Income and Schooling: Evidence from the 1901 Manuscript Census of Canada

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Over the last one hundred and fifty years, the quantity of formal education provided for most children has risen dramatically. At any time, school enrollment rates have varied substantially across countries, and within countries they have differed by region and family background. We all know that, generally, richer societies have more children at school than poorer societies, and at the level of the individual family, wealthier families are and were more likely to send their children to school, and to send them to school for a longer period, than poor families (e.g. Crafts, 1985). Raising average education levels has long been seen as a means to promote economic development, and reducing income / class / gender barriers to attending school considered as important ways to reduce the incidence of poverty. In this paper, we examine how much schooling was available, and the kinds of children who went to school, in urban Canada at the beginning of the twentieth century.

Around 1900, the United States, Australia, and the United Kingdom were, in terms of per capita income, the richest countries in the world (Table 1). Their educational policies were dramatically different, especially with respect to attendance of adolescents.[1] At the beginning of the century, roughly 60-65% of (white) American 14 year olds were at school, about 40% of Australian 14-year olds, but only about 10% of those in the UK.[2] Not only were all of these countries high-income, they were all English-speaking, and mainly Protestant. Thus one might expect a broadly similar approach to education to have been chosen, when in fact patterns of

[1] Children in the UK and Australia started school younger than those in the US or Canada.

[2] UK, Committee on Higher Education (1963), p. 11, Table 2 below, and MacKinnon (1989).

school attendance were very different.[3]

Canada, like Australia, was a British colony, and it automatically inherited most things British as it moved towards nationhood.[4] But in educational policy, Canada mainly followed the US example. An obvious problem in following the American pattern of keeping adolescents at school was that, on average, as Table 1 shows, Canadians were vastly poorer than their American neighbours.

Table 2 presents the, admittedly rough, comparisons of school attendance that can be made on the basis of published census returns for Canada and the US. Aggregate comparisons are severely restricted by the different age ranges reported for the two countries, and by the failure (at least for Canada) to report attendance rates separately for urban and rural areas before 1921. However, Table 3, using the IPUMS data for US cities in northern and central states, and Canadian census data for Halifax, Montreal, Toronto, and Winnipeg supplement the otherwise sparse information available for 1901. Educational participation rates for Canada as a whole, especially of older children, were clearly lower than for whites in the US, with the gap growing between 1900/01 and 1910/11, but then shrinking to 1920/21. For urban areas, however, the differences were much more modest.[5] For the restricted set of larger Canadian and US cities in 1900/01, differences in attendance rates by age were at most 20%, and usually far less. Canada

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[3] Goldin (2001) addresses the question of why the United States invested so much in the education of adolescents, and the possible beneficial effects of this policy on twentieth-century economic growth.

[4] Except the Poor Law.

[5] "Urban areas" both includes much smaller communities than cities of 25,000, and it includes places outside the north-east and central states, so the 1900/01 to 1920/21 comparisons must be considered only rough approximations.

was a less urban society than the US, so that part of the gap in nationwide attendance rates would be accounted for by the different rural-urban composition of the population.

At the beginning of the century, it appears that Canada was investing relatively heavily in education, compared to the US. Despite the almost 40% gap in average income, young Canadian children were more, not less, likely to be enrolled in school than young American children, and at higher ages, the Canadian disadvantage was only about 20%.[6] American investment, not just in the education of adolescents, but also in young children, jumped over the next decade relative to Canada, but by 1920/21 the Canadians had closed some of the gap observed in 1910/11.[7]

In this paper, we cannot do much more than point out that Canadians relatively over-invested in education, given levels of income per capita. We think that two kinds of explanation should be further investigated. One has to do with differences between the city and the countryside, and probable income gaps. In related work, we have been using 1901 census data to estimate annual earnings by occupation in Canadian cities, and we then compare our findings to US estimates of income by occupation (Green, MacKinnon, and Minns, 2001). Table 4 presents a summary of these comparisons, which we think show that for most urban Canadians, annual

[6] 78% of Australian children aged 5-9 were reported as attending school in 1911. Australia (1917), p. 181.

[7]That children were enrolled in school does not meant they attended regularly. Our impression is that attendance rates in the two countries were broadly similar. Using the age category 10-19 makes Canada look relatively good since older children were more likely attending secondary schools, where the costs of providing education were much higher. A lot of the Canadian catch-up to 1920/21 was a result of keeping more 10-14 year olds at school, and this was generally at primary school.

earnings by occupation were only modestly lower than for Americans in similar occupations.[8] If urban Canadians were roughly 15 - 20% poorer than urban Americans, not 30-40% poorer, then the educational patterns shown in Table 3 would seem to have been in line with what urban Canadians and Americans could afford.

Individual Canadian families had a strong incentive to have a relatively high level of education available for their children because so many young Canadians emigrated to the United States. Rates of out-migration from Canada had been very high at least since 1870. A rational parent (or youth) could plausibly expect that many members of the rising generation would spend part or all of their adult life in the US, and wish to prepare as well as possible for that eventuality. What made sense for many students may not have made sense for society at large. One might expect taxpayers to hesitate to pay for the education of probable emigrants.[9] Australians did not have the same reason to keep up with the Americans.[10]

It is surprising that little systematic investigation has been conducted on the evolution of investment in education in Canada. The classic work remains Bertram (1966). His study was part of the growth accounting literature which sought to measure the contribution of human capital to economic growth. Unfortunately this excellent start on the role of education in Canadian economic development has not since been vigorously pursued.

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[8] The very large gap in Canadian-US income per capita would then be in large part due to poverty in rural Canada, and perhaps to higher returns to capital in the US.

[9] The occupational composition of Canadian emigrants to the US is a topic for future research.

[10] In 1921, about 35% of Australian 14 and 15 year olds were at school, and about 25% of British teens of the same age.

Tables 2 and 3 establish that adolescents in urban Canada were more likely to be at school in 1901 than adolescents in rural areas, and that Canadians were less likely to be at school than Americans. But which urban Canadians were at school? How constrained by income were families in deciding how long to keep their children at school? Did factors other than family income play a systematic role in determining school attendance?[11] These are the questions that we seek to answer in the rest of the paper. The available evidence is drawn from samples taken from the 1901 manuscript census returns for Toronto, Montreal, Halifax, and Winnipeg.[12]

Schooling in 1901

The British North America Act of 1867 established that education was a provincial responsibility. Thus in Canada, as in the US, the kinds of schools, and the legislative and administrative environment within which schools operated, varied substantially across jurisdictions. Ontario and Quebec had two tax-supported school systems, one of which was effectively for Protestants (and Jewish children), and the other for Roman Catholics. Nova Scotia and (more controversially) Manitoba had only one public system.[13]

The primary schools in the four provinces considered here were all free, or charged at

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[11] An obvious extension to the work presented here would be ask the same questions for the US, using the IPUMS data, and consider how similar the experience of adolescents in the two countries was.

[12] We are still compiling the database for Vancouver, the last city to be entered into the sample. In total we will have about 65,000 observations for Canadian urban residents of all ages. When the Canadian Families Project nationwide census sample (compiled at the University of Victoria) is made public, we will be able to combine our data with their information for rural areas, small towns and other cities.

[13] See United Kingdom (1901), Stamp (1982) and Axelrod (1997) for discussions of the Canadian education system at this time.

most token fees. The length of the primary school course was generally 8 years, but as the age of starting school was variable, children's attendance often spotty, and promotion from class to class determined by passing termly or annual exams, it is very hard to say by what age children "should" have finished primary school.[14] Nova Scotia and Ontario had compulsory schooling laws – to age 12 in Halifax, and to age 14 in Toronto. Manitoba would introduce compulsory schooling in 1915, Quebec only in 1942. There were legal restrictions on the employment of the young, which had been introduced starting in the 1880s (Bradbury, 127). By 1901 young people (under the age of 14) could only legally be employed in private homes. Where fewer occupations were open to very young workers, school would by default become a somewhat more attractive option.[15]

Continuing education past the primary school level was always subject to some test of academic achievement – either exams demonstrating that one had passed the last grade of primary school, or more commonly a high school entrance exam. In Montreal, only the Protestant system offered low-cost secondary education, and in Ontario, only the public (i.e. Protestant) secondary schools were tax-supported.[16] Public secondary schools in both Toronto and Montreal charged

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[14] The only age-grade breakdown we can find for primary schools is for Winnipeg. As of October, 1901, about 10% of all children enrolled in Grades 1-8 were aged 14 or up, and the modal age for pupils in Grade 8 was 14.

[15] Children who passed the high school entrance exam could leave school in Ontario before the age of 14. Bullen (1986) discusses child labour in urban Ontario around 1900. Ontario raised the school leaving age to 16, starting in the fall of 1921 (Heron, p. 225). Thereafter youths over 14 could apply for a permit allowing part-time schooling (p. 242).

[16] Roman Catholic schools in Ontario could offer what were known as fifth book classes – these covered at least part of the curriculum of the first two years of high school. We think that in Quebec there were some highly subsidized places in church-run secondary schools, and in some parts of the province there may have been tax-supported secondary schools for Roman Catholic

fees. There were also private schools at the primary, and to a greater extent at the secondary, level. The census returns give us no information on the type or level of schools children attended.

Religious education in schools, and the control of schools by public authorities or by churches were the most contentious educational issues in Canadian schooling at this time.[17] In the Canadian context, these vexing problems were also mixed with language issues. Virtually all Protestants were anglophones (except for a few European immigrants). Some Roman Catholics were anglophone, some francophone, and some spoke a variety of European languages. For most decision-makers in the francophone Roman Catholic population, issues of language and faith were intimately bound together. Allowing public funding for denominational schools, and apportioning revenue according to the denomination of the taxpayer, could lead to substantial disparities in expenditure per pupil. Since Roman Catholic school systems were often expected to provide both French and English schools, there was also opportunity for conflict within the RC community. This is not the place to enter into the long and complicated saga of religious / linguistic controversy in Canadian schools. We will simply note that schools mainly attended by Roman Catholic pupils were perceived as being less well financed than schools mainly attended by Protestant pupils, and schools for French-speaking Roman Catholics were worse off than schools for English-speaking Roman Catholics.

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children, but this appears not to have been the case in Montreal.

[17] Probably the main reason why Manitoba and Quebec did not have compulsory schooling laws was that the Roman Catholic church opposed such legislation. While by 1901, Roman Catholics were a small minority of the population in Manitoba, their population share had dropped substantially after the province entered Confederation. With compulsory schooling, a public official would have to certify that a given school or teacher was offering adequate instruction. This would allow the state to dictate to the church.

Goldin (2001, p. 273-4) places great emphasis on the rise of clerical employment in the early twentieth century, as well as technical progress requiring more academic knowledge among skilled blue-collar workers, in explaining the growth in the demand for high school education in the US. Similar changes were taking place in the Canadian economy, although somewhat more slowly. One of the major sources of demand for high school education was the possibility of becoming a school teacher. To teach elementary school, one needed at least some secondary education, and the high school curriculum was shaped with the needs of intending teachers in mind. With a rapid increase in the number of children to be taught, many more teachers were needed.[18]

Using the 1901 Manuscript Census to Measure School Attendance

The 1901 Census is the only source of information for this period that allows the activities of Canadian adolescents to be put into the context of the families they lived with. The vast majority of entries are clear and quite detailed. This is the first Canadian census for which earnings and months worked were recorded. We have worked on entering data from the census manuscripts for the last five years.

Our intention was to draw samples of approximately 5% of the population of Montreal and Toronto (urban areas, not just people living within the city limits) and about 10% of the population of Halifax and Winnipeg, by sampling the first 50 buildings in every fifth (or third) census sub-district. In fact, when we followed this procedure (collecting information for 235 sub-districts) we ended up with 7% of the Toronto population, almost 9% of the Montreal population,

[18] In Canada, the number of children aged 5-14 rose by over 20% between 1901 and 1911. (Leacy et al., Series A80-81).

15% of Halifax, and 18% of Winnipeg. As we do not know how many children lived in each city, we cannot be sure how the proportions of children in the sample correspond to proportions in the total population.

Although we do not use this feature in this paper, cluster sampling will allow us to consider neighbourhood effects.[19] Cluster sampling has substantially reduced the cost of data gathering, as the idiosyncrasies of enumerators' handwriting and system of abbreviation can often be readily unscrambled when a series of records is being deciphered. Cluster sampling has the drawback that elements within a cluster are not independent. Ignoring the sampling design would lead to estimates of variance that are too small. STATA has procedures that adjust variances for cluster sampling. Some sampled sub-districts have few inhabitants – usually because there were vacant houses, or because most of the addresses were businesses, not homes.

The census enumerated people by family.[20] A woman was generally only listed as the head of a family if she lived alone, in an all-female family, or was a widow living with her children (who were generally the wage-earners). In most cases, the households enumerated were nuclear families consisting of one or two parents and their children. However, almost every conceivable family grouping is found. Each person in the household was supposed to be listed in terms of his or her relationship to the head. Thus where some household members are related to each other

[19] It is not clear that each sub-district should be thought of as a neighbourhood – while presumably most families in a given cluster knew their neighbours within the cluster, they and their children likely knew and interacted daily with people from at least some of the other nearby clusters. How to define neighbourhoods from sub-districts?

[20] Some dwellings had multiple families. These included apartment buildings, and also houses that had been somewhat divided. A family was supposed to be a group of people who ate together.

rather than to the head, it can be difficult/impossible to work out what these relationships were.[21] When we refer to "families", we mean people who were related by blood, marriage, or adoption. Where there were other people in the household (such as domestic servants or lodgers), we consider that they are not part of the family.

For young people living with their relatives, where one of their relatives is the head of a family, we have considerable information on family structure and also the characteristics (age, occupation, literacy, immigrant status, often income) of each member of the family, as well as of the young person.[22] In this paper, we use information on the head and the young person, but not much on other family members.

All persons over the age of five were supposed to indicate whether they could read, write, speak English, speak French, what their mother tongue was, and if they were at school, for how many months in the year. Definitions of literacy and language skills were not given. For a substantial number of children, months at school were not given, but "student" or "scholar" or "pupil" was written in the occupation column. We have taken any evidence of school attendance as a sign that a person was at school.[23] In principle, someone could both report school attendance and work. In fact, this was very rare. While many older schoolchildren would have had part-time jobs, these were almost never recorded. Many recent school-leavers must have attended school

[21]For example, two people listed as lodgers who have the same surname and are 25 years apart in age are likely parent and child, but we don't know that for sure.

[22] The enumerators were supposed to gather information on all persons NORMALLY resident – but it is not clear to what extent they followed this rule, or even what "normally resident" means. There are cases where entries have been struck out after the fact (presumably by census tabulators in Ottawa) because the same person appeared elsewhere in the census.

[23] Most children were listed as attending school for 9 or 10 months.

sometime in the previous twelve months, and worked for part of the year, but this rarely shows up.

Information about the family was probably supplied by the head or his wife.[24] As with all census returns, the responses we see are a combination of what the respondent said, what the enumerator wrote down, and what the checker of the data (presumably a civil servant in Ottawa) changed.[25] There are many gaps in the answers given for servants and lodgers – the respondent likely did not know much about them. In predominantly French-speaking areas in Montreal and Winnipeg, the returns are completed in French (or sometimes Franglais). We do not know if enumerators in areas heavily populated by European immigrants spoke the relevant languages.

In this paper, we focus on young people aged 12 to 16, living in a family where a relative was the head of the family.[26] 95% of the 5591 young people in the sample were living in such arrangements. As one would expect, the proportion drops with age, but is still 91% for the 16 year olds. Those not living with a relative were much less likely to be at school, and this is particularly true for girls, who were often live-in domestic servants.[27] It seems doubtful that many

[24] As the census did, we assume that the head of the family was normally a man. 90% of the children lived in male-headed families.

[25] Most of the time, the data checkers only added tick marks and sometimes totals at the bottom of the page. Some entries are crossed out, and occasionally amendments have been added in different handwriting.

[26] And where the young person was not the head's wife.

[27] A few of these youngsters were certainly or probably living with a relative, but the relative was classed as a lodger or employee of the head of the family.

young people left their homes in the city and moved to work elsewhere in Canada at these ages.[28] Unless there was substantial emigration to the US before age 17, looking at young people living in families headed by a relative is not going to lead to any substantial problems of selection bias.

However, considering for the moment ALL 12-16 year olds found in our four cities, Table 5 shows the recorded activity of boys and girls by age. Averaging across cities, gender ratios for those at school are almost identical.[29] Employment rates rose sharply by age. Average earnings for 14-16 year olds were at least $100 per year.[30] Given that the male heads of families with children aged 12-16 reported mean earnings of about $500, the earnings of the youngsters could be an important addition to the family's resources.

Not surprisingly, boys were much more likely to go out to work, while girls were often reported as having no occupation, which presumably typically meant that they were helping their mothers with domestic work. The proportion of boys with no occupation is also fairly high. While there may have been some under-enumeration of adolescents' activities in the period when they were making the transition from school to work, we suspect that many of the boys reported as having no occupation were un, or at least under-employed. If this interpretation is correct for

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[28]Darroch (2001) reports similar proportions of youngsters living apart from their parents for the Canadian Families Project sample of the 1901 Census. This is a 5% sample of the country as a whole.

[29] Looking at individual cities suggests there may have been some systematic differences across cities, although given the size of each city sample, and the fact that underlying differences would not have been huge makes pursuing this issue difficult. Girls in Montreal were probably less likely to stay at school than girls elsewhere.

[30] For children living with their families reporting earnings. We have tried to take different price levels across the country into account by deflating earnings in the two highest price cities (Montreal, and to a greater extent Winnipeg), using the inter-urban price series of Emery and Levitt (2001).

many boys, and perhaps for some girls as well, then we are seeing a group for whom the opportunity cost of more schooling would have been very low. The direct costs (fees, textbooks, clothing) may have been the reason why these children left school, or they may have failed their exams. At the top of the social scale, there were a few children who were educated at home, and are therefore not listed as at school.[31]

Explaining School Attendance

We want to explain who went to school, and who did not. Given the nature of the census questions and more particularly the recorded answers, we do not think it is worth trying to explain how much schooling children obtained over the previous year, just attendance or non-attendance. The activities of a few of the youngsters who were neither at work nor at school may have been closer to being at school than being at work, but we suspect that the great majority of those whose activities went unrecorded were either performing unpaid domestic labour, doing odd jobs, or would have been at work if they could have found a job. The teenagers may have wanted to be idle, but we doubt their parents would have sanctioned it. In this section, we explain the available measures that may have influenced school attendance, and present estimates from logit models where school participation is the dependent variable. The estimation procedure (SVYLOG in STATA) takes account of the sample design.

We had in mind three types of influences on the outcome -- a) the young person's individual characteristics, b) income and constraints on the family, and c) shared characteristics

[31] There are a couple of instances of families with a resident governess and school-aged children not listed as at school. For the wealthiest families, appropriate education for a teenage daughter may have been private tutoring in literature as well as lessons in dancing, music, drawing and so on.

that affect attitudes across ethnic or religious groups. Unfortunately, several of the available measures reflect more than one type of influence, and as is the norm with empirical work, the available measures are often only rough proxies for what we would like to know.

Age and sex are the most readily measured individual characteristics.[32] We also include grouped birthmonth effects. Children whose birthday fell after the start of a school year, and before the census date, may have been more likely to report some school attendance. Literacy roughly measures earlier exposure to (and benefits from) formal education.[33] Children whose mother tongue was not English, but who spoke English, were likely to have greater academic ability or drive to succeed.[34] Children attending English-language schools presumably learned at least some English at school, although they quite possibly picked up basic vocabulary on the street before they ever started school. Few French-language primary schools in Quebec taught English to their pupils. Bilingual francophone adults in Montreal earned much more than unilinguals in 1901 (MacKinnon, 2000), as did those of other mother tongues who spoke English. To the extent that children learned English at home from bilingual parents, knowledge of English reflects a

[32] We have used stated age, rather than age derived from birth month and birth year information. Children's ages normally correspond to the age implied by the birth year information. Lack of correspondence between birth year and stated age is much more common for adults. In some cases, we think that enumerators asked respondents for the ages of family members, and worked out the birth years from the age – which introduced arithmetic errors.

[33] There were always slightly fewer people who said they could write than could read, so we use ability to write as our measure of literacy. 97% of the children in the sample said they could write.

[34] About 60% of the francophones said they spoke English, over 85% of those with other mother tongues, and all of those with a Celtic language as their mother tongue.

wealthier, and probably more educated, home background.[35]

Several characteristics that we measure as being the characteristics of the child are almost always also the characteristics of the head of the family, and of everyone else in the family. Thus the religion of the child was very rarely different from the religion of the head of the family, and if the child was non-white (a tiny fraction of all children in the sample), the head was almost certainly non-white. The child's mother tongue was normally also the head's mother tongue. In almost all cases where the child's mother tongue is not the same as the head's, the head was an immigrant to Canada. About 5% of the children were living in families where the head was a relative other than one of their parents (a sibling, grandparent, aunt, uncle etc.).[36] Heads may have been less willing to keep relatives other than their own children at school.

While 90% of the children in the sample had been born in Canada, only 65% of them were living in families headed by someone born in Canada. This fits with the timing of immigration to Canada – high in the early 1870s and much of the 1880s, very low in the 1890s. For most immigrant heads, we have year of immigration to Canada, although so far we have not used it as an explanatory variable. If immigrants had lower earnings than the Canadian born, (most obviously true for continental European immigrants, but we have found modest but persistent income gaps for UK immigrants (Green and MacKinnon, 2001)), then a variable measuring the birthplace of the head would be partly picking up the effect of family income on school attendance. However, it should also reflect ideas about the appropriate amount of education

[35] If we are to incorporate neighbourhood effects, this is one way they would come in. Presumably many children learned English from playing with English mother tongue neighbours.

[36] There are three generation families headed by the grandfather, so it is not necessarily the case that the child has no resident parent.

children needed, based on experience in the head's country of origin. Thus if UK born heads had left school at younger ages than US-born heads, we might expect children in the former type of family (26% of children lived in families with a UK born head) to leave school fairly young. Given the strong collinearity of having an "other" mother tongue and the head having been born in Europe, cultural influences imported from Europe would be very hard to separate from lack of English language skills.

We have every reason to expect that children living in high income families would have higher rates of school attendance than children in low income families. There are several available measures of income / wealth. Wage earners (as opposed to employers and the self-employed) were supposed to report earnings over the previous year. Not all wage earners answered, while some non-wage earners did, and whenever information was given, we use it. So far, we have not tried to pool all reported earnings in a family, on the grounds that only an unknown fraction of the earnings of children in their late teens or twenties was likely contributed to running the household.[37] For this paper, we have used the earnings of the head, where they are given. When estimating models including head's income, we must drop all cases where no income was reported – either because the head was not at work, or because the head did not say what his earnings were.

Earnings rose sharply by age for young adults. We have counted up the number of adult male workers in each family, defining those aged 22 and under 69 as adults. While there were household heads of 69 or up reporting work and sometimes earnings, we felt that men over 68 were liable to be only marginally employable. The typical family had one adult male worker, but

[37]With the fraction probably lower for higher income families.

some had up to four. We also counted the number of male and female workers aged 18 to 21. We expected that the presence of more late adolescent workers would substantially ease family budget constraints. Rowntree (1901), writing on Britain at about the same time as the 1901 Canadian census was taken, put great emphasis on life-cycle poverty in families with several young children and few earners.

Where the head of the family had an occupation listed, we have generally been able to assign the occupation to one of a fairly small set of occupational groups.[38] Thus in the typical case where the head of the family was a working male aged 22 to 68, the occupational group is for the first adult male worker.[39] The head's occupational category should be a proxy for his income. Table 4 shows the median earnings of each group.[40] In addition, to the extent that family heads expected their children to follow similar occupations, and family heads in clerical, or professional / managerial occupations were relatively well educated, one would anticipate that children from these families would be at school at higher ages than the children of labourers.

The 1901 Census asked about property ownership. The answers to these questions were often hard to work out. Normally, the property owned was the home the family lived in.

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[38] We have over a thousand occupations reported. We follow the classifications of Edwards (1940) for the US 1940 Census as well as we can, but Canadian workers were asked only to report their occupation, not their industry. Inevitably, there are some workers whose occupation was illegible, or whose occupational group would have depended on their unknown industry.

[39] We probably should code up occupational group for oldest male worker, not just the head.

[40] The earnings in Table 4 include the earnings of many people who were not heads of families with children aged 12-16. We have combined the proprietor and manager category with the professional category, and added the service workers to the operative group for the present analysis..

Occasionally other property (such as house lots, or farmland) was owned – but we do not know where that land was. The planners of the Census clearly imagined that the head would own all property, and they seem not to have thought about the possibility that there might be two or more families in one dwelling, which was owned by one family – but which family? We have taken ANY sign that any member of the family owned anything (house, farm, store, lot) as a sign of property ownership by the family, and we must omit cases where property could have been owned by more than one family.[41] About a quarter of the children lived in families where somebody owned property. Generally, these were wealthier families and appear to have been wealthier according to several measures. There are some exceptions. For example, 10% of the children in families headed by a labourer were in families where there was some property ownership. At the top end of the income scale, 8% of children lived in families with at least one resident domestic servant.[42]

As already noted, Rowntree stressed the role of family dependency ratios in creating poverty for the British working class. Therefore, we calculated the number of children in the family (especially the number under 7, who would need babysitting as well as food and clothing). Given the large number of adolescent girls out of school and not in the labour force, we also assumed that in households without an adult woman at home, there would be an extra reason to

[41] Potentially we could do a little more with the property information, as house size (number of rooms) and house type (brick, stone, wood) was supposed to be indicated. But many of these schedules are a mess. Another possibility, which would be extremely labour intensive, would be to try to link household addresses to municipal property tax records.

[42] Another reminder that property ownership and high income were not always strongly linked, only 57% of the children living in families with a resident servant were in families with property ownership.

pull daughters out of school to do the housekeeping.

The estimates we present in Table 6 are for models estimated separately for children aged 12-14, and those aged 15-16. Preliminary inspection of the data, and consideration of how families behaved, suggested that decisions about keeping older and younger adolescents at school could have been very different. For the 15 and 16 year olds, there was no possibility of compulsory attendance laws having any effect, while high school entrance exams, and in some cities high school fees, would have been important. Table 6 shows two sets of results (shown in the form of odds ratios, which are greater than 1 if the occurrence of the stated condition is associated with a higher probability of school attendance, less than 1 if the occurrence of the stated condition is associated with a lower probability). One set use only observations where there is an income reported for the head of the family (columns (1) and (3)), the other for the rather larger set of observations where we have information on all other explanatory variables (columns (2) and (4)). T-statistics are shown beneath the odds ratios (the t-statistic is negative whenever the odds ratio is <1.)

While the estimates shown here are preliminary, a number of points come out fairly clearly.

Age and Sex: As one would expect, age matters a lot. For the younger children, there appears to have been a clear effect of an October-March birthday (the census was taken in early April). Only in Toronto could this possibly have been due to compulsory schooling laws, and cross-tabs show the same pattern in Montreal and Winnipeg. If there was any birth month effect for the older children, it was smaller. As Table 5 suggested, boys and girls appear to have been equally likely to be at school.

Mother tongue and family origin: Only 27 children were not white. For the younger children, skin colour does not seem to have mattered, but none of the older non-white children were at school. The distinctions that did matter (or at least the kinds of children for whom we have enough observations to find effects) were in terms of mother tongue and possibly birthplace of the head of the family.[43] The non-English mother tongue population were vastly less likely to be at school than the English mother tongue population. It is not surprising that those with "other" mother tongues (almost all of these were European languages), or those with a head born in Europe (which nearly ensures a mother tongue other than English) were less likely to be at school than anglophones. What is more surprising is that francophones had similarly low probabilities of school attendance. Unless youngsters with a non-English mother tongue could speak English (which was less common for the francophones than the rest of the non-English mother tongue youths), their probabilities of going to school were substantially below those of otherwise similar anglophone children.

Children in a family where the head was born in the UK were not at a disadvantage, nor were those in families where the head came from the US at an advantage, in terms of probabilities of school attendance. This also holds when the birth place of the children, rather than their family head, is used. Looking back at the aggregate data for 1921 shown in Table 2 suggests a rather different pattern would emerge by 1921 – foreign born teenagers, most of whom would have come from Europe, were then at school about as often as the Canadian-born, while the British-born left school early.

Religion: Anglophone Roman Catholics appear to have been doing fine, compared to Protestants.

[43] There were only 31 children with a Celtic mother tongue.

A simple cross-tab of school attendance by religious group shows much lower attendance rates for Roman Catholics, but looking only at anglophones, the gap disappears. So even before we start controlling for income, there is little difference to explain. Most anglophone Roman Catholics were of Irish origin. At this stage we cannot say whether resources were directed towards English language RC schools, whether English language Roman Catholics were sending their children to non-denominational schools, or whether English language Roman Catholics had attitudes and expectations about education that were similar to those of Protestants.

If anglophone Canadians wanted to invest in education so that their children could compete in US labour markets, the anglophone Roman Catholic hierarchy would have had no obvious reason to discourage them from doing so. The religious leaders in Quebec viewed the heavy emigration of francophones, mainly to New England, with considerable suspicion and disapproval. Educating children to make it easier for them to move away from a church-centred society was unlikely to be a priority.

For the younger age group, it seems that Jewish children – who normally had a mother tongue other than English, and a head born in Europe – were far more likely than others with these characteristics to be at school. This is consistent with known patterns from later years of high investment in human capital by Jews (Tomes, 1983). Given that most of these children came from poor, immigrant families, it seems reasonable that they concentrated on keeping children at school until age 14 – for the 15 and 16 year olds, a positive effect of being Jewish is not clearly determined.

Family structure: Family structure was important in some ways, but we need to think further about what aspects of family structure mattered, and how we can measure these. For the older

children, it seems that sons and daughters were much more likely to go to school. Presumably there were not large numbers of adolescents coming from rural areas to live with relatives in town so they could go to school. If education at ages 15 and 16 was thought of as a luxury, that luxury was typically available only for own children. The presence of a non-employed adult woman in the family, and the number of children below the age of 7, appear to have no systematic impact.

Children in families where the head was retired were much more likely to be at school.[44] This seems counter-intuitive. One might anticipate that older family heads would put less emphasis on the "modern fashion" of staying in school, and that elderly heads would be highly income constrained. It is possible that this variable is picking up that these were the youngest children in the family. Another possibility is that to be the head of a family, and not in the labour force, one had to be wealthy. Those unable to work, and without resources, would likely become dependents in households headed by their sons or sons-in-law.

As we expected, children were more likely to be at school if they came from a family with one or more adult male workers.[45] We anticipated that families with male, and possibly female, workers in the 18-21 age range would be families where children were more likely to go to school. Sending daughters to work might have been a sign of household poverty, so we are less confident that seeing young women earning money would be a sign of greater household resources. However, our expectation does not seem to be fulfilled, especially for the 15 and 16 year olds. It is possible that a) families with 18-21 year olds at work knew more about labour

[44] We defined men over 60 who gave no information on work activity as being retired.

[45] The odds ratios are defined for a 1-unit change in the variable of interest, so Table 6 is showing 1 worker rather than 0 workers.

market opportunities, so it was easier for younger adolescents to find a job, b) families with 18-21 year olds at work put a higher value on labour market activity, or c) families with 18-21 year olds at work shared desirable but unmeasured labour market characteristics. As with possibility a), this would have made it easier for adolescents to get work.

Income and Wealth: Higher incomes were indeed closely associated with school attendance. Children living in families with some property ownership were much more likely to be at school. For the 12-14 group, increased earnings of the head (which are normally wage earnings, and thus in the range of roughly $300 to about $2000 per year) are linked to higher school participation rates. For the younger children, living in a family where the head was a clerical worker or a professional / proprietor / manager was also linked to higher school participation.

For the older children, income effects over what was probably the broad mass of the population seem less important. Children living in the small proportion of families with a resident servant were more likely to be at school, but coming from a family where the head was a clerical worker was of little relevance. We see many 15 to 18 year olds in junior clerical positions. Employers hired young people with at most one or two years of high school training, so it was not necessary for families to keep their children at school longer than this to slot them into white collar jobs.

To be at school in 1901 at age 15 or 16, you not only probably needed to come from a fairly prosperous family, but you also needed to demonstrate some academic ability. The only measures we have of academic ability are basic literacy, which doesn't say much about whether someone could pass the high school entrance exam, and whether those whose mother tongue was not English could speak English, which also doesn't say much about ability to pass the necessary

exam. Both of these measures are clearly important in explaining school attendance by the 12-14 year old group. By age 15, virtually no one who was illiterate was at school (3 of 63 individuals).[46] Knowledge of English by the non-English mother tongue group continued to be a very important predictor of school attendance. Knowing English was strongly associated with the other measures of household prosperity, especially for francophones. For example, 74% of the 12-16 year old francophones living in households where the head was a proprietor, manager, or professional spoke English, compared to 61% for all young francophones.

Location: For the younger age group, children living in Montreal had the lowest probabilities of school attendance. As mentioned previously, Montreal was the only city where elementary school children were charged fees. It is possible that the existence of even modest tuition fees was a deterrent for a substantial number of families. For older children, a clear negative location effect for Montreal is not apparent.

Winnipeg, the other city without any compulsory schooling regulations, appears as the educational leader. Why this should have been so is unclear. Goldin (2001, p. 279) suggests that US states with a large manufacturing sector had relatively low high school enrollment and graduation rates. Winnipeg certainly had much less manufacturing industry in 1901 than did Montreal or Toronto, so that it is possible a weaker pull from jobs requiring very little formal education is important in explaining this finding.

In an attempt to give a clearer picture of the range in probabilities of school attendance, and the effects of combining several characteristics that were often associated with one another, Table 7 shows some estimated probabilities, using the coefficient estimates from the models of

[46] Only 27 of 107 illiterates aged 12-14 were at school.

columns (2) and (4) of Table 6. In all cases in Table 7, the youngster is a white, Canadian-born boy, the son of the head, living in a family with one adult male worker, where there was at least one woman at home, no workers aged 18-21, and no children under 7. The boy is literate and was born between October and March. Only in the last two cases does the family have a live-in servant.

Table 7 reinforces the obvious conclusion that income and wealth played an important role in determining who went to school, but reminds us that over some ranges, families that were probably very wealthy behaved much the same way as the solid middle class. Compare the top and bottom rows of Table 7 – predicted probabilities of being at school at age 14 are about the same even though the family on the bottom row was likely much richer. By contrast, at 16 there was a clear difference.

The middle five rows are all for imaginary families where the head is an operative, and there is no property ownership. We had ordinary working class families in mind here, and these rows show how much language skills, birthplace of head, and religion, can matter in explaining school attendance. Ability to speak English greatly offsets the negative impact of a French mother tongue. Teenagers in Montreal who did not speak English, however, were unlikely to be at school, even at age 14, and school attendance was extremely rare by age 16.

Conclusions

European immigrants are traditionally seen as the outsiders in need of assimilation. In terms of schooling, this was correct, but children in the "other" mother tongue group were only modestly behind francophones (45% versus 49% of 12-16 year olds were at school). Patterns of school attendance in Canadian cities at the beginning of the twentieth century show a classic

Canadian divide. The behaviour of anglophones and francophones (especially unilingual francophones) was very different, with 62% of anglophones age 12-16 reporting some school attendance in 1901. English-speaking Canadians had very clearly bought into the American model of schooling, however much they loved the mother country and abhorred republicanism. Controlling as well as we can for income, wealth, and family structure effects, much of the gap remains.

Table 1 GDP Per Person, 1890-1913

	Australia	Canada	UK	USA
1890	3923	1895	3159	3115
1913	4523	3607	3877	4868
1929	4187	4274	4336	6336
Relative to US				
1890	1.26	0.61	1.01	1
1913	0.93	0.74	0.80	1
1929	0.66	0.67	0.68	1

Notes and Source: GDP in 1985 US Relative Prices; Maddison, (1991) pp. 198-9, 228-235.

Table 2
Percentage of children at school, Canada and the United States, 1900/01 - 1920/21

	ages	United States (whites only)		Canada		
1900/01	5-9	52		60		
	10-19	59[a]		48		
		Boys	Girls	Boys	Girls	
1910/11	5-9	65	65	59	59	
	10-19	65	65	48	51	
1920/21	5-9	70	71	65	66	
	10-19	68	69	58	60	
		US (whites only)		Canada		
		All US	Urban areas only	All Canada	Urban areas only	
1920/21	13	94	n/a	88	96	
	14-15	81	81	63	71	
	16-17	43	39	26	33	
		US urban areas (whites only)		Canada urban areas[b]		
1920/21		Native Born	Foreign Born	Canadian born	Other British	Foreign
	14-15	82	69	72	60	70
	16-17	41	24	36	19	34

[a] Rate for 18-20 year olds given. Rate for 18-19 year olds imputed by assuming that 33% of age group were 20, and 18.6% of students aged 18-20 were 20, as was the case in 1910.
[b] Urban areas in Canada were defined as any incorporated place. While there were a few communities of several thousand that were not incorporated, there were also incorporated places with populations under 100, and MANY villages had populations under 1000.

Sources: Canada -- 1921 Census, Vol. II, Tables 100 and 108
US – 1900 Census, Vol 2, part 2, p. xciv; 1920 Census, vol. 2, p. 1045, 1046, 1138.

Table 3
Percentage of Adolescents at School, 1900/01 using Individual - Level Census Data

	Northern US Cities		Canadian Cities	
Age	Boys	Girls	Boys	Girls
13	83	83	75	75
14	54	59	51	52
15	41	37	38	39
16	23	27	23	20

Notes: US results from 1900 IPUMS, for cities with population greater than 25,000 in Connecticut, Delaware, Illinois, Indiana, Iowa, Kansas, Maine, Massachusetts, Michigan, Minnesota, Nebraska, New Hampshire, New Jersey, New York, North Dakota, Ohio, Pennsylvania, Rhode Island, South Dakota, Vermont, and Wisconsin.
Canadian results from data for Halifax, Montreal, Toronto, and Winnipeg, weighted by city populations (1901 population of sampled areas: Halifax 45,858, Montreal 325,175, Toronto 217,241, Winnipeg 44,359) (14.6% of population of Halifax is in the sample, 8.7% of population of Montreal, 7.0% of population of Toronto, 17.7% of population of Winnipeg.)

Table 4
Annual Earnings of Male Workers, 1900 / 1901

Occupational group	Canadian Cities Median	US Cities[a] Median	Ratio
proprietor or manager	$1000	$1157	*0.86*
Sample size	411	579	
professional	$780	$867	*0.90*
Sample size	254	259	
clerical	$520	$662	*0.79*
Sample size	1619	1042	
craft	$500	$584	*0.86*
Sample size	1684	1617	
operative	$400	$473	*0.85*
Sample size	905	1191	
service	$400[b]	$465	*0.86*
Sample size	297	362	
labourer	$350	$390	*0.90*
Sample size	1048	1131	

Notes: [a] US earnings given in 1890 $ (which is almost the same as 1900$).
[b] Median earnings for 251 men in service occupations, not living with their employer, $450

Observations for white men aged 16 to 65 who reported positive earnings and who could be identified as working in one of seven broad occupational groups in 1900 or 1901 are included. (Those who were not at work, and those who were at work, but whose occupation is illegible or not stated are excluded.) The 1901 Census asked only employees to report total annual earnings. Some non-employees also responded, and their answers are included here. Sample excludes francophone men, and all workers living in St. Boniface (a mainly francophone town just outside of Winnipeg). Sample observations are weighted to reflect the greater sampling density in Halifax and Winnipeg. US sample for male workers in cities with population over 25,000 in states listed in Table 2.
Source: Green, MacKinnon, and Minns (2001) using 1901 census data, US 1900 IPUMS data, and occupational earnings estimates of M. Haines and M. Sobek.

Table 5
Activity of Youths 12-16 (% distribution)

	At School		At Work		Neither	
Age	Girls	Boys	Girls	Boys	Girls	Boys
12	88	87	2	4	11	9
13	75	75	6	11	18	14
14	52	51	20	37	29	13
15	39	38	27	48	34	15
16	20	23	44	64	37	14

Note: Totals may not add to 100% due to rounding. Cases where youth is both at school, and at work counted twice (26 cases out of 5591 observations).

Table 6: Explaining School Attendance

	Ages 12-14		Ages 15-16	
	(1)	(2)	(3)	(4)
Age 13	0.39 (-6.46)	0.40 (-6.94)		
Age 14	0.10 (-15.03)	0.11 (-15.59)		
Age 16			0.39 (-8.82)	0.36 (-10.07)
Boy	0.86 (-1.53)	0.91 (-1.10)	0.89 (-0.99)	0.91 (-0.86)
birthday Oct - March	1.56 (4.12)	1.57 (4.44)	1.28 (2.08)	1.24 (1.94)
Son / daughter	1.57 (1.67)	1.46 (1.63)	2.31 (3.38)	2.16 (3.62)
Can write	7.19 (5.35)	7.93 (5.93)	2.90 (1.50)	3.83 (1.97)
non-white	2.55 (1.79)	1.67 (0.96)	none at school	none at school
mother tongue French	0.40 (-4.32)	0.43 (-4.41)	0.25 (-4.18)	0.24 (-4.45)
mother tongue Gaelic	0.13 (-2.81)	0.20 (-2.24)	0.43 (-1.05)	0.37 (-1.24)
“Other” mother tongue	0.50 (-1.11)	0.51 (-1.26)	0.19 (-2.41)	0.18 (-2.70)
speak English but non English mother tongue	2.51 (5.11)	2.33 (4.89)	2.66 (3.80)	2.65 (4.07)
born in Canada	1.04 (0.21)	1.15 (0.82)	1.35 (1.32)	1.40 (1.58)
Roman Catholic	1.35 (0.23)	1.30 (1.62)	1.52 (2.00)	1.31 (1.33)
Jewish	5.20 (3.40)	4.14 (3.13)	2.11 (1.14)	1.30 (0.44)

other / no religion	0.36 (3.40)	0.50 (-1.23)	1.20 (0.33)	1.33 (0.54)
family owns property	1.47 (2.50)	1.77 (3.95)	1.37 (2.13)	1.44 (2.72)
family has a servant	1.34 (0.79)	1.26 (0.79)	2.72 (3.49)	2.97 (4.31)
income of head ($ 00 per year)	1.05 (2.42)		1.03 (1.53)	
# of male workers 22-68	1.23 (1.78)	1.26 (2.17)	1.20 (1.90)	1.19 (2.08)
# of male workers 18-21	0.88 (-1.28)	0.91 (-1.01)	0.76 (-2.64)	0.80 (-2.50)
# of female workers 18-21	1.00 (0.03)	0.96 (-0.29)	0.81 (-1.36)	0.75 (-1.87)
woman aged 19+ not at work	1.24 (1.08)	1.33 (1.58)	1.19 (0.72)	1.34 (1.32)
number of children under 7	1.04 (0.86)	1.06 (1.32)	0.87 (-1.93)	0.91 (-1.53)
Head UK born	0.89 (-0.76)	0.95 (-0.34)	0.74 (-1.90)	0.76 (-1.79)
Head US born	0.64 (-1.31)	0.88 (-0.42)	0.76 (-0.70)	0.86 (-0.39)
Head European born	0.25 (-3.69)	0.27 (-4.11)	0.69 (-0.68)	0.80 (-0.47)
Head NFLD born	0.97 (-0.05)	1.20 (0.37)	0.41 (-1.63)	0.39 (-1.85)
Head born elsewhere	0.25 (-1.94)	0.29 (-1.85)	1.18 (0.17)	1.29 (0.26)
Head retired	7.27 (2.45)	6.13 (2.86)	4.34 (3.17)	2.66 (2.58)
Head labourer	0.79 (-0.87)	1.04 (0.17)	0.69 (-1.10)	0.66 (-1.52)

Head operative[a]	0.81 (-0.81)	1.00 (-0.02)	0.71 (-1.12)	0.72 (-1.31)
Head craft	0.94 (-0.23)	1.24 (1.02)	0.70 (-1.11)	0.77 (-1.05)
Head clerical	1.86 (2.23)	2.79 (4.16)	1.25 (0.63)	1.28 (0.89)
Head professional / manager	1.21 (0.69)	1.73 (2.43)	1.47 (1.09)	1.69 (1.97)
Head's occupational group unknown	0.98 (-0.04)	1.24 (0.59)	0.68 (-0.83)	0.62 (-1.17)
Halifax	1.30 (1.14)	1.30 (1.17)	1.26 (1.03)	1.28 (1.08)
Montreal	0.50 (-3.24)	0.55 (-2.97)	0.66 (-1.67)	0.84 (-0.74)
Winnipeg	1.58 (1.15)	1.16 (0.49)	2.08 (2.62)	1.88 (2.74)
N	2716	3168	1717	1988
mean predicted value for N obs	0.73	0.73	0.32	0.33
proportion at school	0.73 (2756 obs)	0.73 (3217 obs)	0.32 (1751 obs)	0.33 (2030 obs)
Mean predicted value if actually at school	0.8	0.79	0.44	0.46
Mean predicted value if actually not at school	0.56	0.56	0.26	0.27

[a] Includes workers assigned to the domestic service, personal service, and protective service categories.

Table 7
Estimated Probabilities of Attending School

Occupation of Head / Wealth	Mother tongue / Head's birthplace / Religion	City	Age 14	Age 16
clerical, property owner	English, Canada, Protestant	Toronto	0.86	0.43
operative, no property	"Other" but speak English, Europe, RC	Winnipeg	0.37	0.22
operative, no property	"Other" but speak English, Europe, Jewish	Winnipeg	0.65	0.22
operative, no property	French but speak English, Canada, RC	Montreal	0.47	0.17
operative, no property	French, don't speak English, Canada, RC	Montreal	0.27	0.07
operative, no property	English, Canada, RC	Montreal	0.47	0.24
professional/proprietor, property, with servant	English, Canada, Protestant	Montreal	0.73	0.71
professional/proprietor, property, with servant	English, Canada, Protestant	Toronto	0.83	0.75

The adolescent is a white, Canadian-born boy, the son of the head, living in a family with one adult male worker, one woman at home, no workers aged 18-21, and no children under 7. The boy is literate and was born between October and March. Only in the last two cases does the family have a live-in servant.

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