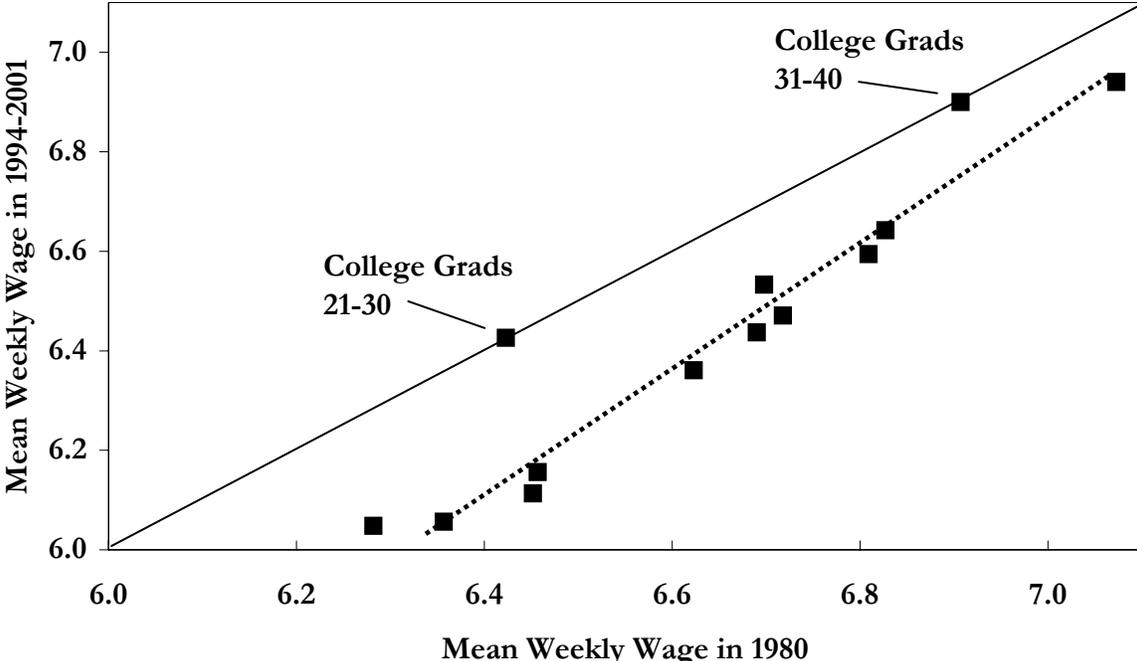


Figure 5a: Gains from Immigration for Canadian Men - 1996/2000

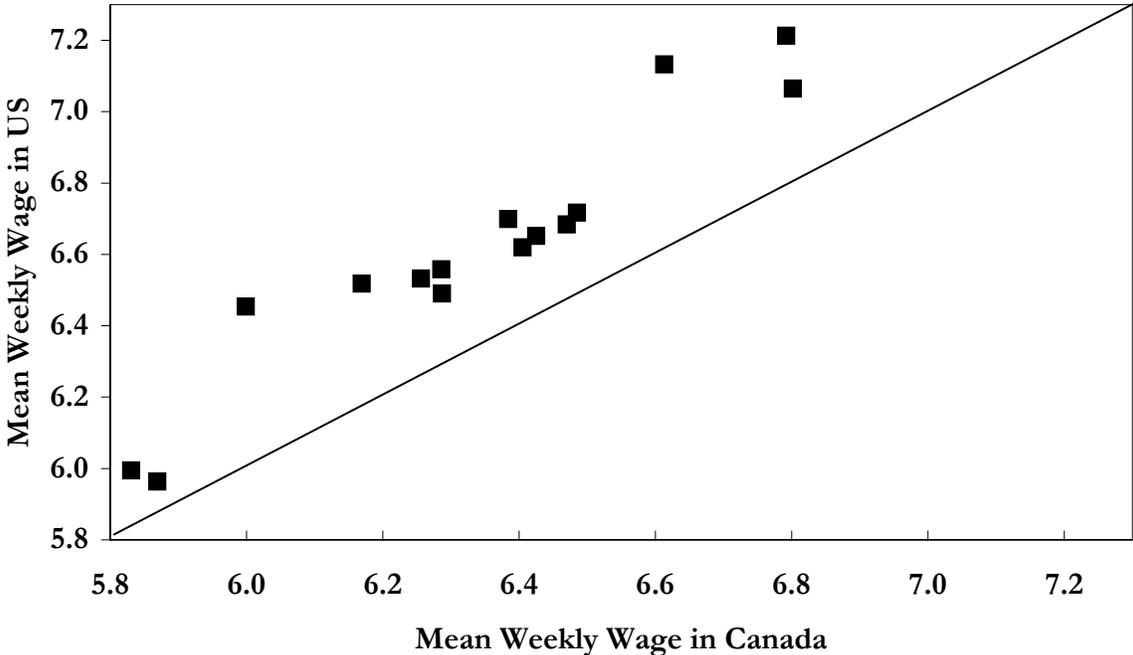


Figure 5b: Gains from Immigration for Canadian Women - 1996

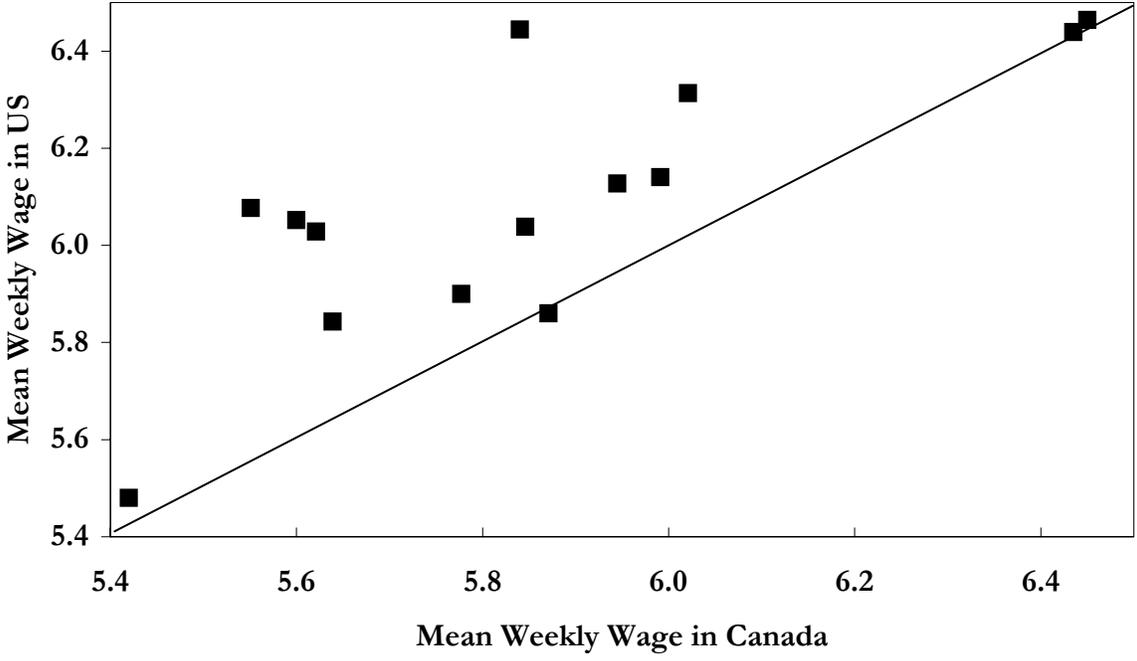


Figure 6a: Earnings of Canadian Men in US vs. Native Men, 1980

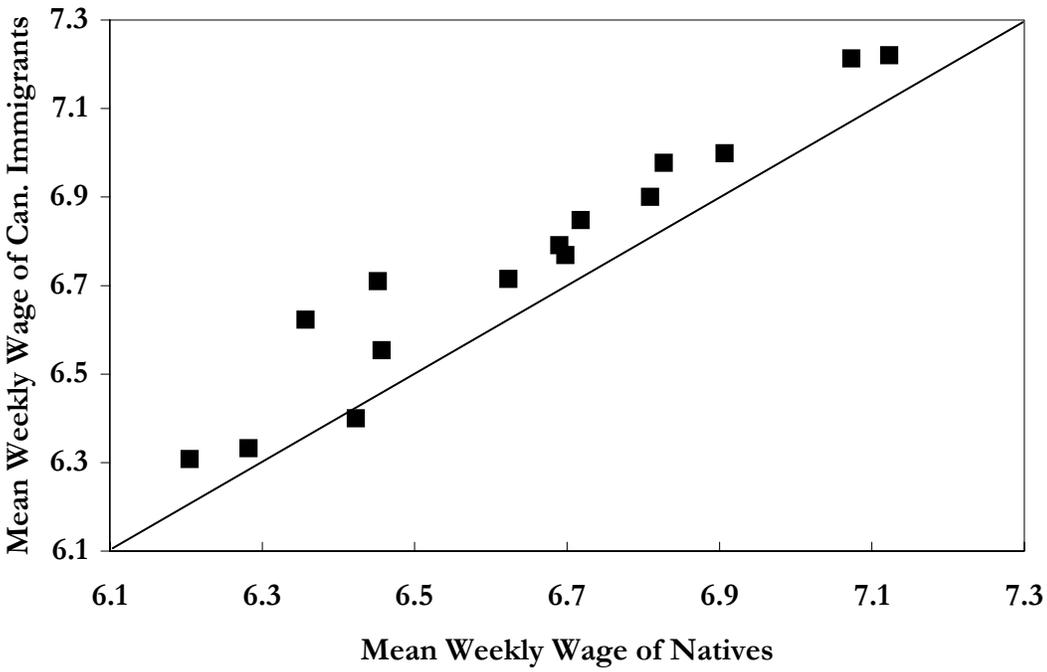


Figure 6b: Earnings of Canadian Women in US vs. Native Women, 1980

