

# METROPOLIS BRITISH COLUMBIA

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### **Initial Housing Conditions and Immigrants' Labour Market Outcomes**

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and Benjamin Harris**

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# Metropolis British Columbia

## *Centre of Excellence for Research on Immigration and Diversity*

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## Working Paper Series

### **INITIAL HOUSING CONDITIONS AND IMMIGRANTS' LABOUR MARKET OUTCOMES\***

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**ABSTRACT**

This paper explores the role of initial housing conditions on labour outcomes among new immigrants to Canada. We focus on a relevant housing feature: having arranged housing before landing. Within the framework of a dual search model, this variable can be naturally interpreted as having a better outside housing option and therefore a lower opportunity cost of searching for a job. We find that not pre-arranging housing is associated with worse labour outcomes among unskilled immigrants. This negative relationship is significant six months after landing, but diminishes over time. We interpret these results as evidence that in the few months after landing, a costly search for housing may crowd out a newcomer's job search and worsen immigrants' labour outcomes.

*Establishing yourself when you first arrive in Canada can be difficult. You will have to find a job and find somewhere to live, among other things.*

*Citizenship and Immigration Canada Website (2012)*

## 1 INTRODUCTION

Two of the most important decisions facing new immigrants are where to live and where to work. Neither of these tasks is easy. In Canadian cities, 30% of new immigrants report difficulty in their housing search, and 46% report experiencing difficulties in their search for an appropriate job (Rose 2009; Schellenberg and Maheux 2007). New immigrants tend to live in overcrowded homes, moving frequently and devoting larger shares of their budgets to rent than most people (Haan 2011; Hiebert 2009; Mendez et al. 2006; Painter and Yu 2010, Canadian Mortgage and Housing Corporation 2003). Moreover, unemployment, underemployment, and low earnings are endemic among immigrants in a variety of contexts<sup>1</sup>. In response, the Canadian government has identified the economic integration of recent immigrants as a top policy objective (Picot 2008).

In this context, a relevant question is whether housing conditions immediately upon arrival affect immigrants' ability to integrate with their new country. Neighbourhood characteristics are a first channel through which this may be possible. A body of empirical evidence has documented the effect of living in ethnic enclaves and impoverished neighbourhoods on labour outcomes (Edin et al. 2003; Damm 2009; Kling et al. 2007; Oreopoulos 2003; Warman 2007). A second, less studied channel through which initial housing conditions could affect labour outcomes is the job search. Searching for a house and searching for a job use similar resources (such as time and savings). In this case, immigrants who start with a bad house match may devote more resources to house hunting. Since the opportunity cost of the

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<sup>1</sup> See, for example, Nadeau and Seckin (2010) for Canada; Borjas and Friedberg (2009) for the US; Barrett et al. (2011) for Ireland; Le Grand and Szulkin (2002) for Sweden; and Demoussis et al. (2010) for Greece. Although relatively low wages are characteristic for all types of immigrants, the wage gap is especially acute for refugees (Connor 2010).

housing search is the time and resources that otherwise could be directed toward the job search, house hunting could potentially have a deleterious effect on labour outcomes. Furthermore, since higher-skilled immigrants have more to lose by investing more in the housing search (and less in the job search) than lower-skilled immigrants, we expect their labour outcomes to be less sensitive to variations in housing match quality. We formalize this argument in Section 2.2.

This paper contributes to the debate by examining the empirical relationship between initial housing conditions and two important labour outcomes: wages and employment. We use data from the Longitudinal Survey of Immigrants to Canada (LSIC). The LSIC contains records of new immigrants who arrived between October 2000 and September 2001 and tracks them over several years. This longitudinal feature allows us to study newcomers' labour outcomes shortly after arrival and up to four years later. As a measure of initial housing conditions, we use an indicator for whether the immigrant arranged housing before arriving in Canada. We show that this indicator is highly correlated to self-reported difficulties with finding a house as well as with poorer quality of housing. We focus on whether the immigrant arranged housing—rather than housing outcomes like price, crowding, or location—for two reasons. First, this variable is more likely to reflect initial conditions rather than households' preferences and budget constraints. Second, within the context of a search model it has a natural interpretation as a better outside option and, hence, a lower cost of investing in the job search. Intuitively, immigrants who did not pre-arrange housing are in a worse situation when landing, since they have to look for a home at the same time that they are looking for employment. Therefore, they can devote fewer resources to job searching.

The main empirical challenge is one of omitted variables. Immigrants who did not pre-arrange housing may be systematically different than those who did take such pre- cautionary behavior. They may, for example, have different levels of human capital or access to social networks; and this individual heterogeneity may drive both housing and labour outcomes. To address this identification issue, we first obtain separate results for skilled and unskilled immigrants to take into account systematic differences between both groups. For each set of results, we also control for relevant observables such as education, language skills, foreign work experience, and access to support networks, initial wealth, intention to work, and immigrant class, among others.<sup>2</sup>

We find evidence of a negative relationship between our measure of initial housing conditions and labour outcomes. In particular, six months after landing, lower-skilled immigrants who did not arrange housing earn 7.4% lower wages than unskilled immigrants who did arrange housing. Point estimates for models predicting employment are also negative, but imprecise. In the case of skilled immigrants, as well, not arranging housing before immigrating is associated with worse labour outcomes and, although statistically insignificant, the point estimates are always smaller in magnitude than they are for less-skilled immigrants (as our model predicts). Furthermore, for both skilled and unskilled immigrants, the magnitude of the point estimates associated with not arranging a home diminishes as we consider labour outcomes two and four years after arrival. For example, the wage gap for low-skilled immigrants who did not arrange housing drops from 7.4% six months after landing to 4.9% two years after landing, and by four years the wage gap is no

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<sup>2</sup> Mendez et al. (2006) demonstrate that admission class is one dimension along which there is significant heterogeneity in the early experiences of immigrants. Our study has three main groups of respondents: economic class (a composite of the skilled worker, business, and provincial nominee classes), family class, and refugee class.



longer detectable.<sup>3</sup> We interpret these findings as evidence that, in the short term and especially for lower-skilled immigrants, a costly house search may hinder the ability to search for a job and worsen labour outcomes.

This interpretation of the empirical findings comes with an important caveat. A main concern is that the rich set of controls used to obtain our estimates may be insufficient and that our results may just reflect unobserved heterogeneity among immigrants.<sup>4</sup> While we cannot rule this possibility out with complete certainty, two arguments support our interpretation of the results. First, we find no significant correlation between arranging housing and other pre-landing preparations, such as arranging a job or checking whether foreign credentials would be accepted upon arrival in Canada. This weakens the case that our indicator of house searching costs is just picking up a broader, unobserved ability to settle in a new country. Second, as noted, we observe that the estimated coefficients of pre-arranging housing disappear over time. This is consistent with the results being driven by transitory conditions rather than a permanent individual characteristic.

This paper relates to the literature studying the effect of settlement conditions on immigrants' economic success. This literature has focused mostly on the effect of ethnic enclaves. While the theoretical effect of enclaves is ambiguous, recent quasi-experimental evidence from Sweden and Denmark suggests that ethnic enclaves have a positive effect on labour outcomes Edin et al. (2003); Damm (2009). On the other hand, Warman (2007) explores the same question in using Canadian Census data and finds a negative effect of enclaves for adult immigrants, especially among high-skilled males. Using

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<sup>3</sup> These findings are consistent with Hiebert (2009). Using data from the LSIC, he documents that new immigrants start with poorer housing conditions than the average Canadian. Housing conditions and ownership, however, improve significantly over the period of four years after landing.

<sup>4</sup> Ideally we would like to have a source of experimental or quasi-experimental variation in housing search costs. This variation, however, is unavailable in the case we study.

U.S. Census data, Chiswick and Miller (2005) similarly find that living in enclaves with higher concentrations of non-English speakers reduces the likelihood that an immigrant's English language skills improve, leading to adverse earnings effects.<sup>5</sup> Our study extends the existing literature by highlighting housing search costs as another plausible channel through which settlement conditions could affect labour outcomes.

This paper also relates to a literature studying the effect of market frictions on labour outcomes. This literature has emphasized the importance of job searching costs and policy distortions for determining the likelihood and quality of job matches (McCall 1970; Jovanovic 1979; Mortensen and Pissarides 1999). We show that in the presence of simultaneous searches, search distortions in one market can affect search outcomes in the other market. In the context of immigrants searching for homes and jobs concurrently, costs and frictions associated with searching for a home may be relevant to labour search outcomes such as employment and compensation.

The rest of the paper is organized as follows. Section 2 details the institutional background of the immigrant settlement process in Canada and describes the analytical framework for thinking about the determinants of successful settlement. Section 3 outlines our empirical strategy and describes the LSIC data in greater detail. Section 4 presents our main results, and Section 5 concludes.

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<sup>5</sup> Language skill is another important settlement condition that has been investigated as a determinant of immigrant integration. See, for example, Bleakley et al. (2004), Dustmann and Fabbri (2003), and Sarvimäki and Hämäläinen (2012).

## 2 BACKGROUND

### 2.1 *Institutional background*

Canada began immigration policy reforms in 1962 in order to augment national skill and age profiles that otherwise would not support the needs of an aging population. New policies began to emphasize newcomers' education and skill sets over their countries of origin, adopting a point-based immigration system alongside federal multiculturalism and anti-racism policies. Accordingly, immigrant cohorts have become increasingly diverse and well-educated during recent decades. In addition to this forward-looking immigration policy, Canada has a relatively proactive settlement policy (Schmidt 2007). Citizenship and Immigration Canada (CIC) aims to support the successful integration of newcomers by funding and directing four formal settlement programs targeted at recent immigrants and refugees (Citizenship and Immigration Canada 2004).<sup>6</sup> Administration and funding of each of these programs devolves from the federal government to provincial agencies and non-governmental organizations with expertise in the region-specific issues facing immigrants.

Despite these resources, newcomers to Canada still face many challenges in the housing and labour markets, in particular. Figure 1 shows the proportions of skilled and unskilled immigrants (defined in terms of foreign educational attainment) in the LSIC who described finding a home, finding a job, or language barriers as a major challenge in their settlement process.<sup>7</sup> Nearly 90% of skilled immigrants and about 75% of unskilled immigrants report

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<sup>6</sup> During 2001, which is the reference period of our study, these programs included the Immigrant Settlement and Adaptation Program (ISAP), the free Language Instruction for Newcomers to Canada (LINC), the HOST program (in which volunteers familiar with Canada help newcomers identify and use available services, practice language skills, and get contacts in their field of work), and the Resettlement Assistance Program (RAP). In 2008, CIC introduced a modernized approach to its settlement program term and conditions, replacing each of these four programs with an Integrated Settlement Program (Smith 2010).

<sup>7</sup> These categories are not mutually exclusive and, therefore, do not sum to 1.

major difficulties in their search for a home, which is the most commonly cited settlement challenge in our data. Finding a job was, for both groups, a slightly less common difficulty. Language barriers were not reported nearly as frequently as housing or job search difficulties.

Figure 2 gives more detail as to the specific kinds of difficulties new immigrants face in their search for housing.<sup>8</sup> As could be expected, budget constraints are the most common hurdles during new immigrants' housing search. About 57% of unskilled immigrants and 53% of skilled immigrants list cost as one of the major difficulties in finding a home, and about 41% and 44% of the same groups list a lack of available credit as a major difficulty in the housing search. Only about 10% of both skilled and un-skilled immigrants listed discrimination, lack of available housing, or lack of help as a main source of difficulty in finding a home. However, search frictions make up a sizable group of issues new immigrants face when looking for a home. About 23% of unskilled immigrants and 27% of skilled immigrants reported that they could not find housing that fit their needs. Slightly fewer reported that their difficulties were due to not knowing the town or not knowing how to search. Around 10% faced language barriers and transit problems specific to the housing search.

How might these challenges in the housing search relate to the difficulties new immigrants face when trying to find a job? Naturally, the more ill-prepared someone is for the housing hunt, the more time it will take that person to find a suitable residence. Because of the primacy of the need for shelter, we suspect that a time-intensive housing search will crowd out resources from the job search, which decreases the likelihood of finding a good job. We formalize this argument below.

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<sup>8</sup> Sample is all immigrants who said they experienced any difficulty in their housing search. Again, the categories in Figure 2 are not mutually exclusive.

## 2.2 *Analytical framework*

In this section we present a model to better understand the relationship between the housing search and the job search within the specific context of newly landed immigrants with heterogeneous skills. The model starts by assuming that both searches occur simultaneously and use similar resources such as time and effort. Hence, new immigrants need to allocate scarce time or effort between searching for a house and searching for a job. This creates the scope for favourable initial conditions in the search for housing, for example, to spill over into the search for employment (and vice versa). Labour and housing outcomes will, therefore, reflect these positive search spillovers. Furthermore, since skilled-immigrants have a relatively high opportunity cost of searching in the housing market, they will have a weaker incentive to try to improve the quality of their housing match. Accordingly, there will be less scope for initial housing conditions to spill over into the job searches of skilled immigrants than for unskilled immigrants.

To begin, consider an environment in which people have preferences over consumption,  $c$ , and housing characteristics. Let  $h$  measure how well a home matches a person's needs. We assume that new immigrants arrive in period 1 with predetermined initial housing and job conditions,  $h_0$  and  $w_0$ . They may search simultaneously in the housing and job markets to try to improve upon their initial conditions. Assume they have a finite amount of time to invest in the search for housing and the search for employment, such that  $t_H + t_L = T$ . Let  $t_H$  and  $t_L$  be natural numbers that can be thought of as the number of random draws one invests in the housing search and labour search, respectively. Each draw in the housing market yields a random value of  $h_{t_H}$  that measures how well that draw's dwelling matches the immigrant's needs, and

each draw in the job market yields a random wage offer  $w_{t_L}$ . By the end of the search period, the immigrant will have chosen a home and job such that  $h_T = \max\{h_{\sigma}, h_{t_H}\}$  and  $w_T = \max\{w_{\sigma}, w_{t_L}\}$ . Without loss of generality, assume immigrants have only labour income, so  $c \leq w$ . As usual, it will be optimal to set  $c = w$ , so we will simply work with  $w$  below. Assuming risk neutrality and an additively separable utility function,  $\theta$  new immigrants choose  $t_H$  and  $t_L$  to solve:

$$\max_{t_H, t_L} [E(h_T) + \theta E(w_T)] \quad (1)$$

subject to:

$$E(h_T | h_0) = \mathcal{H}(t_H, h_0) \quad (2)$$

$$E(w_T | w_0) = \mathcal{L}(t_L, w_0) \quad (3)$$

$$t_H + t_L = T \quad (4)$$

where  $\theta \in \{\theta', \theta'' : \theta' < \theta''\}$  is an index of skill, and  $\mathcal{H}$  and  $\mathcal{L}$  can be thought of as housing and job search functions whose arguments are initial conditions and the number of draws invested in the search.<sup>10</sup> We assume that both functions are increasing and concave in both arguments and have negative cross derivatives. For ease of exposition, we will work with uniformly distributed  $h \sim U(0, 1)$  and  $w \sim U(0, 1)$ , which give  $\mathcal{H}$  and  $\mathcal{L}$  that meet our assumptions. In this case, for any  $t_H \leq T$  that an immigrant invests in the housing search and any initial condition  $h_0$ , the expected quality of a housing match is:

$$\mathcal{H}(t_H, h_0) = 1 - \int_{h_0}^1 h^{t_H} dh \quad (5)$$

To see how an additional draw in the housing search affects the expected quality of the housing match by the end of the search period at time  $T$ , we calculate the first difference of equation (5) with respect to  $t_H$ :

$$\Delta \mathcal{H}_t(t_H, h_0) \equiv \mathcal{H}(t_H + 1, h_0) - \mathcal{H}(t_H, h_0) = \int_{h_0}^1 h^{t_H} (1 - h) dh \quad (6)$$

<sup>9</sup> Qualitative results are unchanged under risk aversion.

<sup>10</sup> Note that we abstract from the price of a home, and so the maximization can be viewed over all houses of the same price. Introducing the price of a home will not change any of our results, provided that there is some heterogeneity in housing quality controlling for prices.

which is positive. Intuitively, the expected quality of the housing match at time  $T$  is increasing in  $t_H$ ; the more time a person spends looking for a home, the better the match will be in expectation. The magnitude of this gain decreases, however, as  $t_H$  or  $h_0$  increase. This is because each additional draw has a lower probability of being higher than the maximum of all previous draws; and the higher  $h_0$ , the lower the probability that a draw will exceed it. In other words, the marginal expected benefit of an additional draw in the housing market is decreasing in the number of draws and in the initial quality of the housing match. That is, searching a little bit more for a home has less expected benefit the more a person has already searched. And if the quality of the initial housing match ( $h_0$ ) is very high, the probability of finding something is lower than if the quality of the initial housing match is very low. These are the benefits of adding one more draw to the housing search. What about the cost? Since  $t_L = T - t_H$ , the cost of each draw in the housing search is one less draw in the job search. The expected loss from adding one more draw to the housing search is therefore:

$$\Delta \mathcal{L}_t(t_L, w_0) \equiv \theta[\mathcal{L}(t_L, w_0) - \mathcal{L}(t_L - 1, w_0)] = \theta \int_{w_0}^1 w^{T-t_H} (w^{-1} - 1) dw \quad (7)$$

Since  $w < 1$ , the loss in expected wages is increasing in the number of draws invested in the housing search,  $t_H$ . The loss in expected wages is also clearly increasing in  $\theta$ , so the loss is larger for skilled immigrants than for unskilled immigrants. The solution to the optimization problem is straightforward. The immigrant increases the number of draws in the housing search until the expected benefit from another draw in the housing search no longer exceeds the expected cost in the labour market. Since that cost is higher for skilled immigrants, for any  $h_0$ , they will allocate fewer draws to the housing search than unskilled immigrants.

We are interested in how less favorable initial conditions in the housing search influence the outcome of the job search. In other words, how does  $E[w_T/w_0]$  change as we decrease  $h_0$ ? Decreasing  $h_0$  increases the benefit of adding one more draw to the housing search. Put another way, decreasing  $h_0$  increases the opportunity cost of investing more draws in the job search. An individual will therefore increase the number of draws in the housing search until the difference between the marginal benefit and marginal cost of a draw in the housing search is minimized.<sup>11</sup>

However, increasing the number of draws in the housing search necessitates decreasing the number of draws in the job search. Therefore, a decrease in  $h_0$  ultimately leads to a decrease in expected wages. Figure 3 displays this concept graphically. Lowering initial housing conditions from  $h_0$  to  $h'_0$  shifts the marginal benefit of housing search upward, which leads to a higher equilibrium number of draws in the housing search,  $t^*_H(h'_0) > t^*_H(h_0)$ . This decreases the optimal number of draws in the job search from  $t^*_L(h_0) > t^*_L(h'_0)$ , which has the effect of decreasing the expected wage at time  $T$ . Since the cost of searching in the housing market is increasing in skill—that is, increasing  $\theta$  shifts the marginal cost of searching for a house ( $\mathcal{L}_t(t_L, w_0)$ ) upward—for any  $h_0$ , skilled immigrants will optimally choose a lower  $t_H$  and higher  $t_L$  than unskilled immigrants. Thus, the two main predictions of this model are that low  $h_0$  will be conditionally correlated with low  $w_T$ , and this relationship will be stronger for unskilled immigrants than for skilled immigrants.

Here it is important to discuss an alternative model that generates the same predictions as the model just presented. This alternative model stipulates that initial search conditions  $h_0$  and  $w_0$ , as well as  $h_T$  and  $w_T$ , are positively

<sup>11</sup> The marginal benefit and marginal cost of a draw in the housing search are not necessarily equal at the optimum, since draws are discrete and not continuous.



determined by some other (unobserved or unobservable) individual characteristic. Without observing this characteristic, we cannot tell whether correlation between  $h_0$  and  $w_T$  is due to the mechanisms described in our model, or those described in the alternative. Luckily, it is possible to distinguish these two models by examining additional predictions of the alternative model. First, while the alternative model predicts positive correlation between  $h_0$  and  $w_0$ , our model does not require these variables to be correlated. Second, if the unobserved characteristic is time-invariant, then the magnitude of the correlation between  $h_0$  and  $w_T + j$  should be constant as  $j$  increases. In other words, if we extend the search period from  $T$  to  $T + j$ , observing wages at period  $T$  and again at period  $T + J$ , then the alternative model states that  $h_0$  will have the same predictive power on  $w_T + j$  as on  $w_T$ . In the case of the model presented above, however, increasing the length of the search period decreases the importance of initial conditions (i.e., initial conditions would not matter all if  $T = \infty$ ).<sup>12</sup>

In the next section, we outline our empirical strategy for identifying the conditional correlation between initial housing search conditions and later labour market outcomes as well as our methods for distinguishing between these two models.

### 3 METHODOLOGY

#### 3.1 *Empirical strategy*

The aim of the empirical exercise is to estimate the relationship between initial housing search conditions and labour outcomes such as wages and employment. As discussed above, we expect that better initial housing search

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<sup>12</sup> This prediction holds even if the unobserved characteristic determines  $h_0$  but not  $w_0$

conditions ( $h_o$ ) will reduce the opportunity cost of searching for a job. In turn, this may increase job search effort and thereby improve labour outcome. We expect this relationship to be more evident among less-skilled immigrants than among more-skilled immigrants. To examine this empirically, we first separate the sample into immigrants whose educational attainment is below a foreign-earned bachelor's degree and immigrants whose educational attainment includes a foreign bachelor's degree or higher, and we then estimate the following equation using OLS:

$$Y_{it} = \alpha_0 + \alpha_1 HOME_{i0} + X'_{i0}\beta_1 + X'_{it}\beta_2 + PROV'_{i0}\gamma + MONTH'_{i0}\delta + \nu_{it} \quad (8)$$

where  $Y_{it}$  represents the outcome of interest for individual  $i$  at time  $t$ . The labour market outcomes we consider are employment (in which case we estimate a Linear Probability Model) and hourly wages (six months, two years, and four years after arrival). The variable  $HOME_{i0}$  represents the degree to which individual  $i$  has disadvantageous housing search conditions at time 0, i.e., before immigrating to Canada. It is the analogue to a low  $h_o$  from the analytical model. Controls for characteristics at the time of landing—such as sex, age at landing (and its square), immigration class, visible minority status, years of foreign education (and its square), prior language training, employment history, presence of social and familial networks in Canada, and wealth at the time of landing—are included in the matrix  $X_{i0}$ . Controls for other time-variant observable characteristics, including marital status, household size (and its square), and number of official language speakers in the household, are included in the matrix  $X_{it}$ . To address any regional or seasonal effects, we include province-of-landing and month-of-landing fixed effects, denoted by  $PROV_{i0}$  and  $MONTH_{i0}$ .<sup>13</sup> The disturbance term  $\nu_{it}$  represents a time-variant

<sup>13</sup> See Table 2 for a complete list of right hand side variables

error term. To reflect the survey design stratifications as well as any additional regional and seasonal heterogeneity in labour and housing markets, all standard errors are clustered by Census Metropolitan Area (CMA) and month of landing.<sup>14</sup>

Our main variable of interest is  $HOME_{i0}$ . Its coefficient  $\alpha_1$  is the main parameter to be estimated. The first main hypothesis of the model is that  $\alpha_1$  should be negative; decreasing initial housing search conditions increases the opportunity cost of the job search and therefore negatively impacts labour outcomes. Hence, we will formally test the null hypothesis that  $\alpha_1 \geq 0$ . Note that this is a one-tailed test. The second main prediction is that the magnitude of  $\alpha_1$  will be greater for immigrants without a bachelor's degree than for immigrants with a bachelor's degree or higher, or  $\alpha_1^{unskilled} > \alpha_1^{skilled}$ . It is important to keep in mind that our measure of housing search conditions should ideally match how well the immigrant's outside housing option matches his or her preferences and constraints. It is not a measure of overall housing quality. That is, a crowded home in a poor neighbourhood, which may be considered "low-quality" by standard metrics, may yet be a high-quality match for some immigrants given their constraints. If a continuous measure of match-quality of the outside housing option is unavailable, a variable that captures the presence of an outside housing option will be sufficient. Equation (8) will yield unbiased estimates of the effect of initial housing conditions on future labour market performance if  $HOME_{i0}$  is uncorrelated with  $v_{it}$ . This might be a strong assumption, since whether or not a person arranges a house prior to immigrating could be correlated with other variables that influence a person's employment status. To reduce the risk of this, our estimation strategy controls

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<sup>14</sup> All statistics reported in this paper are generated using sample weights provided by Statistics Canada. For more information on the LSIC's survey design and the construction of the sample weights, please see the Section 8.1 of the Data Appendix.

for several observable characteristics such as demographics, education, language, work experience, household size, and initial wealth.

As discussed in Section 2.2, a major concern is that  $HOME_{it}$  is still correlated with an unobserved individual characteristic that is absorbed by the disturbance term  $v_{it}$ , even when we condition on all regressors included above. This would be the case if, for example, the unobserved characteristic was motivation or general talent in searching. Under this scenario, a testable prediction is that  $HOME_{it}$  will be correlated with other precautionary behavior prior to immigrating, such as  $JOB_{it}$ . If this unobserved personal characteristic is time-invariant, then we also would expect that  $\alpha_1^t = \alpha_1^{t+j}$ , where superscripts indicate the time at which the dependent variable is observed. In other words, if the initial conditions in the housing search are correlated with any time-invariant unobserved personal characteristics, then the coefficient on  $HOME_{it}$  will be invariant to changes in the timing of the dependent variable. Testing this prediction will require that we can observe labour outcomes at multiple points in time after the immigrant arrives. The Longitudinal Survey of Immigrants to Canada (LSIC) meets this and many other data requirements, and we describe the data set below.

### 3.2 Data

Our primary data source is the Longitudinal Survey of Immigrants to Canada.<sup>15</sup> The LSIC sample is somewhat small—7,716 observations—although its weights ensure it is *representative* of the 169,400 individuals who arrived in Canada from abroad between October 1, 2000 and September 30, 2001 and were age 15 or older at the time of landing.<sup>16</sup>

<sup>15</sup> The discussion about the LSIC that follows is informed by the document "Microdata User Guide: Longitudinal Survey of Immigrants to Canada, Wave 3", publicly available on the Statistics Canada website.

<sup>16</sup> Reporting the actual number of observations poses a risk of compromising the anonymity of survey participants, and Statistics Canada requires that we report instead the weighted number of observations.

Respondents were interviewed six months, two years, and four years after arriving, with the corresponding data sets called Waves 1, 2, and 3. The survey collects abundant information on respondents' lives before, during, and after they immigrated to Canada. It also features detailed characteristics of each home occupied by the immigrant, including a unique code for the respondent's neighbourhood.<sup>17</sup> The sample in our study includes all respondents over 25 who were present 4 years after immigrating, except for those with missing values for any of the variables used in our main estimation of the probability of employment. After dropping those with missing values, our main sample represents 151,482 immigrants, or about 89% of the original sample. Note that people who applied for permanent residency from within Canada, for example those who resided in Canada on temporary work or student visas, are excluded from the LSIC.

Despite its relatively small sample size, the LSIC has several features that make it the ideal data set for our study. First, it has extremely detailed information about immigrants' settlement process, including the time prior to their arrival (time 0 in our analytical framework as well as our estimation strategy), and the first few months and years after landing. This kind of information is unavailable in other surveys such as the Census. The LSIC is also unique in that it allows us to identify each respondent's immigrant class, which is an important source of heterogeneity among immigrants to Canada. Finally, using the LSIC allows us to avoid a common challenge of many studies

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Standard errors are calculated using the unweighted observation count.

17 The neighbourhood codes refer to the respondent's residential Dissemination Area (DA). DAs are administrative geographical units representing the area that a single census-taker could cover during the collection period. Within an urban area, the DA usually includes about 400 households and is the smallest geographical area for which Statistics Canada releases aggregate statistics. These statistics are released as the "Profile for Canada, Provinces, Territories, Census Divisions, Census Subdivisions and Dissemination Areas, 2001 Census", which is available under Statistics Canada's Data Liberation Initiative. To obtain neighbourhood characteristics associated with each respondent's home, we link the LSIC records with neighbourhood profiles from the 2001 Canadian Census.

of immigrant integration: choosing an appropriate comparison group from the native-born population (Hum and Simpson 2004). Instead, the LSIC permits us to identify patterns of economic integration off variation between different groups of immigrants.

Descriptive statistics for the outcome and control variables appear in Tables 1 and 2, respectively. Motivated by Section 2.2, we consider immigrants without foreign-earned bachelor's degrees (lower  $\theta$  in the context of the model) and immigrants with foreign bachelor's degrees (higher  $\theta$ ) separately. For both immigrant types, the outcomes we are interested in fit into two classifications: labour market and housing market outcomes. Of the former, we consider not only indicators for whether or not the respondent was employed six months, two years, and four years after arriving, but also the hourly wage at the respondent's first job. Perhaps not surprisingly, both skilled and unskilled immigrants display relatively low levels of employment and low hourly wages initially. Only 52.6% of unskilled immigrants are employed six months after arriving in Canada; skilled immigrants do somewhat better, with 63.5% employed, although this figure is still quite low. Despite their higher employment rates six months after landing, skilled immigrants take on average about nine more days to find their first job. Over time both skilled and unskilled immigrants experience substantial increases in employment rates, with 88.1% of skilled immigrants and 78.3% of unskilled immigrants employed within 4 years of landing. Not surprisingly, the average wage at the first job of skilled immigrants is almost three dollars higher per hour than that of unskilled immigrants.

Among the outcomes associated with new immigrants' search for housing, we consider an indicator for whether the respondent described the search as difficult, how many times the respondent moved during the first six months,

and an indicator for whether housing constitutes more than 30% of the total household budget. In addition, we consider the number of people per bedroom, a common measure of crowding, as well as the neighbourhood's unemployment and poverty rates. Somewhat surprisingly, skilled immigrants appear to be worse off in nearly all of these metrics. They are much more likely to report difficulty in their housing search, move more during the first six months, and are more likely to devote more than 30% of their household budget to housing. These differences could reflect differences in access to social and familial networks between skilled and unskilled immigrants, who are more likely to be family-class immigrants. Another possibility is that skilled immigrants initially sort into lower quality homes with the intention of moving into a more desirable home after establishing themselves financially.<sup>18</sup>

Our measure of initial housing conditions,  $h_0$  in the model and  $HOME_0$  in the equation (8), is an indicator equal to 1 if the immigrant did not arrange housing before arriving in Canada and 0 otherwise. Thus, we interpret not arranging housing before immigrating as indicating a low  $h_0$ , since it corresponds with the immigrant not having any outside housing option. We view this indicator as preferable to price or other direct housing characteristics because it frees us from having to infer the *match* quality of a specific person-home datum from a general measure of housing quality. For similar reasons, our measure of initial job search conditions is an indicator for not arranging a job before immigrating. Table 2 presents descriptive statistics for all the independent variables included in our main regressions except for province and month of landing indicators. For both skilled and unskilled immigrants, the likelihood of arriving in Canada without pre-arranged housing is surprisingly high. For both types, just under 1 out of 5 of the immigrants sur-

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<sup>18</sup> See Hiebert (2009) for a good treatment of this hypothesis.

veyed reported that they did not arrange housing before arriving in Canada. In contrast, as many as 92.9% of unskilled immigrants and 91.7% of skilled immigrants arrived in Canada without a job arranged.

An obvious question is where people stay when they do not arrange a home before immigrating. Table 3 shows the kinds of homes immigrants first lived in depending on whether or not they arranged housing before immigrating. Immigrants who do not arrange their homes before arriving in Canada are much more likely than those who do arrange their homes to stay in hotels, motels, or temporary shelters for refugees. About 9% of people who do not arrange their housing before immigrating initially settle in a hotel or motel, and about 7% settle in temporary housing for refugees. For those who arrange their homes, these figures are only 3.4% and 3.2%, respectively. In addition, non-arrangers are much less likely than arrangers to have their first home belong to a friend, relative (other than parents in-law), or employer. This suggests that those who do not arrange their home before immigrating have less access to social and familial networks than those who arrange homes, and this will be an important consideration in our regression analysis. For both arrangers and non-arrangers, the first home is overwhelmingly their own or the home of their in-laws. In fact, those who did not arrange a home were about 4% more likely to have their first home be their own or their in-laws. It is unfortunate that the data do not let the researcher disaggregate this category. We can, however, imagine a plausible explanation for the reason why non-arrangers are more likely to have their first home be their own or their in-laws'. People who arrange their first home before arriving have a home immediately upon landing, and for many (about 30%) it appears to be the home of a friend, employer, or other relative. On the other hand, while non-arrangers may take longer to find a home, their first home is more



likely to be their own since they have less access to social and familial networks. Again, this will make it important to include controls for social and familial networks in our regressions, and will also require us to be careful in our interpretation of the results.

## 4 MAIN RESULTS

In Section 2.2, we showed that poor initial housing search conditions,  $h_0$ , worsen expected labour outcomes and that this effect is decreasing in skill. In Section 3.1, we justified the use of an indicator for not having pre-arranged a home before immigrating as a measure of  $h_0$ , and we predicted that the point estimate on this variable will be negative in regressions estimating labour outcomes such as being employed and wages. In this case, we would interpret the results as signifying the presence of (at least temporary) spillovers between the housing search and the job search. Finally, we predicted that these spillovers would be larger in magnitude for unskilled immigrants than for skilled immigrants. Our main empirical concern is that estimated coefficients may reflect unobserved personal characteristics (such as motivation or non-market-specific talent at searching), and we discussed testable implications of this scenario. In this section we present results from our econometric analysis, discuss possible interpretations of these results, and then address empirically the possibility of omitted variables bias.

We begin by presenting Linear Probability estimates of employment and OLS estimates of log hourly wages for unskilled and skilled immigrants in Table 4. The reference period for both outcome variables is approximately six months after landing. The left-hand panel shows results calculated over the sample of immigrants whose foreign educational attainment was less than a bachelor's degree; the right-hand panel shows results for those whose foreign

educational attainment was a bachelor's degree or higher. Odd-numbered columns show results from a sparse specification that includes only the indicator for arranged housing, immigrant class, province indicators, and month-of-landing indicators. Even-numbered columns add controls for other personal characteristics including age, educational background, language skills, foreign work experience, household characteristics, financial resources, and availability of social networks. Standard errors are clustered by month- and city-of-arrival. Our objective is to estimate the differences in labour market outcomes between those who arranged a house and those who did not.

Table 4 demonstrates that the data are consistent with the predictions of the model. Beginning with unskilled immigrants (left panel), not having a pre-arranged home is conditionally correlated with lower probability of employment six months after landing as well as lower wages for those who are employed six months after landing. While the signs of the estimates in the employment regressions are consistent with our predictions, these estimates are somewhat imprecise. Our sparsest specification (column 1), which only contains controls for immigrant class, month of landing, and province of landing, shows that unskilled immigrants who did not arrange a home before landing are estimated to be 4.4% less likely to be employed after six months than those who did arrange their homes.<sup>19</sup> This estimate is significant at the 10% error level.<sup>20</sup> The magnitude of the estimates diminishes by almost a third and becomes quite imprecise, however, when we move to the fully-loaded specification (column 2), which adds controls for foreign education, age, family structure, wealth at the time of landing, and presence of social networks. Estimates in the log wage regressions, on the other hand,

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19 The conditional mean probability of employment in this regression is 37.1%.

20 Significance test results are based on critical values for a one-tailed test.

are robust across specifications and always statistically significant. In our sparsest specification (column 3), the estimated loss in wages associated with not having a home pre-arranged is 8% and significant at the 5% error level. In our fully-loaded specification (column 4), unskilled immigrants who do not have pre-arranged housing earn conditional wages that are 7.4% less than unskilled immigrants who do arrive with housing arranged. These estimates are significant at the 5% error level. How big are the differences? The conditional mean hourly wage for unskilled immigrants is estimated in column 4 to be about \$8.53. Thus, unskilled immigrants who do not have housing arranged before coming to Canada earn about \$0.60 less per hour, or just under \$600 during the first six months in Canada.<sup>21</sup>

Moving next to results for skilled (right panel) immigrants, we see that the estimated coefficients for not arranging housing, although negative as we would predict, are quite imprecise when predicting employment. As in the case with unskilled immigrants, however, the estimates from the log wage regression are more robust. Skilled immigrants who do not have pre-arranged housing earn conditional wages that are 5.1% (in our sparse specification) to 4.7% (in our fully loaded specification) less than skilled immigrants who do arrive with housing arranged. These estimates are statistically significant at the 10% and 5% error level, respectively.

Finally, the magnitudes of the point estimates on not pre-arranging housing for skilled immigrants relative to unskilled immigrants are consistent with the model's prediction that unskilled immigrants would be more sensitive than skilled immigrants to unfavorable initial housing conditions. For example, the estimated conditional wage loss for unskilled immigrants who did not pre-arrange their homes is 1.57 times greater in magnitude than the corre-

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<sup>21</sup> Assuming both groups work 40 hours a week with no vacation time.

sponding estimate for skilled immigrants.<sup>22</sup> Similarly, point estimates from the employment regressions are larger for unskilled immigrants than they are for skilled immigrants, although little confidence should be put into this relationship due to the imprecision of the estimates.

We take the results from Table 4 as suggestive of a systematic relationship in which an initial disadvantage in the search for housing (not having a home arranged before immigrating) has negative spillover effects into recent immigrants' job search and labour market outcomes six months after landing in Canada. This relationship is for unskilled immigrants than it is for skilled immigrants, in line with a model where skilled immigrants have a higher opportunity cost of searching for a better housing match. The fully loaded regressions, which are our preferred estimates, can rule out a number of possible sources of bias in our estimated coefficients on not pre-arranging a home. Our results are robust to controlling for a rich set of personal characteristics, including immigrant class, education, language skills, and work history, as well as measures of familial and social networks and financial resources. Point estimates remain relatively precise even when we add a large number of control variables to an already small sample.<sup>23</sup>

We now turn to the possibility that our results are driven by omitted variables bias and provide two arguments why this omitted variables bias may not be an issue in the LSIC data. First, we hypothesized that if there were a time-invariant or transitory unobserved variable driving both immigrants' prudence in the housing search as well as their observed wages six months after arriving (such as talent, motivation, or other differences in availability of resources), then that unobserved variable would also determine whether

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22 This is true when comparing point estimates in the sparse specifications (3 and 7) as well as the fully loaded specifications (4 and 8).

23 Recall that the total unweighted sample of all immigrants in the LSIC is only 7,716.

the person took other anticipatory steps before immigrating. In other words, if our estimates are actually picking up the difference between more and less ambitious immigrants (or the difference between immigrants with stronger or weaker access to search tools), rather than a spillover from the housing search into the job search, then we would expect that unobserved ambition, talent, or difference in means to influence other precautionary behavior as well. If that were the case, arranging a home would be correlated with other anticipatory actions like arranging a job or checking that one's foreign credentials would be recognized in Canada. Table 5 provides some evidence that the connection between not arranging a home and other precautionary behavior is extremely weak.

For both skilled and unskilled immigrants, the correlation between not arranging a home and not arranging a job is positive and very small. For unskilled immigrants, the conditional correlation coefficient is 0.026 when controlling only for immigrant class, province, and month of landing (column 1). Although statistically significant at the 10% error level, such a small correlation coefficient has little practical significance. When using our full set of control variables (column 2), the point estimate shrinks by almost 40% and is no longer statistically significant. Furthermore, for unskilled immigrants, the conditional correlation between not arranging a home and checking whether foreign credentials would be recognized is small (-0.032) and statistically insignificant in both specifications. Results on the correlation between not arranging a home and not arranging a job for skilled immigrants are somewhat more precise than for unskilled immigrants (reflecting the larger sample size), but they are similarly small in magnitude (0.030 in the sparse specification and 0.023 in the full specification). For skilled immigrants, the correlation between not arranging a home and checking whether credentials will be recog-

nized is very small and statistically insignificant, as was the case for unskilled immigrants. Whether or not a person arranges a house, therefore, appears to have at most a weak statistical relationship with at least two other types of precautionary behavior. We interpret this as suggestive that a transient or permanent unobservable characteristic such as resource availability or motivation is not likely to be driving both initial housing conditions and also future labour market outcomes.<sup>24</sup>

If the estimates in Table 4 were driven by unobserved time-invariant heterogeneity, then we would expect the measure of initial housing conditions to have the same predictive power when estimating labour market outcomes years into the future. Figure 4 and Figure 5 plot the point estimates for not arranging a home on employment status and log hourly wages, respectively, for unskilled immigrants six months, 2 years, and 4 years after arrival. In both cases, point estimates are from our fully loaded regressions.<sup>25</sup> In both figures, the magnitude of the estimated coefficients associates with not arranging home trends to 0 over time. These estimates are imprecise in all years for the employment regressions, although they are somewhat more precise in the log wage regressions. We interpret this as further evidence against the claim that our main results are (at least entirely) driven by a time-invariant omitted variable bias: the predictive power of pre-arranging a home on labour market outcomes converges toward zero over time.

Unfavorable conditions in the housing search, prior to immigrating, are also associated with unfavourable housing outcomes soon after arrival. Table 6 shows the results from estimating a series of housing outcomes using our full

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<sup>24</sup> This exercise does not rule out the case where an unobservable characteristic determines initial housing conditions as well as labour market outcomes, but does not affect other precautionary behavior. This could happen, for example, if motivated new immigrants are constrained from arranging a job or checking credentials but not from arranging a house.

<sup>25</sup> See Appendix Tables A.1 and A.2 for the two-year and four-year regressions.

specification over the sample of unskilled immigrants. Immigrants who did not arrange housing before immigrating were 11.3 percentage points more likely to report that they experienced difficulty in their search for housing (column 1) and moved on average 0.061 more times within their first six months than those who did arrange for a home before immigrating (column 2). These point estimates are significant at the 1% and 10% error level, respectively, although we do not attach much practical significance to the point estimate in column 2. While columns 1 and 2 have more to do with the quality of the housing match, columns 3 to 6 give the relationship between arranging a home before immigrating and more objective measures of housing and neighbourhood quality. Unskilled immigrants who do not arrange a home settle in poorer neighbourhoods (column 3) and are more likely to spend a large share of their budget on housing. So, we see some evidence that not arranging a home makes the housing search more difficult and leads to eventual first homes that demand a larger budget share and are in poorer neighbourhoods.<sup>26</sup>

## 5 CONCLUSION

A great deal of effort has gone into understanding recent immigrants' integration into the labour market of their new country. An important question has been how quickly immigrants' earnings and employment rates converge with the rest of the population, if at all, and how paths toward convergence vary across different types of immigrants. A related area of study has tracked immigrants' integration into the housing market and the challenges many immigrants face in finding appropriate housing for their needs. The literature that considers the relationship between housing and labour outcomes has

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<sup>26</sup> Results for skilled immigrants appear in Table A.3 in the Appendix. In general, the results are similar, but the magnitudes of the estimates are smaller. A notable exception is that skilled immigrants who do not arrange a home before arriving in Canada eventually settle in homes that are slightly more crowded.

focused primarily on the effect of living in an enclave on employment and wages. This paper extends the literature on housing and economic integration by considering how the conditions under which a new immigrant searches for a home might generate frictions in the contemporaneous search for a job.

Our empirical investigation uses data from the Longitudinal Survey of Immigrants to Canada (LSIC), which has extensive information on immigrants' settlement process, from the period before immigrating to four years after they landed in Canada. As a measure of the initial conditions characterizing immigrants' housing search, we use an indicator for whether or not the immigrant had a home arranged before immigrating. We choose this variable because it is more likely to indicate initial conditions than housing outcome variables like price or number of bedrooms, which may just reflect variation in preferences and budget constraints. Within the context of a search model, having a house arranged has the natural interpretation as having a better outside option and, therefore, a lower opportunity cost associated with searching for a job. We anticipate that opportunity cost of searching for a home (instead of a job) is higher for skilled immigrants than for unskilled immigrants, implying that skilled immigrants should be less sensitive to differences in initial housing conditions.

We find that unskilled immigrants who did not arrange for housing before arriving in Canada earn about 7% less than those who did arrange for housing before immigrating, although the corresponding statistic for skilled immigrants is smaller in magnitude and imprecise. For both skilled and unskilled immigrants, the difference between those who arranged housing and those who did not shows a clear trend toward 0 over the four years respondents are surveyed. We interpret these findings as evidence that, in the short



term, a costly house search may hinder immigrant's ability to search for a job and worsen their labour outcomes.

An important caveat to this interpretation is that our findings could be driven by unobserved personal characteristics that are correlated with arranging a home before immigrating and labour outcomes after immigrating. While we cannot rule out this possibility of omitted variables bias, we provide suggestive evidence that such mechanisms are not driving our results. First, we show that pre-arranging housing is uncorrelated with other precautionary behavior, such as pre-arranging a job or checking that foreign credentials will be recognized in Canada. Second, our result that the predictive power of initial housing search conditions for labour market outcomes diminishes over time is contrary to the time-invariant omitted variable story. At the same time, we cannot assign a causal interpretation to our findings without experimental or quasi-experimental data. Our findings call for further research into search spillovers in immigrants' initial settlement process and a cost-benefit analysis of programs to aid settlement if indeed such spillovers can be shown to exist in an experimental or quasi-experimental context.

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## 6 TABLES

TABLE 1: DESCRIPTIVE STATISTICS FOR DEPENDENT VARIABLES

	VARIABLE TYPE	NO FOREIGN		FOREIGN	
		BACHELOR	DEGREE	BACHELOR	DEGREE
Employed (6 mos.)	binary	0.526		0.635	
		(0.016)		(0.017)	
Employed (2 yrs.)	binary	0.744		0.824	
		(0.014)		(0.015)	
Employed (4 yrs.)	binary	0.783		0.881	
		(0.012)		(0.011)	
Days until first job	continuous	67.277		76.420	
		(3.284)		(2.141)	
Hourly wage	continuous	11.270		14.121	
		(0.449)		(0.378)	
Difficulty finding first home	binary	0.755		0.868	
		(0.011)		(0.008)	
Number of homes in first 6 months	continuous	1.522		1.669	
		(0.020)		(0.015)	
Budget share of housing $\geq$ 30%	binary	0.507		0.632	
		(0.018)		(0.016)	
People per bedroom	continuous	1.768		1.857	
		(0.032)		(0.022)	
Neighbourhood unemployment rate	continuous	8.886		8.835	
		(0.291)		(0.214)	
Neighbourhood percent below LICO	continuous	26.511		27.471	
		(0.896)		(0.691)	
Weighted Observations		43,206		108,276	

Sample includes all immigrants at least 25 years old who arrived in Canada between October 1 2000 and September 31 2001 without missing values. All means are calculated using sample weights from Statistics Canada. Standard errors appear in parentheses and account for the survey design.

TABLE 2: DESCRIPTIVE STATISTICS FOR INDEPENDENT VARIABLES

	VARIABLE TYPE	NO FOREIGN BACHELOR DEGREE	FOREIGN BACHELOR DEGREE
Did not pre-arrange housing	binary	0.189 (0.015)	0.192 (0.010)
Did not pre-arrange job	binary	0.929 (0.009)	0.917 (0.009)
Planned to work	binary	0.874 (0.009)	0.962 (0.005)
Economic Class	binary	0.544 (0.016)	0.874 (0.008)
Refugee Class	binary	0.104 (0.009)	0.013 (0.002)
Spouse of PA	binary	0.343 (0.012)	0.254 (0.009)
Dependent of PA	binary	Supressed	
Visible Minority	binary	0.735 (0.019)	0.785 (0.013)
Age†	continuous	39.398 (0.404)	35.930 (0.169)
Male	binary	0.501 (0.014)	0.600 (0.012)
Years of Education†	continuous	13.208 (0.093)	17.049 (0.083)
Ed. in official lang. only	binary	0.395 (0.015)	0.481 (0.011)
Ed. in official & non-official lang.	binary	0.072 (0.008)	0.062 (0.005)
Ed. in non-official lang. only	binary	0.532 (0.016)	0.457 (0.011)
Worked full-time	binary	0.936 (0.008)	0.963 (0.005)
Married	binary	0.854 (0.009)	0.862 (0.009)
Has a spouse who works	binary	0.477 (0.015)	0.464 (0.015)

**TABLE 2: DESCRIPTIVE STATISTICS FOR INDEPENDENT VARIABLES (CONTINUED)**

	VARIABLE TYPE	NO FOREIGN BACHELOR DEGREE	FOREIGN BACHELOR DEGREE
Household size†	continuous	3.539 (0.059)	3.168 (0.038)
Num. children under 18	continuous	0.858 (0.028)	0.887 (0.021)
Num. official lang. speakers	continuous	0.329 (0.015)	0.137 (0.009)
Joined family or close friend	binary	2.560	2.172 (0.069)
Num. family members in Can.	binary	0.595	0.306 (0.038)
Money brought to Can. (\$1000s)	continuous	3.006	2.849 (0.228)
Money in other country (\$1000s)	continuous	1.092	1.119 (0.166)
Weighted Observations	43,206	108,276	

Sample includes all immigrants at least 25 years old who arrived in Canada between October 1 2000 and September 31 2001 without missing values. All means are calculated using sample weights from Statistics Canada. Standard errors appear in parentheses and account for the survey design.

† Indicates the variable always appears in regressions with its square.eyedropper

**TABLE 3: PRE-ARRANGED HOUSING AND IMMIGRANTS' FIRST RESIDENCE**

FIRST RESIDENCE WAS:	HOUSING WAS PRE-ARRANGED	HOUSING WAS NOT PRE-ARRANGED
Own home or home of in-laws	0.605	0.641
Home of a friend or employer	0.199	0.138
Home of a relative	0.109	0.028
Hotel or Motel	0.034	0.088
Temporary housing for immigrants or refugees	0.032	0.073
Other	0.021	0.033
Total	1.000	1.000

Sample includes all immigrants at least 25 years old who arrived in Canada between October 1 2000 and September 31 2001 without missing values. All means are calculated using sample weights from Statistics Canada.



**TABLE 4: PRE-ARRANGED HOUSING AND THE LABOUR MARKET 6 MONTHS AFTER IMMIGRATING**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	No FOREIGN BACHELOR'S DEGREE			FOREIGN BACHELOR'S DEGREE OR HIGHER				
	EMPLOYMENT	EMPLOYMENT	LOG HOURLY WAGES	LOG HOURLY WAGES	EMPLOYMENT	EMPLOYMENT	LOG HOURLY WAGES	LOG HOURLY WAGES
Did not pre-arrange housing	-0.044* (0.030)	-0.028 (0.030)	-0.080** (0.042)	-0.074** (0.035)	-0.014 (0.021)	-0.004 (0.021)	-0.051* (0.036)	-0.047** (0.028)
Immigrant Controls		Yes		Yes		Yes		Yes
Immigrant Class	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Province Indicators	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Month of landing	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-Squared	0.069	0.379	0.100	0.419	0.079	0.220	0.160	0.289
Weighted Observations	43206	43206	28901	28901	108276	108276	79660	79660

Sample includes all immigrants at least 25 years old who arrived in Canada between October 1 2000 and September 31 2001 without missing values. Employment is estimated using the Linear Probability Model, and log wages are estimated using OLS. All coefficients are calculated using sample weights from Statistics Canada. Standard errors appear in parentheses and are clustered by month of arrival and city. Significance stars are for the null hypothesis that coefficient associated with not having pre-arranged housing is greater than or equal to zero.

\*\*\*p < 0.01, \*\* p < 0.05, \*p < 0.1

TABLE 5: PRE-ARRANGED HOUSING AND OTHER PRECAUTIONARY BEHAVIOR

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	No FOREIGN BACHELOR'S DEGREE				FOREIGN BACHELOR'S DEGREE OR HIGHER			
	DID NOT PRE-ARRANGE A JOB	PRE-ARRANGE A JOB	CHECKED CREDENTIALS	CHECKED CREDENTIALS	DID NOT PRE-ARRANGE A JOB	PRE-ARRANGE A JOB	CHECKED CREDENTIALS	CHECKED CREDENTIALS
Did not pre-arrange housing	0.026* (0.018)	0.016 (0.017)	-0.032 (0.033)	-0.032 (0.033)	0.030** (0.014)	0.023* (0.014)	0.016 (0.025)	0.004 (0.023)
Immigrant Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Immigrant Class	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Province Indicators	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Month of landing	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-Squared	0.038	0.144	0.183	0.183	0.019	0.168	0.020	0.107
Weighted Observations	43206	43206	32079	32079	108276	108276	108182	108182

Sample includes all immigrants at least 25 years old who arrived in Canada between October 1 2000 and September 30 2001 without missing values. Estimates are from a Linear Probability Model. All coefficients are calculated using sample weights from Statistics Canada. Standard errors appear in parentheses and are clustered by month of arrival and city. Significance stars are for the null hypothesis that coefficient associated with not having pre-arranged housing is negative (for arranging a job) or positive (for checking credentials).

\*\*\* p < 0.01, \*\* p < 0.05, \* p < 0.1

TABLE 6: PRE-ARRANGED HOUSING AND HOUSING MATCH QUALITY AFTER 6 MONTHS, NO FOREIGN BACHELOR'S DEGREE

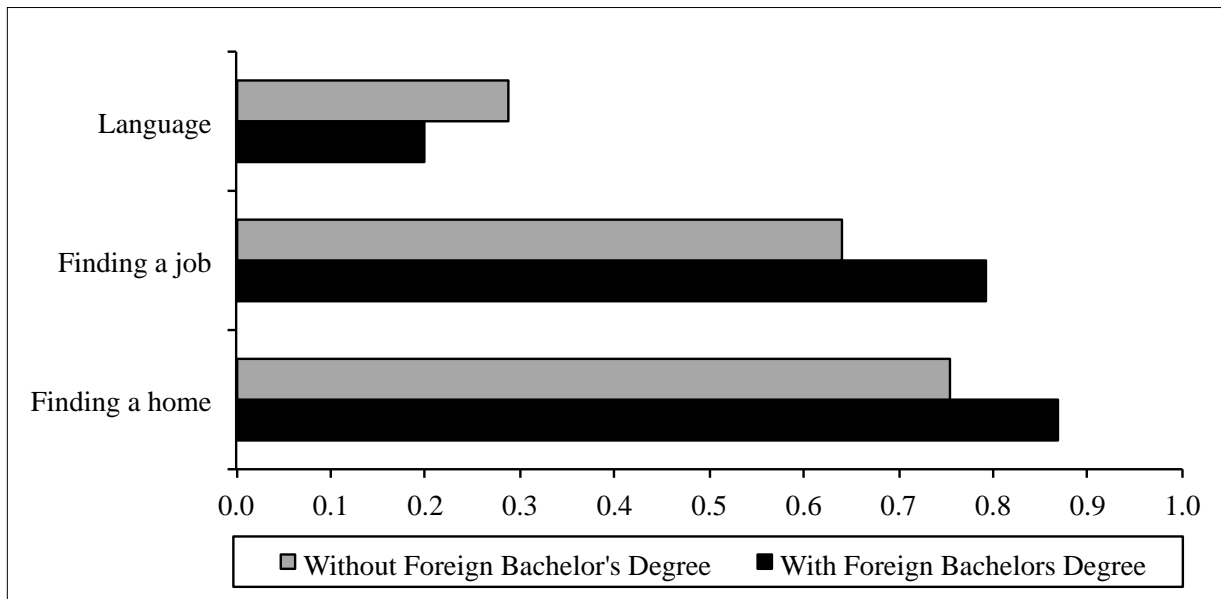
(1)	(2)	(3)	(4)	(5)	(6)	
DIFFICULT SEARCH	NUMBER OF HOMES IN FIRST 6 MONTHS	% ≤ LICO	% UNEMPLOYED	PEOPLE PER BEDROOM	BUDGET SHARE ≥ 30%	
Did not pre-arrange housing	0.113*** (0.021)	0.061* (0.039)	2.038** (1.210)	0.034 (0.520)	-0.036 (0.045)	0.054* (0.034)
R-Squared	0.359	0.175	0.241	0.166	0.314	0.306
Weighted Observations	43206	43206	42754	42754	43206	43206
Immigrant Controls	Yes	Yes	Yes	Yes	Yes	Yes
Immigrant Class	Yes	Yes	Yes	Yes	Yes	Yes
Province Indicators	Yes	Yes	Yes	Yes	Yes	Yes
Month of landing	Yes	Yes	Yes	Yes	Yes	Yes

Sample includes all immigrants at least 25 years old who arrived in Canada between October 1 2000 and September 30, 2001 without missing values. Estimates are from OLS regression. All coefficients are calculated using sample weights from Statistics Canada. Standard errors appear in parentheses and are clustered by month of arrival and city. Significance stars are for the null hypothesis that coefficient associated with not having pre-arranged housing is less than or equal to zero.

\*\*\* p < 0.01, \*\* p < 0.05, \* p < 0.1

## 7 FIGURES

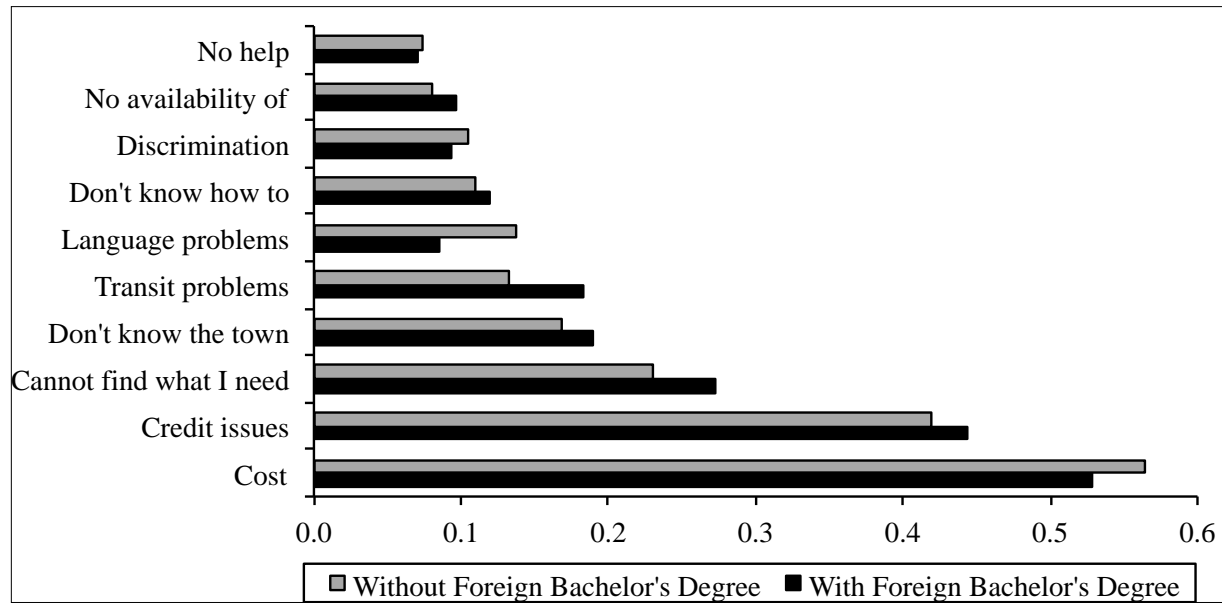
**FIGURE 1: MAIN CHALLENGES FACING RECENT IMMIGRANTS TO CANADA**



Source: LSIC Wave 3

Note: Categories on vertical axis are non-exclusive

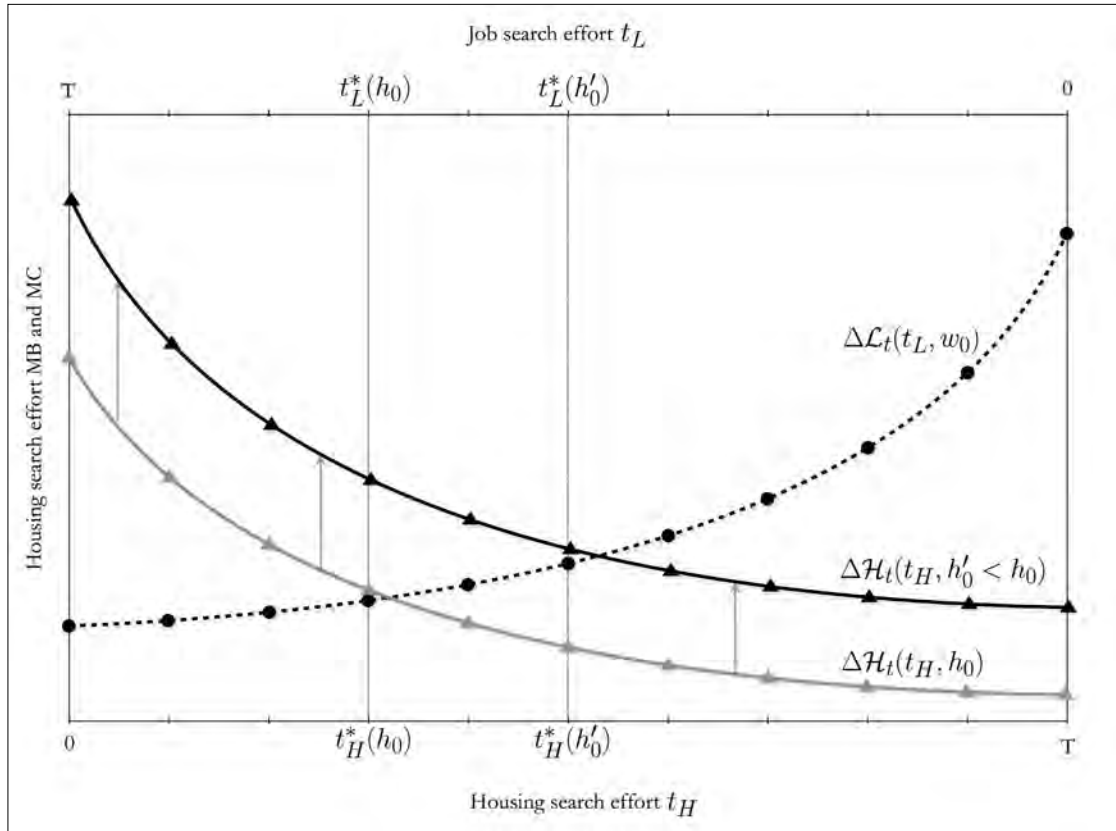
**FIGURE 2: MAIN HOUSING SEARCH DIFFICULTIES FOR RECENT IMMIGRANTS TO CANADA**



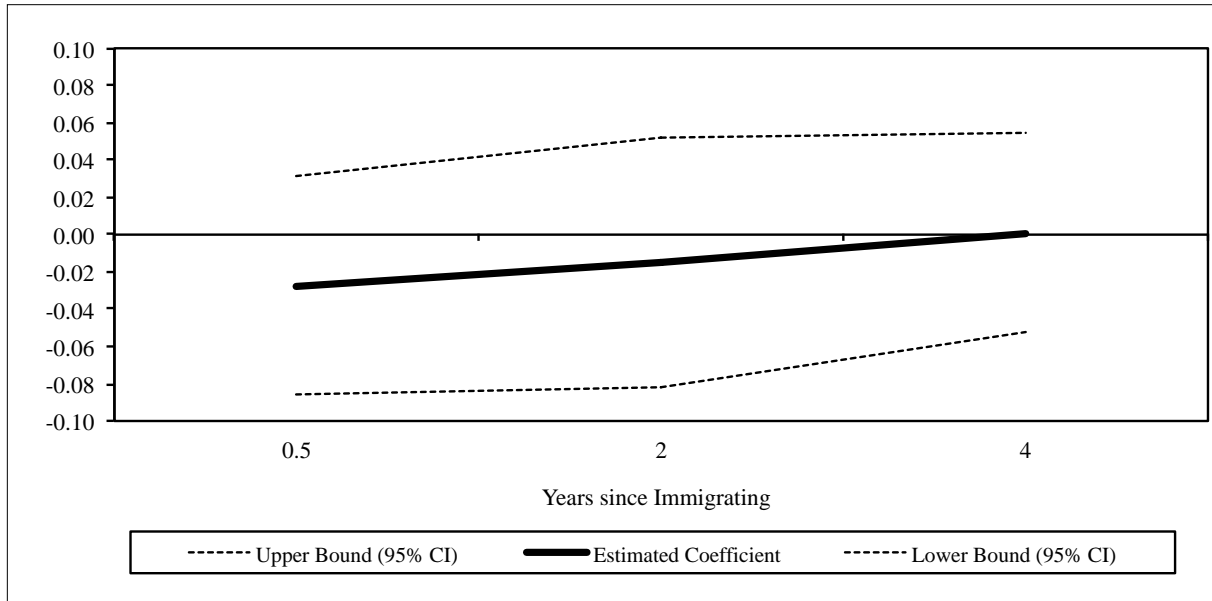
Source: LSIC Wave 3

Note: Categories on vertical axis are non-exclusive

FIGURE 3: THE EFFECT OF LOWERING  $h_0$  ON HOUSING AND LABOUR SEARCH EFFORT GIVEN  $\theta$



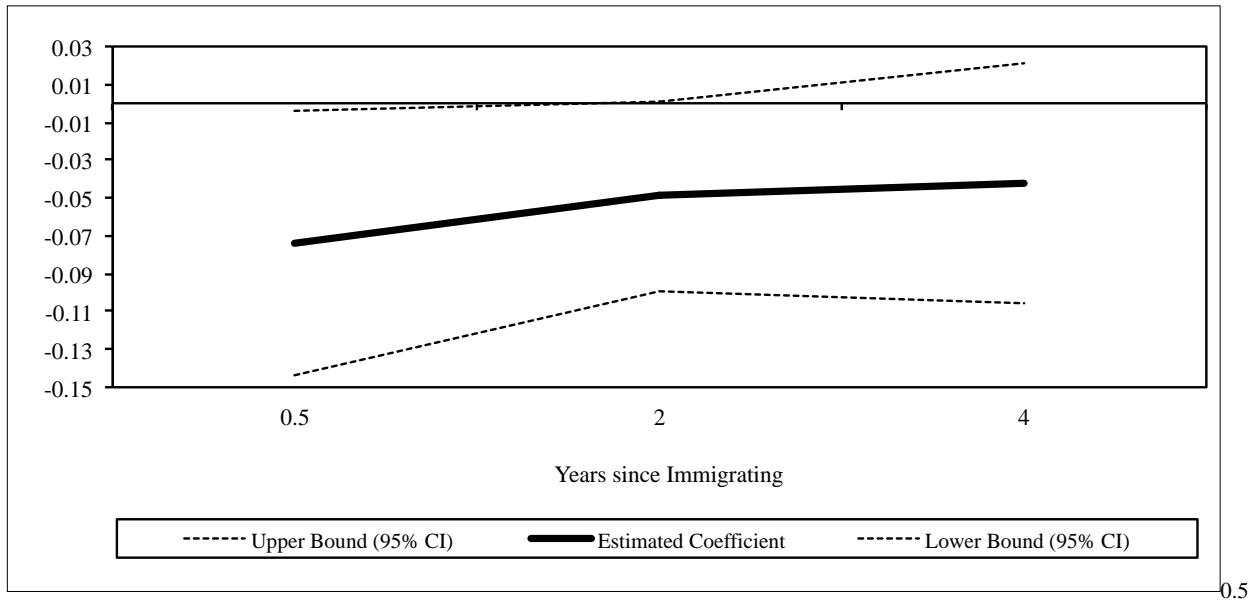
**FIGURE 4: NO ARRANGED HOUSING AND CONDITIONAL EMPLOYMENT, NON-ECONOMIC IMMIGRANTS**



Source: LSIC Wave 3

Note: Plotted regression coefficients are from even-numbered columns in Tables 3.4, A3.1, and A3.2

**FIGURE 5: NO ARRANGED HOUSING AND CONDITIONAL LOG WAGES, NON-ECONOMIC IMMIGRANTS**



Source: LSIC Wave 3

Note: Plotted regression coefficients are from even-numbered columns in Tables 3.4, A3.1, and A3.2



## 8 DATA APPENDIX

### 8.1 *Sampling and weighting*

To create the LSIC, new immigrants were selected based on probability sample theory from an administrative database of all landed immigrants to Canada, which was provided by Citizenship and Immigration Canada. The sampling was stratified first by month of entry and then by province and immigrant class (i.e., family class, economic-skilled, economic-business, government-sponsored refugees, other refugees, and other immigrants). Immigrants in the sample then participated in in-depth interviews approximately six months, two years, and four years after landing. Most of the interviews were conducted in person (68% during the six-month interviews, just over 50% during the two-year interviews, and 63% during the final interviews), while the remaining interviews were conducted over the telephone. The first interview lasted about 90 minutes, while the second and third interviews lasted about 65 minutes each. All interviews relied on computer assistance.

Overall, 12,040 individuals appeared in the original sample of those interviewed six months after arriving in Canada. Over the four-year survey period, 4,324 of the original respondents either left Canada or were unable to be traced for follow-up interviews. The 7,716 respondents who remained in the final sample were assigned probability weights to account for a complex survey design and possibly non-random attrition from the sample. Respondents who appear in the first or second waves of interviews, but not the third wave, are dropped from the final longitudinal data set. Therefore, the final sample should be thought of as representing only the population of immigrants who met the original selection criteria and also continued to reside in Canada four

years after landing. The sum of weights represents the estimated counts of those in the population of interest, which Statistics Canada estimates to be about 157,600 immigrants.

## 8.2 *Industry codes*

What was your past job before arriving in Canada? - Industry Sectors.

00 Could not be coded

01 Agriculture, Forestry, Fishing and Hunting

02 Mining and Oil and Gas Extraction

03 Utilities

04 Construction

05 Manufacturing

06 Wholesale Trade

07 Retail Trade

08 Transportation and Warehousing

09 Information and Cultural Industries

10 Finance and Insurance

11 Real Estate and Rental and Leasing

12 Professional, Scientific and Technical Services

13 Management of Companies and Enterprises

14 Administrative and Support, Waste Management and Remediation  
Services

15 Educational Services

16 Health Care and Social Assistance

17 Arts, Entertainment and Recreation

18 Accommodation and Food Services

19 Other Services (except Public Administration)

20 Public Administration

96 Valid skip

97 Don't know

98 Refused

99 Not stated

Coverage: Asked of LRs who had worked before coming to Canada.

Note: This variable was coded using the 1997 North American Industry Classification

System (NAICS - 1997).

## 9 APPENDIX TABLES

TABLE A.1: PRE-ARRANGED HOUSING AND THE LABOUR MARKET TWO YEARS AFTER IMMIGRATING

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	No FOREIGN BACHELOR'S DEGREE				FOREIGN BACHELOR'S DEGREE OR HIGHER			
	EMPLOYMENT		LOG HOURLY WAGES		EMPLOYMENT		LOG HOURLY WAGES	
Did not pre-arrange housing	-0.035 (0.034)	-0.015 (0.034)	-0.071** (0.034)	-0.049** (0.025)	0.001 (0.020)	-0.002 (0.019)	-0.015 (0.037)	-0.023 (0.030)
Immigrant Controls		Yes		Yes		Yes		Yes
Immigrant Class		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Province Indicators		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Month of landing		Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-Squared	0.069	0.379	0.100	0.419	0.079	0.220	0.160	0.289
Weighted Observations	43206	43206	28901	28901	108276	108276	79660	79660

Sample includes all immigrants at least 25 years old who arrived in Canada between October 1 2000 and September 30 2001 without missing values. Employment is estimated using the Linear Probability Model, and log wages are estimated using OLS. All coefficients are calculated using sample weights from Statistics Canada. Standard errors appear in parentheses and are clustered by month of arrival and city. Significance stars are for the null hypothesis that coefficient associated with not having pre-arranged housing is greater than or equal to zero.

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

**TABLE A.2: PRE-ARRANGED HOUSING AND THE LABOUR MARKET 4 YEARS AFTER IMMIGRATING**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	No FOREIGN BACHELOR'S DEGREE				FOREIGN BACHELOR'S DEGREE OR HIGHER			
	EMPLOYMENT	LOG HOURLY WAGES	EMPLOYMENT	LOG HOURLY WAGES	EMPLOYMENT	LOG HOURLY WAGES	EMPLOYMENT	LOG HOURLY WAGES
Did not pre-arrange housing	-0.003 (0.027)	0.001 (0.027)	-0.051* (0.034)	-0.042* (0.032)	-0.015 (0.021)	-0.015 (0.020)	-0.043** (0.024)	-0.062*** (0.021)
Immigrant Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Province Indicators	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Month of landing	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-Squared	0.074	0.386	0.098	0.394	0.066	0.200	0.120	0.250
Weighted Observations	43206	43206	29524	29524	108276	108276	83919	83919

Sample includes all immigrants at least 25 years old who arrived in Canada between October 1 2000 and September 30 2001 without missing values. Employment is estimated using the Linear Probability Model, and log wages are estimated using OLS. All coefficients are calculated using sample weights from Statistics Canada. Standard errors appear in parentheses and are clustered by month of arrival and city. Significance stars are for the null hypothesis that coefficient associated with not having pre-arranged housing is greater than or equal to zero. \*\*\* p < 0.01, \*\* p < 0.05, \*p < 0.1

**TABLE A.3: PRE-ARRANGED HOUSING AND HOUSING MATCH QUALITY AFTER 6 MONTHS, FOREIGN BACHELOR'S DEGREE OR HIGHER**

(1)	(2)	(3)	(4)	(5)	(6)
DIFFICULT SEARCH	NUMBER OF HOMES IN FIRST 6 MONTHS	% ≤ LICO	% UNEMPLOYED	PEOPLE PER BEDROOM	BUDGET SHARE ≥ 30%
Did not pre-arrange housing	0.084*** (0.012)	0.192 (1.138)	0.473* (0.360)	0.070** (0.034)	-0.001 (0.024)
R-Squared	0.272	0.179	0.141	0.289	0.262
Weighted Observations	108276	106885	106885	108276	108276
Immigrant Controls	Yes	Yes	Yes	Yes	Yes
Immigrant Class	Yes	Yes	Yes	Yes	Yes
Province Indicators	Yes	Yes	Yes	Yes	Yes
Month of landing	Yes	Yes	Yes	Yes	Yes

Sample includes all immigrants at least 25 years old who arrived in Canada between October 1 2000 and September 30, 2001 without missing values. Estimates are from OLS regression. All coefficients are calculated using sample weights from Statistics Canada. Standard errors appear in parentheses and are clustered by month of arrival and city. Significance stars are for the null hypothesis that coefficient associated with not having pre-arranged housing is less than or equal to zero. \*\*\*p < 0.01, \*\*p < 0.05, \*p < 0.1