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The spirit of capitalism? Ethnicity, religion, and self-employment in early 20th century Canada☆

Chris Minns[a,b,*], Marian Rizov[b]

[a] *Department of Economics, Trinity College, Dublin 2, Ireland*
[b] *IIIS, Trinity College, Dublin 2, Ireland*

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Abstract

This paper examines self-employment in Canada at the beginning of the 20th century. Self-employment 100 years ago was associated with greater human capital and negatively related to earnings in employee occupations in the local district. We also find strong evidence of immigrant assimilation in self-employment and modest evidence of higher self-employment in enclaves with greater concentration of immigrants. An analysis of recent immigrants supports the hypothesis that liquidity constraints were an important determinant of self-employment. Christian affiliation had little impact on self-employment outcomes.

Keywords: Self-employment; Ethnicity; Immigration; Religion; Canada

1. Introduction

Who becomes an entrepreneur? This question has interested social scientists since (at least) the early 20th century. While entrepreneurship in North America has been

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* Corresponding author. Fax: +353 1 677 2503.
E-mail addresses: minnsc@tcd.ie (C. Minns), rizovm@tcd.ie (M. Rizov).

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of long-standing interest to economists and economic historians, and self-employment rates were higher 100 years ago than today, little is known about the determinants of self-employment in historical labour markets. In this paper, a new sample of the Canadian Census of 1901 is used to analyse self-employment in early 20th century North America.

Understanding who became self-employed 100 years ago is an important, and largely unanswered, research question. In the 1940s, Arthur Cole identified entrepreneurship as an area of vital interest for economic historians, with the determinants of entrepreneurial success holding an important place in his proposed research agenda (Cole, 1944, p. 59). While Cole and others were conscious of the importance of "small-scale" self-employment, most of the subsequent research on entrepreneurship in economic history has been qualitative, and focused on the experiences of a number of recognizable captains of industry (Hughes, 1986). Existing quantitative work has examined small samples of entrepreneurs for whom biographical information is available (Sarachek, 1978), or has highlighted the fortunes of particular ethnic groups (Godley, 2001). The Canadian data used in this paper are well suited to an exploration of the microeconomics of self-employment in historical labour markets.

An examination of the determinants of self-employment can yield important clues as to how labour markets functioned in the early 20th century. American evidence suggests that self-employment rates were higher in 1910 than during the present day (Fairlie and Meyer, 1996). One explanation for this pattern is that large-scale capital-intensive firms, who offer wages high enough to pull skilled self-employed individuals into paid employment, were less prevalent in early 20th century labour markets (Blau, 1987). An alternative view is that similar to present-day developing economies, high rates of self-employment 100 years ago are indicative of hidden unemployment, through a large informal sector occupied by less-skilled or otherwise disadvantaged workers unable to find stable wage employment. This perspective may be particularly relevant for the large numbers of immigrants arriving in North America in the late 19th and early 20th century, if discrimination and/or an absence of local-specific human capital inhibited employment in organized labour markets.

The recent revival of self-employment research among labour economists has explored numerous economic and sociological theories of self-employment. Despite the importance of self-employment in early 20th century labour markets, none of these theories have been properly examined in a historical setting. One area of emphasis has been "push" and "pull" factors, with conditions in local labour markets and human capital characteristics playing key roles in the self-employment decision. Liquidity constraints, which were proposed as a determinant of self-employment shortly after the period under study here (Knight, 1921), have been identified as a key determinant of contemporary self-employment (Evans and Jovanovic, 1989; Evans and Leighton, 1989). Others have stressed the role of ethnicity in determining who becomes an entrepreneur.[1] Like the United States, Can-

[1] See Borjas (1986), Fairlie and Meyer (1996), and the work of economic sociologists such as Light (1972, 1994).

ada has been a major immigrant-receiving country for over a century, but the ethnic composition of the Canadian population at the end of the 19th century was quite different, with over 70% of the stock of Canadian immigrant men in 1901 having arrived from Britain and Ireland.[2] While the Canadian population was less diverse, in terms of ethnic origin, than that of the United States, scholars of the period are divided as to the role of nativity and religion in shaping occupational outcomes. Numerous historians have argued that English-speaking immigrants, particularly those from England and Scotland, were able to integrate seamlessly into Canadian (and American) labour markets (Erickson, 1972; Lower, 1946; Reynolds, 1935). Other writers have pointed to the importance of ethnic, and especially religious, differences within Canada's predominantly British immigrant population (Akenson, 1988; Porter, 1965).

The link between religion and self-employment is also at the heart of one of the classic perspectives on entrepreneurship. In his essay "the Protestant sects and the spirit of capitalism," Max Weber argued that a close link exists between religious affiliation and capitalist achievement (Weber, 2001). The writings of one of the leading Canadian sociologists of the mid-20th century suggest that the pattern Weber observed was not exclusive to the United States. In *The vertical mosaic* (1965), John Porter argued that strong ties between membership in Protestant sects, ethnicity, and entrepreneurial capitalism were present in early 20th century Canada. The stylized facts reported by Weber and Porter are based largely on observations of select samples of "captains of industry" in the United States and Canada. Do their hypotheses hold up to a micro-level examination of entrepreneurship in the general population? The 1901 Census of Canada will allow us to answer this question, as, unlike in the United States, the Canadian authorities asked respondents to report their religious affiliation.

2. Explaining self-employment

2.1. Human capital and "disadvantage theory"

One perspective on self-employment is that it is an occupation that engages individuals who are disadvantaged in the wage labour market. If the characteristics of the disadvantaged are such that potential earnings are low in wage employment relative to self-employment, the threshold earnings at which disadvantaged individuals will choose self-employment will be lower. This perspective also implies that there will be negative self-selection on human capital characteristics into self-employment; for example, lower levels of education and language ability will be associated with a greater propensity for self-employment (Borjas and Bronars, 1989). This explanation for self-employment decisions, which is often referred to as "disadvantage theory" in the sociological literature, has seen particular application in the analysis of immi-

[2] Our calculations from the CFP sample used in this paper.

grant self-employment (Light, 1972). Immigrants have been characterized as a potentially disadvantaged group, as they often arrive lacking host country-specific human capital, such as language ability, and in many cases are migrating from relatively underdeveloped countries where they would be able to acquire relatively little transportable human capital. Discrimination against immigrant employees could also serve to lower the returns to wage employment, with the result that the skill composition of the self-employed immigrant population differs from that of the native-born.

2.2. Local labour markets and self-employment

Another set of predictions link individual self-employment decisions to characteristics of the local labour market. Other things equal, lower returns to wage employment in the local labour market would lower the threshold at which individuals select themselves into self-employment. Ethnicity may also play a role in the relationship between local labour markets and self-employment, if immigrant self-employment is sensitive to the local labour market conditions facing the foreign-born. A negative correlation between immigrant self-employment and potential immigrant earnings in the local labour market would reflect discrimination and other factors that reduce the return to activity in the wage labour market, as well as possible access to "ethnic resources" in the form of inexpensive co-ethnic labour (Fairlie and Meyer, 1996).

Local conditions may also impact on immigrant self-employment through the existence of "enclave effects." Some economists and sociologists argue that self-employed immigrants may specialize in the production of ethnic goods, which are in greater demand in areas featuring greater immigrant concentration. Evidence on enclave effects is mixed; Borjas (1986) found that American self-employment rates are higher in geographical enclaves featuring more co-ethnics, while studies by Aldrich and Waldinger (1990), Yuengert (1994), and Razin and Langlois (1996) reveal little evidence of a positive correlation between immigrant concentration and self-employment rates.

2.3. Liquidity constraints

A further explanation for self-employment is the hypothesis that liquidity constraints determine who becomes an entrepreneur. This hypothesis is generally attributed to Knight (1921), and has been explored in more recent empirical work by Evans and Jovanovic (1989) and Evans and Leighton (1989). If the self-employed are risk-taking individuals who are able to finance their own entrepreneurial activities, greater wealth should result in a higher probability of being self-employed. While property owners were likely wealthier and more able to finance entrepreneurship, it is difficult to draw a causal link between property ownership and self-employment in a single cross-section. If self-employment offers high returns to (successful) entrepreneurs, they would as a consequence be more likely to accumulate property. Another characteristic that would ease liquidity constraints is family size, or more

precisely, the number of family members old enough to supply low-cost labour in the family enterprise. Family labour would be crucial to potential entrepreneurs in environments where there is limited access to outside labour markets. As with wealth, ''labouring household size'' may be endogenous. Income and substitution effects would motivate entrepreneurs to have larger or smaller families; which effect dominates is an empirical question, but it is clear that a link exists through which entrepreneurial success can feed back into fertility decisions.[3] The immigrant population offers a simple potential solution to this problem. In a sample limited to recent immigrants, characteristics such as property ownership and family size are much less likely to be endogenous, as immigrants would not have had sufficient time to adapt their behaviour in response to occupational outcomes. Therefore, regression coefficients estimates ought to be closer to their ''true'' causal values than in a sample that includes the native-born and immigrants of greater tenure.

2.4. Religion

The writings of Weber suggest that religion may have had a direct impact on entrepreneurship in North America. In his essay ''the Protestant sects and the spirit of capitalism,'' Weber argues that religious affiliation was closely associated with access to resources that would facilitate self-employment: ''when a sect member moved to a different place... he carried the certificate of his congregation with him; and thereby he found not only easy contact with sect members but, above all, he found credit everywhere.'' (Weber, 2001, p. 130) Weber also noted a possible association between sect membership and trustworthiness in other business dealings: ''they [non-sectants] give credit and deposit their money only with the pious, and they make purchases in their stores because there, and there alone, they are given honest and fixed prices.'' (Weber, 2001, p. 137). In the context of late 19th century Canada, Akenson (1988) has argued that religious affiliation allowed some residents access to institutions offering benefits for potential entrepreneurs. The Loyal Orange Order offered assistance to Protestants (and Irish protestants in particular) by providing information about local markets, potential sources of credit, and the important details of local government and society (Akenson, 1988, p. 99). While Akenson claims that the impact of the Orange Order was more pronounced in determining who came to own farm land in rural Canada, the Order was well established in urban Canada, and no similar institution existed to assist British and Irish Catholics.

If sect membership in the Protestant community allowed the individual ''to acquire a certificate of moral worthiness,'' (Porter, 1965, p. 288), or if Catholic exclusion from informal networks hindered entrepreneurship, one would expect a relationship to exist between religious affiliation and self-employment, conditional on other observable characteristics. Another possibility is that the importance of religious affiliation could depend on the number of co-religionists within the district. In

[3] The possibility of reverse causality between employment and fertility has been an important consideration among development economists (Benjamin, 1992).

the empirical work that follows, we estimate the importance of both individual religious affiliation and the interaction of individual affiliation with the religious composition of the locale.[4]

3. New evidence of self-employment in Canada, 1901

Relatively little is known about self-employment in early 20th century Canada. Census tabulations of occupation and ethnic origin do not exist prior to 1931, and until recently, little micro-data for pre-1970s Canada was available. Some historians have examined occupational patterns in small samples of mid to late 19th century Canadian and provincial censuses. In particular, a piece by Darroch and Ornstein (1980) has been the empirical backbone for much of the recent commentary on occupation and ethnicity in late 19th century Canada. In a sample of ten thousand households from the 1871 Census of Canada, Darroch and Ornstein found that French Canadians and Irish Catholics were more present in semi-skilled and labouring occupations than other ethnic groups. Scottish Canadians were the most likely to be farming, while Canadians of English origin were the most concentrated in artisan occupations (Darroch and Ornstein, 1980, Table 2). However, no difference was found in the proportions of Irish Catholics and Irish Protestants in "bourgeois" occupations (Akenson, 1988, p. 95), of which a large proportion would be entrepreneurial in nature.

A more recent paper by Green and MacKinnon (2001) offers further indirect evidence on entrepreneurship among Canadian immigrants. In 1901 Census samples of the cities of Montreal and Toronto, Green and MacKinnon find that the assimilation of European immigrants was at least as rapid as that of the British. British immigrants appear to have been adept employees in blue-collar occupations, but were under-represented as employers. Green and MacKinnon also report that English-mother tongue immigrants were less likely than the native born to become employers over the life-cycle (Green and MacKinnon, 2001, Table 5 and p. 335).

The Canadian Families Project (CFP) at the University of Victoria has recently prepared a 5% sample of the 1901 Census of Canada. This sample is used in the analysis that follows. The CFP sample contains most of the standard demographic characteristics available in recent samples of the Canadian census and in IPUMS samples of historical US censuses. Respondents provided information such as age, marital status, place of birth, place of residence (province, city, census district, and sub-dis-

[4] An implicit assumption in the analysis to follow is that religion is an exogenous characteristic. This may seem a reasonable assumption for mainstream Catholic and Protestant churches, where most individuals are "born" into the church. For the Protestant sects, Weber's writings on religion in the early 20th century emphasize that entrance was selective and that continued membership was subject to adherence to an appropriate code of behaviour (Weber, 2001). Estimates of the impact of religion on self-employment will be biased if unobserved characteristics associated with membership in a Protestant sect also determine self-employment. A plausible econometric strategy to deal with the possible endogeneity of religion in the CFP sample is unavailable, but we will comment on the possible impact of this type of bias.

trict), and year of arrival in Canada for the foreign-born. The 1901 Canadian census also has information on relevant human capital characteristics. This census recorded individuals' ability to speak English, and whether they could read and write.[5] As is in early 20th century US Census samples, school attendance among children and young adults was recorded, but completed educational attainment was not surveyed. The CFP sample of the Canadian Census also contains information related to individual wealth. Census respondents report property ownership, and there is limited non-response for this variable.[6]

What distinguishes the 1901 Canadian census from other historical micro-data is the wealth of information on individual economic achievement. The CFP sample includes detailed responses on occupation, as do US Census data of similar vintage. Canadian census-takers were well ahead of their American colleagues in that individual earnings were recorded as early as 1901. This information is far from perfect, as there is substantial non-response among farmers, servants, and the self-employed, but most wage and salary workers did report their earnings.[7] Therefore, it is possible to describe the regional structure of earnings for wage employees in early 20th century Canada. The 1901 Census also recorded whether individuals were employed on their own account. The 1910 US Census does have a similar question relating to self-employment, but as wage or salary earnings are unknown, it is considerably more difficult to link self-employment to local labour market opportunities in other occupations. The CFP data also include detailed information about religious affiliation. Most Canadian residents were Christians, and we have divided the Christian population into three sub-groups: Catholic, church Protestant, and Protestant sect. It is the experiences of the last group, which were of particular interest to Weber, Porter, and others. We have used Iannaconne's (1992) typology as a basis for our classification scheme, with a couple of modifications that reflect changes in the nature of certain religious groups between the early 20th century and the contemporary context of Iannaconne's work. Our Protestant sect group includes denominations identified by Iannaconne as "sects" or "sect-like": the Holiness (Church of God), Evangelical (Gospel), Pentecostal, European Free Church, Fundamentalist, Adventist families, and Latter Day Saints (Mormons). While Iannaconne classifies Presbyterians and Methodists as "churchlike," we include these two groups in the Protestant sect category. Both Porter and Weber emphasize the sect-like nature of these churches in early 20th century North America, and their possible importance in entrepreneurial capitalism (Porter, 1965, p. 288). The baseline church Protestant group includes the

[5] Respondents were also asked whether they could speak French, but there appear to be many missing entries for French language ability.

[6] The Census also asked more detailed information related to property ownership, such as number of buildings owned, acres of land owned, and silos and factories owned, but there is substantial non-response in all of these questions. An additional Census question inquired as to the number of rooms in the house in which the household was resident, but this information is also absent for a substantial number of households.

[7] Forty-four percent of the total sample of adult men reported earnings. Sixty-seven percent of wage and salary earners reported earnings, compared to only 17% of the self-employed.

remaining denominations considered "churchlike" or "most churchlike": Anglicans, Lutherans, Unitarians, and Baptists.[8]

The final sample we use consists of male household heads aged 16–65 who were active in the Canadian labour market. We use household heads as the unit of analysis, rather than a sample of all adults or all adult men active in the labour market, as we suspect that decisions regarding entrepreneurship and self-employment were dependent on assets and endowments controlled at the household level.[9] The sample used also excludes all farmers and agricultural workers, self-employed or otherwise. Finally, the sample excludes adult men who were recorded as boarding or lodging within a household, due to the difficulties in determining familial relationships among borders.[10]

Table 1 is a snapshot of self-employment patterns from the CFP sample. About 28% of household heads in the sample were self-employed. In an alternative sample of all employed adult men, 19% report being self-employed. This second self-employment rate is larger than the 16% reported by Fairlie and Meyer (2000) from a similar sample of 1910 US Census.[11] Across Canada, self-employment rates were particularly high in the Maritime Provinces on the Atlantic coast, then and now the poorest region in Canada. The recently settled Prairie Provinces and territories also featured high levels of self-employment.

Table 1 suggests that those in Protestants sects had self-employment rates only somewhat higher than other Protestants and Catholics. More striking figures are those for Jewish members of the sample, with over 50% reporting self-employment in urban Canada in 1901. Among non-white men, about 32% were self-employed.[12] While there were relatively few Jews and non-whites present in early 20th century Canada, evidence of high self-employment rates among two minority groups who would be more "visible" than immigrants of British or Irish heritage is intriguing.[13] Immigrant self-employment rates were only modestly lower than those of the native-born. American and Continental European immigrants had self-employment rates at least as high as the native-born, while English and Irish self-employment rates were 6–9% lower than the native born.[14]

The remainder of Table 1 tabulates the self-employment rates associated with different levels of human capital and other personal characteristics. Self-employment

[8] In earlier versions of this paper, we used an unmodified version of Iannaconne's (1992) typology. There are few substantive differences under this alternative.

[9] This approach is similar to that adopted in studies of self-employment and entrepreneurship in early stages of economic development, or during the transition from a planned to market economy (for example, Blau, 1986; Rizov, 2003).

[10] Boarders and lodgers are about 5% of the sample.

[11] Note that the Fairlie and Meyer sample also excludes farmers and is limited to white adult men.

[12] Non-white Canadians consist of individuals in the sample for whom the answer to the census question on "colour" was recorded as "black" (23%), "red" (41%), or "yellow" (25%).

[13] Jewish Canadians were predominantly immigrants from Russia (65%), while about 10% came from Austria or Poland.

[14] Thirty-six percent of Continental European immigrants were German, 20% were from Russia (the majority of these being Jewish), 11% were French, and 10% were of Italian origin or Austrian origin.

Table 1
Self-employment by region, ethnic, and demographic group

Full sample	28 [21,409]
Urban areas	24 [12,910]
Rural areas	33 [8499]
British Columbia	29 [1166]
Prairie	34 [1192]
Ontario	26 [8832]
Quebec	24 [6730]
Maritimes	36 [3489]
White	28 [20,922]
Non-white	32 [487]
Catholic	25 [8523]
Church Protestant	27 [3671]
Protestant sect	30 [8756]
Jewish	52 [141]
French Canadian	25 [6172]
Other	29 [15,237]
Native-born	28 [16,700]
Immigrant	25 [4709]
By arrival cohort	
Pre-1866	32 [840]
1866–1875	26 [974]
1876–1885	22 [1201]
1886–1895	22 [1191]
1896–1901	22 [503]
By birthplace	
USA	28 [589]
England and Wales	22 [1865]
Scotland	26 [575]
Ireland	19 [657]
Scandinavia	24 [199]
Continental Europe	32 [602]
Born 1850s	33 [4804]
Born 1860s	31 [5760]
Born 1870s	26 [6766]
Born 1880s	20 [3657]
Born 1890s	16 [82]
Married	27 [19,529]
Not married	34 [1880]
Literate	29 [18,882]
Not literate	19 [2527]
Speaks English	28 [19315]
Cannot speak English	24 [2094]
Property owner	28 [19,913]
Not property owner	20 [1496]

(*continued on next page*)

Table 1 (*continued*)

Size of household aged 12–65	
One	33 [1252]
Two	26 [3431]
Three	26 [3620]
Four	28 [3572]
Five	27 [3011]
Six or more	29 [6523]

Notes: The first figure indicates the proportion in self-employment for each group. The number in square brackets is the size of each group. See text for sample details.

was positively correlated with human capital characteristics (age, literacy, and the ability to speak English) and with property ownership. Married men were adverse to self-employment, but conditional on being in a family of two or more, the self-employment rates of household heads appear to have a weak positive correlation with family size.

While the analysis in this paper focuses on the selection into self-employment, the choice of activity among entrepreneurs is also of interest, particularly as regards the relationship between ethnicity and entrepreneurial activity. If ethnic enclaves were important determinants of economic activity, or if greater liquidity constraints crowded immigrant entrepreneurs into a narrow range of occupations, one might expect the distribution of occupations for immigrants and the native-born to be rather different. The CFP dataset also includes information about the occupations of the self-employed. We have coded these occupations into 12 categories: government, professional, clerical, sales, protective service, other service, resource and extractive occupations, manufacturing, food production, construction, transportation, and other miscellaneous occupations. Self-employed native-born Canadians were most likely to be found in sales (23%), manufacturing (18%), professional occupations (13%), and construction (12%). For self-employed immigrants, the distribution is broadly similar; 27% were in sales, 17% in manufacturing, 11% in professional occupations, and 13% in construction. Recently arrived self-employed immigrants were more concentrated in services and resource and extractive occupations, but this likely reflects differences in age and marital status that impact on occupational choice. This brief glance at the activities of the self-employed suggests that immigrants were engaged in similar occupations to demographically similar native-born Canadians.[15]

[15] There is some evidence of differences in self-employment activity across skill lines. Self-employed illiterates in our sample were much more heavily concentrated in resource and extractive occupations (40%) than were self-employed literates (9%). Among employees, only 10% of illiterates and 7% of literates were engaged in this set of occupations. Resource and extractive occupations are dominated by mining and prospecting activities. Details on the characteristics of the businesses of the self-employed are unavailable, but we imagine that many self-employed miners and prospectors would have had few (if any) employees, and would engage in less contracting in which illiteracy would be a critical handicap.

4. Estimations and results

4.1. The baseline model

In the regression analysis that follows, we estimate individual-level models of self-employment similar to Borjas (1986) and Yuengert (1994). The dependent variable is an index I, which takes a value of 1 if individual i is self-employed and a value of 0 if the individual works for a wage or salary. The decision to become self-employed depends on a vector of observable characteristics X, which enter the following model for the latent variable I_i':

$$I_i' = X_i'\beta + \epsilon_i, \tag{1}$$

where ε_i is a normally distributed error term and

$$I_i = \begin{cases} 1 & \text{if } I_i' > 0 \\ 0 & \text{if } I_i' \leqslant 0 \end{cases} \tag{2}$$

Eqs. (1) and (2) imply that an individual chooses self-employment ($I_i = 1$) when I_i' is positive, and chooses wage or salary work ($I_i = 0$) otherwise. The probability of self-employment is estimated with a probit regression model.

Estimates of the baseline model are presented in Table 2. In all regression models that follow, reported coefficients represent marginal effects from probit regressions.[16] The results in Table 2 indicate determinants of self-employment in the full sample. The specification includes basic individual characteristics such as age, the square of age, marital status, literacy, and the ability to speak English as explanatory variables. The relationship between age and self-employment is consistent with a life-cycle model of self-employment; early in life, individuals are more likely to become self-employed as experience increases, while towards the end of the life-cycle the risks of self-employment and shortening of the time horizon deter this form of employment activity. The positive association between literacy and self-employment suggests that the self-employed are positively selected on this basic form of human capital. While literacy is a crude proxy of the education and human capital of an individual, this result is consistent with a "pull" model of self-employment, with more skilled individuals selecting self-employment in response to the rewarding opportunities in this occupation. The ability to speak English, however, does not seem to increase the likelihood of self-employment, and married men appear less likely to be self-employed.

Property ownership and the number of working age household members are variables thought to correlate with household assets that would make self-employment more likely in a world where liquidity constraints are an important determinant. The coefficient estimates for these two variables could suffer from bias due to reverse causality. We will return to this issue later, but for now we note that property own-

[16] For continuous variables, the marginal effects are calculated at the mean values of explanatory variables. For dummy variables, the marginal effects reflect the impact of switching the value of the variable from zero to one.

Table 2
The determinants of self-employment: base specification

Variables	
Age	**0.019** (7.98)
$Age^2/100$	**−0.016** (6.07)
Literate	**0.127** (11.80)
Speaks English	0.009 (0.59)
Married	**−0.050** (4.05)
Property owner	**0.078** (5.69)
Household size, age 12–65	−0.002 (1.35)
Log district earnings	**−0.131** (7.12)
Rural	**0.080** (11.32)
British Columbia	−0.017 (0.81)
Ontario	**−0.090** (5.96)
Quebec	**−0.087** (5.58)
Maritimes	−0.004 (0.30)
Log-likelihood	−11340
N	19,904

Notes: The dependent variable is self-employment status. Coefficients are marginal effects from a probit regression. Figures in bold are significant at the 5% level, and *z* values are in parentheses.

ership is positively correlated with self-employment, while working-age household size does not appear to correlate with self-employment.[17]

The baseline specifications also include a measure of local labour market conditions. This variable is the mean of the log of earnings in the individual's district of residence. These districts consist of 206 Canadian federal election ridings, as defined in 1901. These election ridings were used to select local political representatives (Ministers of Parliament, or MPs) for the federal House of Parliament in Ottawa.[18] The coefficient estimate indicates that lower earnings in the local labour market promoted self-employment; a doubling of earnings (above the mean across districts) would result in a 13% fall in the probability of self-employment. Further controls are for region of residence and residence in an urban area. Rural residents were more likely to be self-employed, and after controlling for local earnings, self-employment rates were significantly lower in Ontario and Quebec than in the Maritimes, the Prairies, or British Columbia. This regional pattern also appears quite sensible; after controlling for district earnings, the central Canadian provinces with larger cities and a

[17] The coefficient estimates presented in Table 2 are stable across a variety of stepwise regression specifications. Further details are available on request from the authors.

[18] The geographical coverage of election districts varies across the country. Larger cities, like Montreal and Toronto, contain several districts. Smaller cities, like Kingston, Ontario, are encapsulated in one district. In more remote parts of the country, some districts include rural areas and small urban centres, while others are entirely rural. The district earnings used in the regressions is the mean of adult male log earnings (among those who report earnings) for non-agricultural work in each district. We have experimented with adjusting earnings for differences in age and other characteristics, with little impact on the overall results.

wider range of potential occupations and industries featured more wage employment.

4.2. Ethnicity and self-employment

In Table 3 we augment the baseline regression specification from Table 2 to examine the relative self-employment of immigrants. The table lists coefficient estimates on immigrant-specific variables that are added to the earlier regression specification; estimates from regressors in Table 2 are virtually unchanged and are not reported in Table 3.

Column I includes birthplace dummies for the major sources of Canadian immigrants. This set of results suggests that, conditional on other observable characteristics, immigrants from Britain, Ireland, and Scandinavia were substantially less likely to be self-employed than the native-born, while continental Europeans exhibited high rates of self-employment. While these immigrant groups are relatively homogeneous by present-day standards, the variation in self-employment rates by source

Table 3
The determinants of self-employment: extended specification

Variables	I	II	III	IV
Born US	−0.009 (0.44)	−0.018 (0.31)	−0.014 (0.24)	−0.019 (0.32)
Born Scandinavia	**−0.084** (2.55)	**−0.081** (2.33)	**−0.085** (2.42)	**−0.082** (2.35)
Born Continental Europe	**0.050** (2.52)	0.047 (1.77)	0.048 (1.78)	0.050 (1.81)
Born England and Wales	**−0.082** (7.40)	**−0.098** (2.87)	**−0.099** (2.91)	**−0.145** (2.75)
Born Scotland	**−0.050** (2.67)	**−0.072** (2.31)	**−0.074** (2.35)	**−0.122** (2.02)
Born Ireland	**−0.118** (6.82)	**−0.142** (2.84)	**−0.143** (2.88)	**−0.163** (3.03)
Immigrant, pre-1866	–	0.084 (1.35)	0.048 (0.78)	0.088 (1.42)
Immigrant, 1866–1875	–	0.042 (0.70)	0.044 (0.77)	0.049 (0.82)
Immigrant, 1876–1885	–	−0.003 (0.05)	−0.003 (0.05)	−0.001 (0.02)
Immigrant, 1886–1895	–	−0.012 (0.22)	−0.055 (1.00)	−0.015 (0.10)
Immigrant, 1896–1901	–	−0.068 (1.17)	**−0.110** (1.97)	−0.058 (1.00)
District proportion (DP) immigrant	–	–	0.129 (1.87)	
Immigrant*(DP immigrant)	–	–	**0.204** (2.80)	–
DP England and Wales	–	–	–	−0.098 (0.61)
DP Scotland	–	–	–	**1.377** (3.30)
DP Ireland	–	–	–	**−0.866** (2.74)
(England and Wales) *(DP England and Wales)	–	–	–	**0.754** (2.60)
Scotland*(DP Scotland)	–	–	–	2.019 (1.49)
Ireland*(DP Ireland)	–	–	–	1.096 (1.12)
Log-likelihood	−11283	−11268	−11244	−10079
N	19,904	19,904	19,904	19,904

Notes: The dependent variable is self-employment status. All variables in the baseline specification in Table 2 are included in as explanatory factors, though their coefficients are not reported. A dummy variable for immigrants born outside of the six main source regions is included in the regression, but the coefficient is omitted here. Coefficients are marginal effects from a probit regression. Figures in bold are significant at the 5% level, and *z* values are in parentheses.

country or region cannot be fully explained by variation in human capital and other characteristics. The marginal effects of birthplace, net of controls for characteristics, appear as large as the gap between native and immigrant group self-employment rates in Table 1.[19] The results in column I are also consistent with Green and MacKinnon's (2001) finding that English mother-tongue immigrants were relatively underrepresented in this class of occupation, though we will show below that there was convergence in self-employment between (predominantly British) immigrants and the native-born over the life-cycle.

Column II adds cohort dummies to the specification. Here we find that recent immigrants who had arrived after 1895 were less likely to be self-employed than demographically similar natives, while immigrants of an earlier vintage have higher self-employment rates.[20] This pattern of rising self-employment with Canadian labour market experience is evidence against the view that self-employment among immigrants was primarily an occupation of the disadvantaged. Self-employment rose as immigrants familiarized themselves with Canada and acquired specific human capital associated with Canadian markets and institutions. As controls for place of origin are included in the specification, rising self-employment with time spent in Canada in the cross-section is unlikely to reflect the presence of "cohort effects" resulting from changes in employment aptitudes across successive immigrant cohorts (Borjas, 1985). It is also worth noting that coefficient estimates on the place of origin variables see little change with the addition of the cohort variables in column II.

The final two columns of Table 3 search for evidence of "enclave effects." Column III introduces a variable indicating the concentration of immigrants in the local district, and an interaction term between district immigrant concentration and immigrant status. The coefficient estimate on this second variable can be taken as an indicator whether immigrant self-employment arose as a response to immigrants' comparative advantage in the provision of ethnic goods for the local market. The results offer some support for the ethnic goods hypothesis. Self-employment rates are higher in districts with a higher proportion of foreign-born, and a significant additional positive self-employment premium accrues to immigrants in districts with more foreign-born residents. When district concentrations of the three largest immigrant groups are included (column IV), the results suggest that enclave effects may have played a role in enhancing self-employment among specific ethnic groups. The interactions of nationality and ethnic concentration variables are positive, though statistically significant only for the English and Welsh immigrant group. However, the economic significance implied by these coefficients is limited. For example, a Scottish proportion of almost 6% would be required before Scottish immigrant would be predicted to have self-employment rates at a par with the

[19] As a further check, we have estimated a model that includes origin dummies but without controls for individual characteristics. The resulting estimated birthplace coefficients are similar to those reported in Table 3, column I.

[20] This pattern is not statistically significant when comparing immigrants of different vintage to native-born Canadians, but cohort indicators are highly significant when we consider the immigrant population separately in Table 4.

Table 4
Self-employment in an immigrant sub-sample

Variables	I	II
Age	**0.018** (3.41)	0.016 (1.07)
Age^2/100	**−0.016** (2.75)	−0.015 (.80)
Literate	**0.133** (4.58)	−0.038 (.50)
Speaks English	0.064 (0.98)	**0.180** (2.23)
Married	**−0.052** (2.10)	−0.065 (1.07)
Property owner	**0.080** (2.59)	0.082 (1.26)
Household size, age 12–65	0.001 (0.22)	−0.006 (.49)
Log district immigrant earnings	**−0.059** (2.02)	−0.086 (1.11)
Immigrant, 1866–1875	−0.032 (1.56)	–
Immigrant, 1876–1885	**−0.076** (3.00)	–
Immigrant, 1886–1895	**−0.077** (3.39)	–
Immigrant, 1896–1901	**−0.109** (3.77)	–
Born Scandinavia	−0.060 (1.68)	–
Born Continental Europe	**0.076** (2.74)	–
Born England and Wales	**−0.083** (3.91)	–
Born Scotland	**−0.053** (2.18)	–
Born Ireland	**−0.118** (5.11)	–
Log-likelihood	−2232	−188
N	4259	396

Notes: Controls for province of residence and residence in a rural area are included in all specifications, but their coefficients are not reported. US-born immigrants are the birthplace reference group. Coefficients are marginal effects from a probit regression. Figures in bold are significant at the 5% level, and *z* values are in parentheses.

native-born, other things equal. As the mean Scottish district proportion is only 1.6%, with a standard deviation of 1.3, this would require a district to have a Scottish proportion well over three standard deviations above the mean. This calculation suggests that ethnic concentration effects were too small to overturn the more substantial negative impact of place of origin.

In Table 4, column I we use a more restricted sample, which includes only the foreign-born present in our Census sample, to further explore how ethnicity interacted with other characteristics in the determination of self-employment. The first set of covariates listed in Table 4 are for the core human capital variables, as reported in Table 2.[21] The coefficient estimates on this set of variables are of a similar order of magnitude to the baseline results from the full regression sample listed in Table 2.[22] These results strengthen the evidence from Table 3 in favour of the view that skilled immigrants in early 20th century Canada were "pulled" into self-employ-

[21] Control variables for place of residence are included in the regression, though the coefficients are not reported in Table 4.

[22] We have performed Wald tests of the equality of coefficients on human capital variables between the native-born and immigrant populations. None of the individual coefficient estimates are significantly different between the groups, and we also fail to reject the null of no significant differences in the whole set of human capital variables between the two groups.

ment, rather than it being a fall-back option for those lacking the human capital necessary to succeed in wage employment. Table 4 also offers more convincing evidence that immigrant self-employment rises with labour market experience. After controlling for possible cohort effects with place of origin controls, the cohort variables follow a similar pattern to that seen in Table 3, and point estimates are considerably more precise in the immigrant-only sample. The regression in column I also includes a variable corresponding to the mean earnings of immigrants in the local district. We find a strong negative relationship between this variable and the probability of immigrant self-employment. In alternative specifications (not reported here) in which overall mean district earnings are included as a regressor, we find no relationship between immigrant self-employment and local labour market conditions. This is consistent with there being a certain degree of labour market segmentation between immigrants and the native-born in Canada; what mattered for immigrants were not overall conditions in the locale, but conditions specific to the immigrant subset of the labour market.

A more restrictive version of the sample adopted in Table 4 can be used to better examine the hypothesis that liquidity constraints partially determine self-employment decisions. Column II of Table 4 limits the sample to immigrants who arrived in Canada in the five years preceding the taking of the 1901 Census. Standard errors are considerably larger, as one would expect in a sample that is less that 10% the size of the full immigrant sample. Turning to point estimates, there is little change on the coefficient for property ownership, despite our concerns about potential endogeneity. Potential family labour, which might be expected to be an important determinant of self-employment in an environment where access to labour markets might be limited, does not appear to correlate with self-employment in a meaningful way. Greater wealth, as measured through property ownership, does appear to encourage self-employment. This suggests that while potential immigrant entrepreneurs may not have been limited in their access to labour outside of the family or household, credit constraints were an important factor in determining who became self-employed circa 1900.

4.3. Religion and self-employment

The relationship between religion and individual self-employment is explored in detail in Table 5. Column I adds three indicators of religious orientation to the base specification—Catholic, sect Protestant, and Jewish. For comparison purposes, we also include an indicator of whether the individual was foreign-born.[23] Two of the three religious variables are statistically significant; Canadian Jews appear highly entrepreneurial, conditional on observables, while Catholics were somewhat less likely to be engaged in self-employment. There is no evidence here of greater self-employment among the so-called Protestant sects. A comparison of coefficients indicates that differences between Christian groups were smaller than between

[23] Church Protestants are the reference group in this regression.

Table 5
Religion and self-employment

Variables	I	II	III
Catholic	−**0.028** (2.62)	−**0.034** (2.76)	**0.022** (2.47)
Protestant sect (PS)	0.006 (0.71)	0.006 (0.58)	**0.021** (2.29)
Jewish	**0.434** (10.00)	–	–
Foreign-born	−**0.076** (8.95)	−**0.097** (6.59)	–
Catholic*Foreign-born	–	0.010 (0.40)	–
PS*Foreign-born	–	**0.047** (2.37)	–
District proportion (DP) Catholic	–	–	−**0.199** (4.95)
DP PS	–	–	−0.037 (1.04)
Catholic*(DP Catholic)	–	–	**0.191** (5.46)
PS*(DP PS)	–	–	0.035 (0.60)
Log-likelihood	−11254	−11046	−11072
N	19,904	19,582	19,582

Notes: The dependent variable is self-employment status. All variables from the baseline specification in Table 2, column I are included in as explanatory variables, though their coefficients are not reported. The sample is columns II and III is restricted to Christians, with church Protestants the reference category for religion. Coefficients are marginal effects from a probit regression. Figures in bold are significant at the 5% level, and *z* values are in parentheses.

native-born Canadians and the foreign-born. We noted earlier that a reader might question the exogeneity of membership in a Protestant sect.[24]

We will return to the remarkable self-employment experiences of Jewish Canadians a bit later; in columns II and III, additional aspects of the relationship between religion and self-employment are explored further in a sample limited to Christians.[25] Column II adds interactions between foreign birth and religious group. Conditional on individual characteristics, differences in self-employment among native-born Christian denominations were small; Catholics were only somewhat less likely to be self-employed than church Protestants, and no meaningful difference is apparent between mainstream Protestants and members of sects. Interaction terms between immigrant status and religious affiliation suggest that foreign-born members of Protestant sects were significantly more likely to be self-employed than other immigrants, though they remain less likely to be self employed than native-born Christians of any affiliation.[26]

[24] If sect membership was positively correlated with unobservables that also determined self-employment, we would expect this coefficient to suffer an upward bias. We do not have data at hand that will allow us to rule out the possibility of an upward bias, but if such a bias exists, the implication is that the "true" effect of sect membership is negative, or at least less positive than reported here. It should be noted that sect membership might not necessarily draw upon individuals with high levels of observed or unobserved human capital. Murray (1995) illustrates how among the Shakers, it was the relatively unskilled who were attracted to the communal nature of Shaker life.

[25] Given the small number of Jewish Canadians in our sample, interactions with place of origin and local concentration variables are unlikely to be informative.

[26] We have also explored religious differences among immigrants from different parts of Britain and Ireland. These specifications, which are not reported in detail in Table 5, reveal little evidence of notable differences across these ethnic subsets.

Column III examines whether access to co-religionists affected self-employment outcomes. This specification could partially rehabilitate the views of Weber and Porter if, for example, membership in a Protestant sect was a positive determinant of self-employment in regions with more like-minded individuals. The results suggest that membership in a Protestant sect had little role in determining self-employment, regardless of the composition of the local population. For Catholics the result is rather different; increasing Catholic concentration tended to lower self-employment rates among non-Catholics, but had little effect on Catholic self-employment.[27] This result is robust to the exclusion of the province of Quebec from the sample, which had a largely French Canadian and Catholic population.[28]

4.4. The self-employment of distinct minorities

The findings presented in Tables 3–5 suggest that ethnicity did not play a large role in the determination of self-employment in early 20th century Canada. Both immigrants and the native-born were "pulled" into self-employment along skill lines, and religion does not appear to have had substantial direct effects on self-employment. This might reflect the homogeneity of the immigrant population, and its similarity to native-born Canadians. Over 80% of the immigrants in our sample were from countries where English is the mother tongue, and would likely have a similar cultural background to native-born Anglophone Canadians.[29] In this section, we consider the self-employment experiences of two distinct minorities who would share little common ethnic affiliation with the majority of the population in any region: Jewish Canadians, and non-white Canadians. Scholars have examined entrepreneurial and occupational outcomes in these two groups. Godley (2001) finds strong propensities for self-employment among late 19th century Jewish communities in London and New York. Consistent with the assimilation perspective, he finds high rates of occupational mobility into entrepreneurial employment. This direct evidence on Jewish entrepreneurship is complemented by earlier findings of rapid occupational progress among Jewish immigrants to the United States in the early 20th century (for example, Chiswick, 1991). For black Americans and other visible minorities, the stylized facts are rather different. Recent work on the United States suggests that black, Hispanic, and Asian Americans are not positively self-selected

[27] The sum of coefficients on the Catholic district proportion variable and the interaction between Catholic district proportion and Catholic status is not significantly different from zero. Therefore, self-employment rates among non-Catholics decline as Catholic concentration increases, while Catholic self-employment is unaffected.

[28] We have also experimented with specifications that include dummy variables and interaction terms for French Canadians and their religious orientation. See Minns and Rizov (2003) for further details.

[29] French Canadians also would have a quite different cultural background to most Anglophone Canadians. In the work that follows we limit our attention to minority groups who would not form a majority anywhere in Canada; French Canadians were the dominant ethnic group in the province of Quebec.

Table 6
The self-employment of distinct minorities

Variables	Jewish, immigrant	Non-white	Non-white, immigrant
	I	II	III
Age	0.044 (0.92)	−0.001 (0.04)	−0.017 (0.57)
Age^2/100	−0.060 (1.00)	0.003 (0.20)	0.015 (0.42)
Literate	0.108 (0.87)	0.040 (0.76)	0.034 (0.34)
Speaks English	−0.243 (1.00)	−0.034 (0.41)	0.266 (1.95)
Married	–	**−0.119** (2.12)	−0.109 (1.02)
Property owner	−0.031 (0.21)	**0.164** (2.12)	**0.329** (2.04)
Household size, age 12–65	0.038 (1.46)	−0.011 (0.97)	−0.061 (1.95)
Log district earnings	−0.967 (1.83)	**0.342** (2.96)	**0.721** (3.27)
Foreign-born	–	**1.06** (1.45)	–
Immigrant, 1866–1875	−0.006 (0.01)	–	−0.076 (−0.34)
Immigrant, 1876–1885	−0.346 (0.91)	–	0.119 (0.51)
Immigrant, 1886–1895	−0.320 (0.81)	–	0.116 (0.49)
Immigrant, 1896–1901	−0.445 (1.21)	–	−0.045 (0.16)
Log-likelihood	−76	−253	−88
N	124	436	153

Notes: Regressions also include controls for place of residence. The regression specification in column II includes controls for religious affiliation. See text for sample details. Coefficients are marginal effects from a probit regression. Figures in bold are significant at the 5% level, and *z* values are in parentheses. As the entire sample of Jewish men were married, this variable is excluded from the regression in column I.

into entrepreneurial occupations to the same degree as are white Americans (Borjas and Bronars, 1989).

In Table 1 we saw that both of these groups had high self-employment rates. Table 6 lists the key determinants of self-employment for Jewish and Non-white Canadians in 1901. The relatively small samples lead to imprecise estimates, with many coefficients failing to be statistically significant at conventional levels. Nonetheless, the results suggest different patterns of selection into self-employment in these two groups.[30] Among Jewish Canadians the econometric results support the "pull" model of entrepreneurship; age and literacy have large (though not significant) marginal effects on self-employment. Credit constraints appear less important for this group, and Jewish self-employment appears highly sensitive to wages in the local labour market. The coefficient estimates on arrival cohort variables suggest the possibility of assimilation into self-employment for this group. Non-white Canadians do not appear to have been positively selected into self-employment. None of the key hu-

[30] In this small sub-sample, few coefficients are statistically significant, and Wald tests for the joint significance of differences in coefficient estimates on human capital variables between the Jewish and non-white sub-samples are not statistically significant at conventional levels. However, the *p* values for tests of differences in the individual coefficients on age (0.13), age squared (0.13), and literacy (0.33) are substantially smaller than what we find in the comparison between all immigrants and native born Canadians (0.68, 0.63. and 0.73). Therefore, we conclude that evidence of a different selection process into self-employment for different groups is more compelling in Table 6 than in Table 4.

man capital variables have substantial marginal effects. Our wealth measure is highly correlated with self-employment for the non-white sample. While some caution is necessary in interpreting this coefficient, this result is consistent with non-whites being more constrained in their ability to finance entrepreneurship through sources other than personal assets and wealth. Finally, a strong positive relationship emerges between self-employment and local wages. This fits with the view that the visible non-white minority was locked out of wage employment in more prosperous labour markets, and as a consequence "pushed" into self-employment. Column III estimates the same set of determinants used for Jewish immigrants in column I for a sample of non-white immigrants. For non-white immigrants, the ability to speak English was an important determinant of self-employment. Other marginal effects are consistent with the findings in column II, and the addition of arrival cohort dummies indicate little evidence of rising self-employment with increased experience in the Canadian labour market.

5. Conclusions

This paper offers a first look at the determinants of self-employment in early 20th century North America. The results suggest that the high potential returns of entrepreneurship "pulled" skilled individuals out of the employee labour market, rather than being "pushed" due to disadvantageous characteristics in employment. Disadvantage theory does not appear to be of importance in explaining the self-employment choices among Canadian immigrants over one hundred years ago. While differences are evident in the rate of self-employment across immigrant groups, the determinants of selection into self-employment are similar to those observed in the entire population, with immigrant self-employment positively associated with skills. We also find evidence of immigrant assimilation in self-employment, with reported rates of self-employment rising with time spent in the Canadian labour market. The immigrant sample provides important evidence in favour of the liquidity constraints hypothesis of individual entrepreneurship. Recent immigrants who held sufficient wealth to acquire property shortly after arrival in Canada were considerably more likely to become self-employed. We find only limited evidence of the existence of enclave effects, with the impact of local immigrant concentration having considerably less weight than that of other key covariates.

Christian affiliation does not appear to have led to large differences in self-employment among otherwise similar Canadians, but sharper differences in the selection into self-employment are apparent in the small number of distinctive minorities present in early 20th century Canada. Jewish Canadians were positively selected into self-employment on skills, and were highly responsive to opportunities in the wage labour market. Results for non-white Canadians are more consistent with the "push" model of self-employment: there is no evidence of the more skilled being drawn to entrepreneurship, and high wages in the local labour market do not appear to have pulled this group out of self-employment.

Most Canadian immigrants in the early 20th century were of British or Irish origin. Self-employment rates among these "invisible immigrants" were lower than those of their native-born counterparts; for most nativity groups, only those of exceptionally long-tenure in Canada converged with the native-born. While we find differences in the levels of self-employment between immigrants and native-born Canadians, the determinants into entrepreneurship are strikingly similar. Whether this result would hold in the United States, where immigrant inflows were much more diverse through the later 19th century, is an important question for future research.

Appendix

Mean values of key variables

Variables	Total sample	Self-employed	Self-employed immigrants
Age	40.90 (10.85)	42.75 (10.62)	45.32 (10.62)
$Age^2/100$	17.91 (9.30)	19.40 (9.36)	21.66 (9.72)
Married	0.92 (0.28)	0.90 (0.30)	0.86 (0.34)
Literate	0.89 (0.31)	0.92 (0.26)	0.97 (0.18)
Speaks English	0.94 (0.23)	0.95 (0.22)	0.99 (0.10)
Property Owner	0.93 (0.25)	0.95 (0.22)	0.93 (0.26)
Household size, age 12-65	4.57 (2.39)	4.64 (2.48)	4.40 (2.49)
Log district earnings	3.28 (0.23)	3.26 (0.25)	3.40 (0.26)
Rural	0.39 (0.49)	0.48 (0.50)	0.35 (0.48)
British Columbia	0.05 (0.22)	0.05 (0.21)	0.14 (0.35)
Prairies	0.02 (0.13)	0.02 (0.14)	0.03 (0.l8)
Ontario	0.42 (0.49)	0.39 (0.49)	0.50 (0.50)
Quebec	0.32 (0.46)	0.28 (0.45)	0.12 (0.33)
Maritimes	0.16 (0.37)	0.21 (0.41)	0.06 (0.23)
Catholic	0.40 (0.49)	0.35 (0.48)	0.14 (0.34)
Church Protestant	0.50 (0.50)	0.53 (0.50)	0.69 (0.46)
Protestant sect	0.05 (0.23)	0.07 (0.25)	0.17 (0.38)
Jewish	0.01 (0.08)	0.01 (0.11)	0.07 (0.25)
Foreign-born	0.22 (0.42)	0.19 (0.39)	1
French Canadian	0.29 (0.45)	0.27 (0.44)	–
Immigrant, pre-1866	0.04 (0.20)	0.05 (0.21)	0.24 (0.43)
Immigrant 1866–1875	0.05 (0.21)	0.04 (0.20)	0.23 (0.42)
Immigrant 1876–1885	0.06 (0.23)	0.04 (0.20)	0.23 (0.42)
Immigrant 1886–1895	0.05 (0.22)	0.04 (0.20)	0.21 (0.41)
Immigrant 1896–1901	0.02 (0.15)	0.02 (0.13)	0.09 (0.29)
Log district immigrant earnings	3.42 (0.35)	3.41 (0.37)	3.45 (0.28)

(*continued on next page*)

Appendix (*continued*)

Born US	0.03 (0.16)	0.03 (0.16)	0.15 (0.35)
Born Scandinavia	0.01 (0.10)	0.01 (0.09)	0.04 (0.20)
Born Continental Europe	0.03 (0.17)	0.03 (0.18)	0.17 (0.38)
Born England and Wales	0.09 (0.28)	0.07 (0.26)	0.37 (0.48)
Born Scotland	0.03 (0.16)	0.03 (0.16)	0.14 (0.35)
Born Ireland	0.03 (0.17)	0.02 (0.14)	0.11 (0.31)
District proportion Immigrant	12.17 (11.16)	11.83 (11.35)	0.22 (0.13)
District proportion England and Wales	4.19 (3.84)	3.98 (3.76)	0.07 (0.04)
District proportion Scottish	1.60 (1.30)	1.60 (1.34)	0.02 (0.01)
District proportion Irish	1.86 (1.55)	1.73 (1.45)	0.03 (0.02)
District proportion Catholic	0.41 (0.33)	0.38 (0.33)	0.24 (0.21)
District proportion Protestant sect	0.09 (0.10)	0.10 (0.11)	0.08 (0.07)
N	20,064	5792	1098

Notes: Standard errors are in parentheses.

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