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Asadul Islam · Paul A. Raschky

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Abstract Consistent estimates of the effect of immigrants' identity on labor market outcomes is complicated by the endogenous relationship between performance on the labor market and attitudes towards ethnic identity. This paper uses measures of genetic distance between immigrants' home and host countries as instruments for immigrants' identity. We find some evidence for adverse effects of home country identity on male immigrants' unemployment likelihood. Our results also suggest that a stronger host country identity only has a systematic effect on employment and job satisfaction. Overall, immigrants' identity appears to play only a negligible role in immigrants' labor market performance. Our analysis also shows the importance of accounting for endogeneity in the relationship between immigrants' ethnic identity and labor market outcomes.

Keywords Immigrants' identity · Labor market outcomes · Instrumental variables

JEL Classification F22 · J15 · J16 · Z10

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A. Islam · P. A. Raschky (✉)
Department of Economics, Monash University, 900 Dandenong Rd., Caulfield, VIC 3145, Australia
e-mail: paul.raschky@monash.edu

A. Islam
e-mail: asadul.islam@monash.edu

1 Introduction

In recent years, economics scholars have become increasingly interested in the effect of immigrants' ethnic identity¹ on economic outcomes. Apart from numerous theoretical contributions (e.g., Akerlof and Kranton (2000)), a number of empirical studies exist that analyze the relationship between immigrants' ethnic identity and labor market outcomes. Generally, these studies (e.g., Pendakur and Pendakur (2005), Constant and Zimmermann (2008), Casey and Dustmann (2010), Battu and Zenou (2010), and Bisin et al. (2011)) show that immigrants' acceptance or rejection of the dominant cultural norms of the host country can greatly influence their employment outcomes. A common problem in the empirical literature on identity and labor market outcomes is that causal interpretation of the results is hardly possible (Casey and Dustmann 2010). Employment is often found through informal networks and personal connections, and immigrants' ethnic identity may be seen as a very important vehicle to join ethnically based job networks. It is presumed that people who wish to be part of an ethnic social group usually place great importance on immigrants' ethnic identity, which also implies that they would prefer to work among people from the same ethnic group. However, this choice can be at the cost of accepting jobs with lower quality and with lower salaries. Alternatively, it could be possible that immigrants who are less successful on the labor market blame ethnic prejudices in the host country and find more individual identity in the ethnicity of their home countries.²

The objective in this paper is to provide causal estimates of the effect of immigrants' ethnic identity on labor market outcomes via an instrumental variable (IV) approach. We propose genetic distance (e.g., Spolaore and Wacziarg (2009a)) between the immigrants' home and host countries as an instrument for immigrants' ethnic identity. The identifying assumption is that genetic distance between the home and the host country should have no effect on labor market outcomes, except through immigrants' home and host country identity. We provide several pieces of evidence that support the validity of this identifying assumption. Specifically, we test whether genetic distance affects labor market outcomes through the initial migration choice of the immigrant by controlling for whether the respondent is a first or later generation immigrant. We further control for the racial background of the immigrant to cover potential discrimination on the labor market that is correlated with cultural distance. We also account for differences in language skills by controlling for educational attainment and language use. Finally, we check whether genetic distance has an impact on labor market success via (unobserved) capabilities that are related to the home countries' level of development and education.

¹In this paper, we use "immigrants' ethnic identity" to define how immigrants identify with the culture, beliefs, and values of their home and host countries. This follows the use of the concept "immigrant identity" as applied in the strand of literature that this paper relates to (e.g., Casey and Dustman 2010, Battu and Zenou 2010)

²For a more detailed discussion about the potential sources of endogeneity in the relationship between immigrants' ethnic identity and labor market outcomes, refer to (among others) Constant and Zimmermann (2008), Battu and Zenou (2010), Nekby and Rödin (2010), and Casey and Dustmann (2010).

We use data from the Canadian Equality, Security, and Community Survey (ESC), a two-wave survey conducted in 2000 and 2002. Using this Canadian survey data has two particular advantages for our analysis in general and for the identification strategy in particular. First, the survey has an extensive set of questions that allows us to create a number of different variables to measure immigrants' ethnic identity (Pendakur and Pendakur 2005). Second, compared to data from other countries used in the literature,³ this survey was able to interview immigrants from a large number of different countries. A large variation in immigrants' backgrounds is necessary for our instrumental variable approach because it relies on variation in cultural backgrounds in the respondents. Our sample consists of people with some immigrant background. This includes first-generation immigrants (respondents who were not born in Canada) as well as second-generation immigrants (respondents who were born in Canada but whose parents were not born in Canada).

We define immigrants' ethnic identity along two dimensions, *home country identity* and *host country identity*, and we construct two measures of the degree of an immigrant's home country identity (the stated importance of an immigrant's ethnic identity and membership in an ethnic organization) and one measure of an immigrant's host country identity (stated feeling of belonging to Canada). We then examine whether these measures of immigrants' ethnic identity systematically affect the labor market outcomes of immigrants using four indicators of labor market performance: wage, unemployment, finding employment through informal networks, and job satisfaction. To account for the potential endogeneity between our measures of immigrants' ethnic identity and labor market outcomes, we employ an (IV) approach.

The first stage results show that genetic distance is a strong predictor for immigrants' ethnic identity, even after controlling for geographic distance. In particular, immigrants from genetically more distant countries are more likely to consider their own ethnicity as important and are more likely to be members of an organization based on their national, ethnic, or racial background. Immigrants from genetically closer countries show a stronger feeling of belonging to Canada as compared to immigrants from genetically more distant countries. Our measure of genetic distance has no direct effect on labor market outcomes. We argue that cultural distance may have an impact on labor market outcomes at the extensive margin (selecting oneself into the Canadian labor market) but not at the intensive margin (actual outcomes for the Canadian labor market).

Our results do not provide strong evidence for the idea that immigrants' ethnic identity has an impact on immigrants' performance on the host country's labor market. There is some negative effect of a strong home country identity on unemployment likelihood. We find some systematic evidence that host country identity can have positive effects on labor market outcomes. Ethnic identity seems to mainly influence labor market outcomes of first-generation immigrants. However, most of

³A few studies, such as Constant and Zimmermann (2008) use data from the German Socio-Economic Panel (GSOEP) and the respondents with immigration background from a number of countries such as Turkey, Greece, Italy, Spain, and former Yugoslavia)

those effects disappear once we control for the racial background and the level of educational attainment in the respondents' countries or origin.

The remainder of the paper is structured as follows: Section 2 reviews the existing literature. Section 3 discusses the empirical strategy, while the data is presented in Section 4. Section 5 presents the results and Section 6 concludes.

2 Immigrants' ethnic identity and labor market outcomes

Akerlof and Kranton (2000) define identity as a person's sense of self or self image and "his or her identity is bound to social categories; and individuals identify with people in some categories and differentiate themselves from those in others." Immigrants' ethnic identity is the degree to which members of a particular ethnic group relate to their ethnic background or culture. According to Akerlof and Kranton (2000) and Ihlanfeldt and Scafidi (2002), the extent to which individuals associate themselves with their ethnic culture depends on the person as well as a range of other interconnected factors, such as geography and the neighborhood in which individuals live, time of arrival in a country, family background and peer pressure, language and the desire to socially interact in one's own language, the level of human capital, discrimination and expectations of unfavorable treatment, lack of economic opportunity, racial prejudices and expectations of rejection by them, desire to share culture, display greater racial or religious solidarity, and improve access to ethnic goods such as food, education, or religious services.

Relatively, higher levels of unemployment among immigrants and recent riots in some immigrant-receiving countries (re-)heated the political and academic discussions about the nexus between immigrants, their identity, and their success on the host countries' labor markets. While there is already rich evidence suggesting that immigrants and non-white ethnic groups in the USA and Canada earn less than white ethnic groups (e.g., Chandra (2003), Pendakur and Pendakur (1998), and Pendakur and Pendakur (2002)), there is actually less conclusive evidence about the effect of the degree of ethnic and immigrant identity on labor market outcomes.

Immigrants' ethnic identity can affect labor market processes in terms of how informal networks are used to find employment and the quality of jobs found. Pendakur and Pendakur (2005) find that for European ethnic minorities, the depth of immigrants' ethnic identity is also positively correlated with the propensity to use informal methods to find employment in ethnically based job finding networks. Their findings also suggest that immigrants' ethnic identity is correlated with significantly lower occupation prestige for visible minority men. This shows that immigrants' ethnic identity is correlated with behavior that allows for separating ethnic minorities from majority mainstream populations when it comes to employment. Our study is most closely related to this paper. Like Pendakur and Pendakur (2005), we use data from the ESC and we use self-reported importance of origin country ethnicity as one of our measures for immigrants' ethnic identity. While their focus was mainly on the effect of identity on the channel through which immigrants' find a job and job satisfaction, we use wage and unemployment likelihood as additional outcome variables.

Constant and Zimmermann (2008) and Constant et al. (2009a) propose a new measure of ethnic identity, the “ethnosizer” and argued their measure to be exogenous to economic activity. They constructed ethnosizer from individual information on culture, language, societal interactions, ethnic self-identification, and history of migration. Constant and Zimmermann (2008) examine how the ethnosizer predicts the labor market outcome. They find that such a measure of ethnic identity significantly affects immigrants' economic outcomes. They also find that the ethnosizer is exogenous to economic variables and that ethnic identity significantly affects economic outcomes. Constant et al. (2009b) show that the concept of the ethnosizer has explanatory power beyond labor market outcomes. They present evidence suggesting that immigrants to Germany with a stronger commitment to the host country are more likely to achieve home ownership regardless of their level of attachment to their home country. Edin et al. (2003) use an exogenous source of variation from a Swedish government policy concerning the initial location of asylum seekers. Their results suggest that the earnings gain associated with a standard deviation increase in ethnic concentration is about 13 %.

Battu and Zenou (2010) find that immigrants with extreme preferences or identities pay an employment penalty of a 6 to 7 % lower probability of being in employment relative to those with less extreme views. Battu et al. (2007) show that the choice of adopting the majority cultural identity or opposition to dominant white ethnicity (oppositional identities) results in being less likely to be employed.

Mason (2004) finds that adapting to non-Hispanic white racial identity results in higher annual income and hourly wages. Nekby and Rödin (2010) find that the strength of identification with the majority culture influences income and employment outcomes regardless of the strength of ethnic minority identification. Bisin et al. (2011) find that first-generation immigrants with strong identity pay a penalty of 17 % in terms of the probability of being employed. However, even the second-generation immigrants with a stronger sense of cultural identity have a lower chance of finding employment than natives. The relationship between immigrants' ethnic identity and labor market outcomes might have different implications for females and males. Casey and Dustmann (2010), for example, find that for second-generation immigrants, there is no significant relationship between immigrants' ethnic identity and female labor market outcomes. However, for males, there is a positive relationship between home country identity and labor market outcomes, which might be attributed to participation in ethnic networks. Constant and Zimmermann (2008) find a higher probability of employment and increased earnings are associated with integrated and assimilated men, whereas lower employment probabilities and earnings are linked with separated and marginalized men.

Ethnic identity can also influence non-market outcomes. For example, Bisin et al. (2000) argue that the intergenerational transmission of cultural traits happens as a result of intragroup marriages and family socialization. Zimmermann et al. (2008) find that pre-migration characteristics dominate the feelings of first-generation immigrants towards ethnic self-identification. Bisin et al. (2010) propose the determinants of ethnic and religious identity along two distinct motivational processes: cultural distinction and cultural conformity. They find that ethnic identity is much stronger in mixed neighborhoods than in homogeneous neighborhoods. There is also a tendency

toward ethnic integration for the second generation in more mixed neighborhoods. Zimmermann et al. (2007) find that religion and education in the country of origin do not have an effect on all forms of ethnic self-identification, with the exception of Muslims.

3 Empirical strategy

In order to examine the relationship between immigrants' ethnic identity and labor market outcomes, we run the following regression:

$$Y = \alpha_0 + \alpha_1 IEI + \alpha_2 \mathbf{X} + u, \quad (1)$$

where Y represents the individual labor market outcome, IEI is a measure of immigrants' ethnic identity, \mathbf{X} is a vector of covariates likely to affect the labor market outcomes of an individual, and ϵ is an idiosyncratic error term. The vector \mathbf{X} includes the respondent's age, square of age, gender, years since migration, number of children living in the household, as well as dummy variables for educational levels, marital status, religion, whether the respondent was born in Canada, and Canadian province where the respondent resides.

One concern with estimating Eq. 1 is that immigrants' ethnic identities in the host country are not exogenous. It is likely that the choice of the host country is related to unobservables that are also correlated with immigrants' ethnic identity. It could also be the case that an individual who is not successful on the labor market in the host country might feel discriminated and thus adopt identities or form groups with people having a similar mind-set. The causality could run in both directions: it is also likely that immigrants' ethnic identity helps them to become successful in the labor market. Therefore, estimating Eq. 1 without considering the simultaneity and endogeneity would lead to a biased coefficient estimate of α_1 .

The direction of the bias is ex-ante not clear. On the one hand, unobserved discrimination on the labor market that simultaneously drives labor market outcomes and the immigrant's ethnic identity could lead to an upward bias of α_1 . On the other hand, survey answers, particularly with respect to self-reported ethnic identity, could be subject to a measurement error. Depending on unobserved ethnic or cultural characteristics, respondents might interpret the questions differently or they might simply not provide a true account about their ethnic identity. This measurement error leads to attenuation bias that drives the estimated coefficient of α_1 towards 0.

Our identification strategy attempts to isolate potentially exogenous sources of variation in immigrants' ethnic identity, IEI . We instrument for our measures of immigrants' ethnic identity by exploiting variation in the immigrants' genetic distance to Canada. In particular, we instrument for IEI in Eq. 1 with the following first-stage regression:

$$IEI = \beta_0 + \beta_1 GenDist + \beta_2 \mathbf{X} + \epsilon, \quad (2)$$

where $GenDist$ refers to genetic distance.

In our case, a good instrument has to be both a strong predictor of immigrants' ethnic identity (relevant) and orthogonal to the error term, u , (valid). Regarding the

theoretical relevance, we argue that that cultural distance is associated with the way individuals choose their social circle. The key idea is that people are likely to form groups or show identity if they do not differ much in terms of cultural and historical dimensions, such as shared language, attitudes, beliefs, customs, habits, etc.

Ethnicity is a term used for categorizing the highly diverse human populations into more homogeneous and distinct ethnic groups, based on common ancestry and cultural characteristics. An ethnic group is defined as a category of people that, in a larger population, is set apart (to some extent) and bound together (through preferential intermarriage) by common ties of race, language, nationality, or culture. The genetic distance between populations has been shaped by numerous forces throughout history and, indeed, prehistory. Ethnic differences are attributed to interaction between cultural and lifestyle factors. From an evolutionary point of view, population stratification (genetically distinct subgroupings) and admixture (intermingling between genetically distinct groups) are created by human mating patterns. Geographical, social, and cultural barriers have given rise to reproductively isolated human populations, within which random drift has produced genetic differentiation.

We use genetic distance of a migrant's host country and country of origin as a proxy for cultural distance. Measures of genetic distance have already been employed by a number of recent empirical studies. For example, Spolaore and Wacziarg (2009a) study whether genetic distance is associated with differences in income between countries. They determine the genetic distance between countries using information on the ethnic composition. Taking the USA as the world technological frontier in 1995, they find that a country's genetic distance to the world technological leader, the USA, is a powerful predictor of its income per capita. They then assume that the longer the time since divergence, the greater the chances that these populations have developed different cultural practices (or, more generally, different intergenerationally transmitted traits, which may be cultural or biological). Genetic distance also has reasonably high explanatory power, accounting for 39 % of the variation in the sample. The results remain robust by including a range of other explanatory variables such as geography, linguistic, and religious differences.

Ashraf and Galor (2013) find that genetic diversity within a society plays an important role of influencing economic development. Guiso et al. (2009) on the other hand find that genetic distance reduces the level of trust. They employ data on genetic distance between European populations as an instrument for measures of trust in order to estimate its effect on bilateral trade and foreign direct investment. They find that a one standard deviation increase in genetic distance reduces the level of trust by about 27 %. Giuliano et al. (2006), however, argue against using genetic distance as an instrument or proxy for cultural differences. They show that geography explains both genetic distance and transportation cost between European countries, and it does not determine economic outcomes after controlling for geography. However, in their studies, both Spolaore and Wacziarg (2009b) and Guiso et al. (2009) show that their results remain intact, including geographic distance. Nevertheless, in a robustness test, we check whether our results hold if we include measures of geographical distance as well.

We think that it is also true that ethnic identities develop over time and are also related to social settings and relationships. Ethnic identity is not one thing to all

people and is a complex, multidimensional construct reflecting the confluence of biological factors and geographical origins and cultural, economic, political, legal factors, and racism. However, there is no one period of time in which we can say that the ethnicity dies out. It depends on the dynamics and values of the particular (immigrant) group. It is also often the case that a particular cultural group or ethnicity or language group will experience resurgence and revive when in danger of extinction or absorption. This is most likely to occur where a minority ethnic or national group has been forcibly repressed militarily or politically by a stronger ethnic or political group. Sometimes, allied minority groups combine efforts for resistance purposes, either militarily or culturally, and foster a process of merging that in turn creates a new ethnic identity out of the two previously separate minority groups. In addition to this theoretical argument for the relevance of our instrument, we also check the relevance using standard statistical tests.

There are a number of arguments that can be made against the validity of our instrument. In general, these arguments are concerned about correlation between cultural distance, a set of unobserved variables, and labor market outcomes. The set of unobserved variables can be grouped into the following: First, genetic distance and initial selection into the Canadian labor market. Potential immigrants from genetically more distant countries build different expectations about their success on the Canadian labor market than those from genetically closer countries. Our sample could therefore comprise immigrants with a specific (positive) set of expectations about their success on the labor market, which directly affects labor market outcomes. We test validity by including a dummy variable that switches to one if the respondent was born in Canada and zero otherwise. Second, genetic distance can be correlated with physical features associated with race. Immigrants that belong to a visible minority could be more likely to experience negative discrimination resulting in less success on the labor market. We check the robustness of our results by including variables that account for the racial background of the respondent. Third, genetic distance can affect English (or French) language skills, which matters for employment likelihood, salary negotiation, and job satisfaction. We argue that these concerns are partially covered by including educational attainment and by controlling for whether the respondent was born in Canada (and therefore should have better English or French skills). However, we also perform an additional test that controls for the language that is spoken in the immigrant's household. Fourth, genetic distance and other factors could be related to the home countries' level of development or average educational attainment. Spolaore and Wacziarg (2009a) show that genetic distance to the USA (the technological frontier) is strongly negatively correlated with income per capita. In our context, this could mean that immigrants from genetically more distant countries have unobserved disadvantages in the endowment of human capital. For example, immigrants from low-income countries could have received lower quality education or they could have been less exposed to technologies that are important in today's labor market. Controlling for the years of education only partially captures these differences because it does not allow us to control for the quality of education. We therefore also control for the level of development and average educational attainment in an immigrant's home country.

A common approach to provide some empirical support for the validity of the instrument is to employ a test for overidentifying restrictions (Sargan or Hansen test). In general, these tests cannot be seen as robust evidence for the instrument's validity and should rather be evaluated as auxiliary support for the theoretical validity. In our preferred specification, we only use genetic distance as an instrument and estimate the first stage "just identified." For an additional robustness exercise, we have also obtained data on linguistic distance. This allows us to estimate the first stage regression with two instruments and calculate the Sargan/Hansen test statistics. Although our estimates pass the Sargan/Hansen test, the results should not be interpreted as a strong test for the validity of our instrument. The Sargan/Hansen test basically tests for the equality of the IV estimates from each instrument. Our instruments, however, are strongly correlated. In addition, the above arguments against our instruments validity apply to both of them to the same extent. Therefore, they are potentially endogenous for the same reasons, and the IV estimates from the individual instruments will be similarly inconsistent.

4 Data

We use data from the first and second wave of the Canadian ESC survey. The ESC survey was conducted by the Institute of Social Research at York University in 2000/2001. It contains a broad range of questions on immigrants' ethnic identity and economic outcomes, as well as detailed demographic characteristics such as immigrant status, years since migration, country of origin, and birthplace. The survey contains a total of 8241 respondents randomly sampled from all Canadian provinces, supplemented with an oversample from the three largest and most diverse metropolitan areas including Toronto, Montreal, and Vancouver. This urban metropolitan oversample means that the total number of visible minorities—defined as people of non-European, non-Aboriginal origin—available for meaningful analysis is substantial for a survey of this size. This feature of the data makes it particularly useful for studies of ethnicity. The survey asked some specific questions about individuals' ethnic backgrounds, such as, "To what ethnic or cultural group do you belong?" If the respondent answered "Canadian" as the first response, a probe question was used to seek additional information: "In addition to being Canadian, to what ethnic or cultural group did you or your ancestors belong on first coming to this continent?"⁴ Out of those 1040 are visible minorities. Only 11 % of the respondents answered both of

⁴These survey questions regarding ethnic self-identification are similar to those used in the GSOEP (see Constant and Zimmermann 2008; Casey and Dustmann 2010) for details). Casey and Dustmann (2010) used ethnic self-identification as a measure of ethnic identity. As argued by Constant and Zimmermann (2008) such a measure is highly subjective and open to debate. Constant and Zimmermann (2008) use ethnosizer as a measure of ethnic identity, and show that self-classification of ethnic identity does not coincide with their measure of the ethnosizer. It is to be noted that our measure using the Canadian survey is, however, not directly comparable with that of Casey and Dustmann (2010) as the questions were slightly different and the responses were coded differently.

the above questions with “Canada.” Another 36 % considered themselves of British decent and 17 % of the respondents were French or had French ancestors.

For the former, we are able to construct two empirical proxies: The first is an attitudinal measure that indicates whether the respondent considers his/her ethnic origin as very important or not, *Ethnicity very important*. Specifically, individuals were asked the following to measure their ethnic identity: “Is your ethnic origin very important to you, somewhat important, not very important, or not at all important.” The answers ranged from 1 “very important” to 4 “not at all important.” We construct a dummy variable that switches to 1 if the response to this question was 1 and 0 otherwise.

Because of the possibility of multiple ethnic origins, ethnicity can be difficult to “code up.” We took the responses to the 5 questions and combined them into a single ethnic categorization, with 68 categories. These 68 ethnic origin categories were chosen to match with city-level ethnic population data, which we use in regressions to measure the potential size of the community of co-ethnics for each respondent. A single ethnic categorization of several categories was combined, which is divided into four broad ethnic origin categories used in regression: Other European, Aboriginal, Visible Minority, and British/French. Further questions were asked about parents’ place of birth, respondent’s place of birth, home language, religion, and importance of religion. Interrelationships between ethnic origin and immigrants’ ethnic identity were also explored. Our second measure of origin immigrants’ ethnic identity is individuals’ membership in organizations connected with the nationality, ethnicity, or race of the respondent, *Member of ethnic organization*.

Our measure for Canadian identity is the response to the question: “Please tell me how much you feel that you belong to each of the following places. On a scale from 1 to 10, where 1 means you feel like you do not belong at all and 10 means you feel that you belong completely, what number best describes how you feel about Canada?” We created a dummy variable, *Strong feeling of belonging to Canada*, that switches to one if the respondent answered 8 or above and to zero otherwise. Unfortunately, this question was only asked in the second wave of the survey and therefore the number of observations in specifications for the effect of Canadian identity is significantly lower.

Our instrument for origin and Canadian identity is genetic distance. To capture genealogical relatedness, we use genetic distance which has been described in detail in Spolaore and Wacziarg (2009b). Following Spolaore and Wacziarg (2009b), we consider genetic distance which is measured by the fixation index (FST). This is simply the correlation of randomly chosen alleles within the same sub-population relative to that found in the entire population. It is often expressed as the proportion of genetic diversity due to allele frequency differences among populations. The values range from 0 to 1. A zero value implies complete panmixis where the two populations are interbreeding freely. A value of one would imply the two populations are completely separate. The original source for our data is Cavalli-Sforza et al. (1994). Genetic variation comes from mutations in genetic material, migration between populations (gene flow), and the reshuffling of genes through sexual reproduction. The two main mechanisms that produce evolution are natural selection and genetic drift. A special case of genetic drift is the founder effect. Epigenetic inheritance is

heritable changes in phenotype (appearance) or gene expression caused by mechanisms other than changes in the underlying DNA sequence. When DNA is passed from one generation to the next, most of it is mixed by the processes that make each person unique from his or her parents. Some special pieces of DNA, however, remain virtually unaltered as they pass from parent to child. One of these pieces is carried by the Y chromosome, which is passed only from father to son. Another piece, mitochondrial DNA (mtDNA), is passed (with few exceptions) only from mother to child. As the DNA in the Y chromosome does not mix with other DNA, it is like a genetic surname that allows men to trace their paternal lineages. Similarly, mtDNA allows both men and women to trace their maternal lineages. Both the Y chromosome DNA and mtDNA are subject to occasional harmless mutations that become inheritable genetic markers. After several generations, a particular genetic marker is carried by almost all male and female inhabitants of the region in which it arose. When people leave that region, they carry the marker with them. By studying the genes of many different indigenous populations, scientists can trace when and where a particular marker arose. Each marker contained in a person's DNA represents the location and migration pattern of that person's ancient ancestors.

According to the genetic distance data, if two populations diverged only a very short time ago, like the Danes and the English, their measured genetic distance is short; if they diverged a very long time ago, like the Australian aborigines and the Mbuti Pygmies of Africa, their measured distance is long. While this is related to geographical distance, it is far from perfectly correlated: Canada's Inuit are closer to Tibetans than they are to any of the other Amerindians; the English are closer to the northern Indians than they are to the Lapps (Finish); the Mongols are closer to the Japanese than they are to the Chinese; the Indians of south east India are closer to the Italians than they are to the Thai people or the South Chinese.

Data from Cavalli-Sforza et al. indicate that intra-ethnic relatedness coefficients range from 0.0021 (English in relation to Danes) to 0.43 (Australian Aborigines in relation to the Mbuti Pygmies of Africa). In general, relatedness between autochthonous populations within one region is close, while between continents it is distant. If the world population was wholly English, then the relatedness between random pairs would be zero. But if the world consisted of the English and Danes, then two random Englishmen would have a slightly positive kinship of 0.0021. This is another way of saying that the English and Danes are very closely related. Australian Aborigines and the Mbuti people of Africa are very distantly related according to Cavalli-Sforza's data. In a population made up of Mbuti and Aborigines, two random Aborigines are almost as closely related as identical twins, with a kinship of 0.43 (identical twins have a kinship of 0.5).

Table 1 shows the descriptive statistics of the key variables. The median income in the sample is about CAD 32,000, and about 7.5 % of the respondents were unemployed at the time of the interview. While about 27 % of the respondents think that their home country identity is very important, 63 % have a strong feeling of belonging to Canada. The average genetic distance between the immigrants in the sample and the average Canadian is 0.025. This equates to approximately the genetic distance between Canada and Greece. The minimum genetic distance, 0.009, is for immigrants from Ireland, while the maximum genetic distance of 0.153 is for immigrants

Table 1 Descriptive statistics

| Variable | Mean | Std. Dev. | Min. | Max. |
|-----------------------------------|--------|-----------|-------|--------|
| Ln(Income) | 10.011 | 1.893 | 0.000 | 13.305 |
| Unemployment | 0.075 | 0.263 | 0.000 | 1.000 |
| Employment via friend | 0.187 | 0.390 | 0.000 | 1.000 |
| Job satisfaction | 5.673 | 2.276 | 1.000 | 10.000 |
| Ethnicity very important | 0.274 | 0.446 | 0.000 | 1.000 |
| Member of ethnic org. | 0.135 | 0.342 | 0.000 | 1.000 |
| Belong to Canada | 0.626 | 0.484 | 0.000 | 1.000 |
| Genetic distance | 0.025 | 0.033 | 0.009 | 0.153 |
| Age | 3.961 | 1.130 | 1.900 | 8.900 |
| Female | 0.533 | 0.499 | 0.000 | 1.000 |
| Years since immigration | 0.467 | 1.131 | 0.000 | 8.000 |
| Born in Canada | 0.807 | 0.395 | 0.000 | 1.000 |
| # of children in the household | 1.543 | 1.435 | 0.000 | 12.000 |

This table shows simple summary statistics

from Haiti. The average age of the respondents in our sample is approximately 40. The relatively small time since immigration (4.7 years) is due to the large number of respondents that were born in Canada (81 %) but whose parents have an immigration background. Of those who were not born in Canada, the average time since immigration is approximately 27 years.

5 Results

5.1 First stage—genetic distance and immigrants' ethnic identity

Table 2 shows the first stage of the two-stage least square estimates of the relationship between the three measures of immigrants' ethnic identity and the IV, genetic distance. All regressions control for the age and age² of the respondent, years and years² since immigration, number of children in the household, born in Canada, and

Table 2 First stage estimates of genetic distance on immigrants' ethnic identity measures

| | Ethnicity very important (1) | Member of ethnic organization (2) | Strong belonging to Canada (3) |
|--------------------------------------|---------------------------------|--------------------------------------|-----------------------------------|
| Genetic distance | 1.095*** (0.279) | 1.142*** (0.249) | -1.396** (0.532) |
| Age | -0.103*** (0.038) | -0.040** (0.016) | -0.006 (0.033) |
| Age ² | 0.013*** (0.004) | 0.005*** (0.002) | 0.001 (0.003) |
| Female | 0.029*** (0.010) | -0.019 (0.011) | 0.056*** (0.014) |
| Years since immigration | -0.018 (0.041) | 0.023 (0.051) | 0.180** (0.067) |
| Years since immigration ² | 0.002 (0.006) | -0.004 (0.006) | -0.012 (0.010) |
| Born in Canada | -0.161* (0.085) | -0.050 (0.086) | 0.472*** (0.089) |
| # of children in household | 0.009 (0.005) | 0.002 (0.003) | 0.002 (0.006) |
| <i>N</i> | 5862 | 5901 | 2998 |

This table reports OLS estimates of the effect of genetic distance on immigrants' ethnic identity. Standard errors (in parentheses) are adjusted for within home country clustering. Dummy variables for educational levels, religion, and Canadian residential province are additional controls. ***, **, * indicate significance at the 1, 5, and 10 % level, respectively

a comprehensive set of fixed effects for marital status, level of educational attainment, and religion. The estimated coefficients for the fixed effects variables are not shown in the table.

The results in Table 2 show that genetic distance has a positive effect on measures of origin immigrants' ethnic identity that is significant at the 1 % level. Immigrants from genetically more distant countries are more likely to consider their own ethnicity as very important and are also more likely to be a member of an ethnic organization. Importance of the home country identity also seems to decrease with age but at a diminishing rate. The first stage *F* statistic is above 10 for both samples in regressions on being a member of an ethnic organization and for the male subsample responding to the question of whether origin ethnicity is very important. To gauge the magnitude of the first stage, we compare immigrants from Greece (which has around the same genetic distance as the sample mean) with immigrants from the Philippines. The genetic distance between Canada and Greece is around 0.025, while that between Canada and the Philippines is 0.112. Compared to Greek immigrants, immigrants from the Philippines are on average 9.5 % more likely to consider their home country ethnicity as very important. Genetic distance also has a statistically significant effect on host country identity. The negative sign of the coefficient indicates that immigrants from genetically closer countries report a stronger feeling of belonging to Canada. For example, German immigrants are about 14.8 % more likely to have a strong feeling of belonging to Canada as compared to Japanese immigrants.

5.2 Immigrants' ethnic identity and labor market outcomes

We commence the discussion of our results with the presentation of our baseline estimates. Table 3 contains the OLS and 2SLS estimates⁵ of the effect of home and host country ethnic identity on four measures of labor market outcomes. In the first panel, the dependent variable is the natural log of the respondent's annual wage. The endogenous variables of interest are measures of immigrants' home country ethnic identity (whether the respondent considers ethnicity as very important and whether the respondent is member of an ethnic organization) and host country ethnic identity (whether the respondent has a strong feeling of belonging to Canada or not). All specifications include control variables for age, age², years since immigration and years since immigration², number of children living in the household, dummy variables for levels of education, whether the respondent was born in Canada, religion, as well as dummy variables for the Canadian province the respondent lives in.

The results in the first panel show that neither the OLS nor the 2SLS model result in statistically significant effects of immigrants' home or host country ethnic identity on income.⁶ The second panel estimates the impact of immigrants' ethnic identity on unemployment probability. The OLS model yields a negative coefficient that is significant at the 10 % level. This would suggest that a strong home country ethnicity can reduce unemployment likelihood. However, the results of the 2SLS estimates show that the OLS coefficient is biased and once we control for endogeneity, the effect is the reverse. Immigrants with a strong home country ethnic identity are 24 % more likely to be unemployed as compared to immigrants with a weak home country ethnic identity. The coefficient is significant at the 5 % level. While we find no effect of membership in an ethnic club on unemployment, we find the opposite results for a strong host country identity. Immigrants who have a strong feeling of belonging to Canada are 26 % less likely to be unemployed. Again, this coefficient is statistically significant at the 5 % level.

Networks matter on the labor market and thus ethnic networks should also matter. A strong home country identity might help one find a job within one's own home country's community. In contrast, a strong identity with the host country can help one find jobs via Canadian friends' networks. In the third panel, we estimate whether a job was found via family or friends. Although some of the OLS specifications yield significant results, the 2SLS estimates do not support the hypothesis that home country identity helps immigrants find jobs via informal networks.⁷

⁵All results specifications with a binary outcome variable are estimated using a linear probability model. Using probit instead does not change the results qualitatively. Probit results for the main specifications for unemployed and job via friend are presented in the Appendix, Table 6.

⁶Note that only respondents that indicated that they currently have a job (paid or unpaid) have been included in those estimates.

⁷Again, only respondents that indicated that they currently have a job (paid or unpaid) have been included in those estimates.

The last panel of Table 3 presents results for job satisfaction.⁸ The results from the OLS models show that a strong immigrant ethnic identity has some positive effects on job satisfaction. Immigrants with a strong immigrant ethnic identity and who are members of ethnic organizations might work in jobs where they are surrounded by ethnic peers and enjoy the benefits of a good work climate through ethnic groups. Controlling for this source of endogeneity actually does render the results insignificant. Again, we do not find a robust effect of immigrants' ethnic identity on job satisfaction. A strong Canadian identity also seems to improve job satisfaction in the OLS estimates. The coefficients from the 2SLS estimates have the same sign but are again not statistically significant.

Our results so far can be summarized as follows: First, genetic distance is a strong determinant of home and host country ethnic identity of immigrants. Second, we find no effects of home and host country identity on immigrants' wages. Third, home country identity does appear to significantly increase the unemployment likelihood, while a strong Canadian identity reduces the likelihood of being unemployed. Fourth, we find no systematic relationship between immigrants' ethnic identity and finding a job via friends or job satisfaction.

One potential concern with our identification strategy is that potential immigrants from culturally more distant countries might differ in (unobserved) expectations about their success on the Canadian labor market. Our sample of immigrants could therefore contain a larger fraction of immigrants that already had positive expectations about their success on the Canadian labor market, which can directly affect labor market outcomes. This would pose a problem for our exclusion restrictions.

One way to overcome this problem is to run our specification only with a subsample of immigrants born in Canada. Doing this reduces our sample by about 20 %, and we lose some variation in our genetic distance measures. The reason for this is that some immigrant groups arrived with earlier waves than others. The offspring from those arriving later is probably not old enough to be on the labor market and participate in this survey.

Nevertheless, the estimates presented in Table 4 provide some interesting insights. While we do not find an effect of immigrants' ethnic identity on income, all three measures of identity have a statistically significant effect on unemployment likelihood of first generation immigrants. The coefficients of *Ethnicity very important* and *Member of ethnic org.* are positive and significant at the 10 % level. The coefficient for *Strong belonging to Canada* is negative and significant at the 1 % level. Comparing the size of the coefficients between Tables 3 and 4 also shows that the effect of ethnic identity on labor market outcomes is larger among first-generation immigrants as compared to the full sample.

In contrast to the main results, we also find weak significant effects of being member in an ethnic organization and a strong Canadian identity on finding a job through informal networks. Interestingly, the coefficient of *Member of ethnic org.* is negative while the coefficient of *Strong belonging to Canada* is positive. This could

⁸Again, only respondents that indicated that they currently have a job (paid or unpaid) have been included in those estimates.

Table 3 Effect of home country immigrants' ethnic identity on labor market outcomes—main results

| | OLS (1) | 2SLS (2) | OLS (3) | 2SLS (4) | OLS (5) | 2SLS (6) |
|----------------------------|--------------------|--------------------|---------------------|-------------------|----------------------|---------------------|
| Ln(Income) | | | | | | |
| Ethnicity very important | -0.005 (0.032) | -0.025 (0.700) | | | | |
| Member of ethnic org. | | | -0.040 (0.063) | 0.022 (0.576) | | |
| Strong belonging to Canada | | | | | 0.029 (0.070) | -0.107 (0.963) |
| First stage <i>F</i> -stat | | 12.78 | | 15.52 | | 2.18 |
| <i>N</i> | 4520 | 4520 | 4551 | 4551 | 2328 | 2328 |
| Unemployed | | | | | | |
| Ethnicity very important | -0.010* (0.006) | 0.241** (0.120) | | | | |
| Member of ethnic org. | | | -0.007 (0.012) | 0.219 (0.136) | | |
| Strong belonging to Canada | | | | | -0.036*** (0.010) | -0.260** (0.114) |
| First stage <i>F</i> -stat | | 15.32 | | 23.20 | | 7.32 |
| <i>N</i> | 5874 | 5874 | 5913 | 5913 | 3003 | 3003 |
| Job via friend | | | | | | |
| Ethnicity very important | 0.020 (0.015) | -0.217 (0.143) | | | | |
| Member of ethnic org. | | | 0.025 (0.017) | -0.210 (0.132) | | |
| Strong belonging to Canada | | | | | -0.011 (0.018) | 0.156 (0.111) |
| First stage <i>F</i> -stat | | 15.32 | | 23.20 | | 7.32 |
| <i>N</i> | 5874 | 5874 | 5913 | 5913 | 3003 | 3003 |
| Job satisfaction | | | | | | |
| Ethnicity very important | 0.137* (0.070) | -0.580 (1.205) | | | | |
| Member of ethnic org. | | | 0.269*** (0.077) | -0.448 (0.956) | | |
| Strong belonging to Canada | | | | | 0.461*** (0.087) | 0.788 (0.685) |

Table 3 (continued)

| | OLS (1) | 2SLS (2) | OLS (3) | 2SLS (4) | OLS (5) | 2SLS (6) |
|----------------------------|------------|-------------|------------|-------------|------------|-------------|
| First stage <i>F</i> -stat | | 10.23 | | 27.95 | | 10.37 |
| <i>N</i> | 4677 | 4677 | 4714 | 4714 | 2168 | 2168 |

This table reports OLS and 2SLS estimates of the effect of immigrants' ethnic identity on four measures of labor market outcome: The natural log of annual wage. Unemployed, a dummy variable that takes the value of one if the respondent is unemployed and zero otherwise. Job via friend is a dummy variable that takes the value of one if the respondent found a job via an informal network and zero otherwise. Job satisfaction is a variable that ranges from 0 to 10 with higher values implying greater job satisfaction. Estimates use full sample of male and female immigrants. *Ethnicity very important* is a dummy variable that takes the value of one if the respondent considers his home country's ethnicity as very important and zero otherwise. *Member of ethnic org.* is a dummy variable that takes the value of one if the respondent is member of an ethnic organization and zero otherwise. Standard errors (in parentheses) are adjusted for within home country clustering. Additional control variables are: gender, age, age², years since immigration², years since immigration, # of children in the household, as well as dummy variables for born in Canada, educational levels, marital status, religion, and Canadian residential province are additional controls. ***, **, * indicate significance at the 1, 5, and 10 % level, respectively

suggest that first-generation immigrants only benefit from networks if they have a strong association with the host country and associated with that, a larger network of Canadian friends. In contrast, being an active member of a home countries' ethnic organization does not help to find a job through informal networks. A strong feeling of belonging to Canada also systematically benefits the respondents' job satisfaction. However, the estimated coefficient of *Strong belonging to Canada* in the second and third panel should be interpreted with care because the first stage *F*-stat is below the critical value of 10. Overall, the results in Table 4 show that our main results in Table 3 hold even if we only include first-generation immigrants in the sample. More importantly, however, these estimates reveal that the effect of immigrants' ethnic identity seems to be largely driven by first-generation immigrants and that the impact is stronger among this group as compared to older generation immigrants.

It is also possible that our measures of genetic distance are correlated with physical features that are attributed to race. Immigrants with a larger genetic distance are likely to belong to a visible ethnic minority, and these factors could have a direct impact on labor market outcomes. This again would raise concerns about our exclusion restrictions. Although the survey does not contain information about visible racial characteristics of the respondents, we can use continent dummies as proxies for visible ethnic minorities. We construct one dummy variable that switches to one if the respondent has African descent and zero otherwise and one dummy that switches to one if the respondent has Asian descent.

Table 5 presents the results of this robustness check on the specifications for home country immigrants' ethnic identity. Overall, we do not find a significant effect of own immigrants' ethnic identity on income and unemployment after controlling for racial background. The effect of home country identity on unemployment in Table 3 is no longer statistically significant. We find that immigrants from Africa earn

Table 4 Effect of home country immigrants' ethnic identity on labor market outcomes—first-generation immigrants subsample

| | 2SLS | | |
|----------------------------|-------------------|--------------------|----------------------|
| | (1) | (2) | (3) |
| Ln(Income) | | | |
| Ethnicity very important | 0.062 (1.010) | | |
| Member of ethnic org. | | 0.143 (0.838) | |
| Strong belonging to Canada | | | 0.465 (1.069) |
| First stage <i>F</i> -stat | 4.90 | 11.56 | 4.05 |
| Unemployed | | | |
| Ethnicity very important | 0.262* (0.138) | | |
| Member of ethnic org. | | 0.266* (0.148) | |
| Strong belonging to Canada | | | -0.317*** (0.120) |
| First stage <i>F</i> -stat | 10.24 | 25.52 | 8.74 |
| Job via friend | | | |
| Ethnicity very important | -0.166 (0.111) | | |
| Member of ethnic org. | | -0.187* (0.110) | |
| Strong belonging to Canada | | | 0.250* (0.150) |
| First stage <i>F</i> -stat | 10.24 | 25.52 | 8.74 |
| Job satisfaction | | | |
| Ethnicity very important | -0.935 (1.563) | | |
| Member of ethnic org. | | -0.961 (1.420) | |

Table 4 (continued)

| | 2SLS | | |
|----------------------------|------|-------|--------------------|
| | (1) | (2) | (3) |
| Strong belonging to Canada | | | 1.389** (0.659) |
| First stage <i>F</i> -stat | 7.51 | 29.67 | 10.87 |

This table reports 2SLS estimates of the effect of immigrants' ethnic identity on four measures of labor market outcome a subsample of first-generation immigrants: The natural log of annual wage. Unemployed, a dummy variable that takes the value of one if the respondent is unemployed and zero otherwise. Job via friend is a dummy variable that takes the value of one if the respondent found a job via an informal network and zero otherwise. Job satisfaction is a variable that ranges from 0 to 10 with higher values implying greater job satisfaction. Estimates use full sample of male and female immigrants. *Ethnicity very important* is a dummy variable that takes the value of one if the respondent considers his home country's ethnicity as very important and zero otherwise. *Member of ethnic org.* is a dummy variable that takes the value of one if the respondent is member of an ethnic organization and zero otherwise. Standard errors (in parentheses) are adjusted for within home country clustering. Additional control variables are gender, age, age², years since immigration², years since immigration, # of children in the household, as well as dummy variables for born in Canada, educational levels, marital status, religion, and Canadian residential province are additional controls. ***, **, * indicate significance at the 1, 5, and 10 % level, respectively

on average a lower income while immigrants from Asia have a significantly higher likelihood of being unemployed.

We find similar patterns in the estimates for finding a job via a friend and job satisfaction. None of the home country identity measures appears to have a systematic effect on labor market outcomes, once we control for racial background. Again, immigrants of African decent seem to be less successful in finding jobs via an informal network and have lower job satisfaction.

In our final robustness exercise, we include measures for the average cognitive skills in the immigrants' home countries, Cognitive skills_{home}, based on the data by Hanushek and Woessmann (2012). The results are presented in Table 5, columns 4, 5, and 6. Once we control for this proxy of educational attainment in the home country, the effect of *Ethnicity very important* is no longer statistically significant. The positive impact of Canadian identity on employment likelihood remains significant at the 10 % level.

We examine a number of outcomes such as income, probability of unemployment, finding a job via a friend, and job satisfaction in the context of Canada. We now compare recent findings about the effects of ethnic identity on economic behavior. Casey and Dustmann (2010) find that identity with either country is only weakly related to labor market outcomes in Germany. On the other hand, Constant and Zimmermann (2008), Constant et al. (2009a), Constant et al. (2009b), Battu and Zenou (2010), and Bisin et al. (2011) find stronger effects of ethnic identity in Germany, the UK, and Europe as a whole. Overall, these studies suggest that economic work participation, earnings, and housing decisions demonstrate the significant relevance of ethnic

Table 5 Effect of home country immigrants' ethnic identity on labor market outcomes—additional control variables

| | 2SLS | | | | | |
|----------------------------------|----------------------|---------------------|----------------------|--------------------|---------------------|--------------------|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Ln(Income) | | | | | | |
| Ethnicity very important | 1.661 (1.141) | | | 2.232 (2.206) | | |
| Member of ethnic org. | | 1.929 (1.377) | | | 1.418 (1.356) | |
| Strong belonging to Canada | | | -51.211 (615.969) | | | -0.931 (0.721) |
| Ln(distance) _{home} | -0.250*** (0.076) | -0.310** (0.132) | -0.786 (7.525) | -0.350* (0.202) | -0.291** (0.144) | -0.250 (0.167) |
| Asia _{home} | -0.127 (0.118) | -0.241 (0.206) | -8.754 (104.442) | | | |
| Africa _{home} | -1.151*** (0.436) | -0.390 (0.493) | 2.659 (43.704) | | | |
| Cognitive skills _{home} | | | | 0.111 (0.141) | 0.159 (0.198) | -0.063 (0.168) |
| Unemployed | | | | | | |
| Ethnicity very important | 0.190** (0.097) | | | 0.532 (0.394) | | |
| Member of ethnic org. | | 0.243 (0.157) | | | 0.219 (0.194) | |
| Strong belonging to Canada | | | -0.160 (0.296) | | | -0.162* (0.096) |
| Ln(distance) _{home} | -0.013 (0.009) | -0.020 (0.013) | -0.004 (0.010) | -0.019 (0.022) | -0.010 (0.010) | 0.000 (0.012) |
| Asia _{home} | 0.019 (0.019) | 0.002 (0.022) | 0.033 (0.060) | | | |
| Africa _{home} | -0.009 (0.063) | 0.072* (0.037) | -0.056 (0.047) | | | |
| Cognitive skills _{home} | | | | 0.072 (0.069) | 0.036 (0.033) | -0.039 (0.042) |
| Job via friend | | | | | | |
| Ethnicity very important | -0.126 (0.139) | | | -0.622 (0.511) | | |
| Member of ethnic org. | | -0.195 (0.207) | | | -0.330* (0.186) | |

Table 5 (continued)

| | 2SLS | | | | | |
|----------------------------------|----------------------|---------------------|---------------------|----------------------|---------------------|-------------------|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Strong belonging to Canada | | | 0.120 (0.385) | | | 0.033 (0.096) |
| Ln(distance) _{home} | -0.016* (0.009) | -0.001 (0.012) | -0.017 (0.017) | -0.001 (0.023) | 0.002 (0.010) | -0.006 (0.011) |
| Asia _{home} | -0.004 (0.024) | 0.005 (0.034) | 0.009 (0.084) | | | |
| Africa _{home} | -0.117 (0.075) | -0.174** (0.081) | -0.174** (0.081) | | | |
| Cognitive skills _{home} | | | | -0.128* (0.075) | -0.093** (0.041) | -0.019 (0.024) |
| Job satisfaction | | | | | | |
| Ethnicity very important | -0.868 (1.201) | | | 0.177 (4.575) | | |
| Member of ethnic org. | | -1.192 (1.543) | | | -0.500 (1.467) | |
| Strong belonging to Canada | | | 0.868 (2.133) | | | 1.044 (0.691) |
| Ln(distance) _{home} | -0.358*** (0.070) | -0.212* (0.115) | -0.002 (0.088) | -0.309*** (0.118) | -0.171 (0.109) | 0.125 (0.088) |
| Asia _{home} | 0.299** (0.134) | 0.316 (0.203) | -0.000 (0.471) | | | |
| Africa _{home} | 1.119* (0.630) | 0.667* (0.350) | -0.067 (0.328) | | | |
| Cognitive Skills _{home} | | | | -0.379 (0.623) | -0.407 (0.255) | 0.174 (0.192) |

This table reports 2SLS estimates of the effect of immigrants' ethnic identity on four measures of labor market outcome: The natural log of annual wage. Unemployed, a dummy variable that takes the value of one if the respondent is unemployed and zero otherwise. Job via friend is a dummy variable that takes the value of one if the respondent found a job via an informal network and zero otherwise. Job satisfaction is a variable that ranges from 0 to 10 with higher values implying greater job satisfaction. Estimates use full sample of male and female immigrants. *Ethnicity very important* is a dummy variable that takes the value of one if the respondent considers his home country's ethnicity as very important and zero otherwise. *Member of ethnic org.* is a dummy variable that takes the value of one if the respondent is member of an ethnic organization and zero otherwise. Standard errors (in parentheses) are adjusted for within home country clustering. Additional control variables are gender, age, age², years since immigration², years since immigration, # of children in the household, as well as dummy variables for born in Canada, educational levels, marital status, religion, and Canadian residential province are additional controls. ***, **, * indicate significance at the 1, 5, and 10 % level, respectively

identity to economic outcomes. Pendakur and Pendakur (2005) find that for “visible” minorities, ethnic identity is correlated with lower job quality in the context of Canada. We find statistically significant effects of ethnic identity on the probability of being unemployed. However, there is no such penalty in terms of income for those employed. The results also suggest no effects on getting job via friends but significant effects on job satisfactions. Our results are broadly in line with most empirical studies in this area finding that immigrants pay some penalties for being associated with stronger home country identity in Canada. It is to be noted that our study differs in terms of measuring ethnic identity and the outcomes of interest. Also, Canadian immigration policies differ from those of UK and Germany. Over a long period of time, Canadian immigration policy has become directed towards a points system that encourages highly skilled people to migrate to Canada. On the other hand, until recently, a larger share of migrants in Germany and the UK originate from other European countries, and there has been less emphasis on skills.

6 Conclusion

The relationship between immigrants’ ethnic identity and their performance on the host country’s labor market has received growing attention among policy-makers and academics in recent years. To establish a causal relationship between these two variables, it is necessary to overcome the inherent endogeneity problem in this context. Our paper is the first attempt to identify the causal effects of attitudinal measures of immigrants’ ethnic identity on labor market outcomes by using an IV approach. We use a continuous measure of genetic distance between immigrants’ country of origin and their host country, Canada, as an instrument for individual’s immigrants’ ethnic identity. We find that genetic distance has a positive and significant impact on the respondent’s home country identity. Our 2SLS estimates suggest that the immigrants’ ethnic identity has mainly an effect on immigrants’ unemployment probability. While a strong home country identity can have adverse effects on immigrants’ employment probability, a strong Canadian identity can increase immigrants’ likelihood to be employed. Ethnic identity seems to mainly affect labor market outcomes of first-generation immigrants.

However, after controlling for racial background and the educational attainment in the immigrants’ home countries, most of the results lose statistical significance. Only the positive impact of host country identity on employment remains weakly significant. Our overall reading of the evidence is that immigrants’ ethnic identity does not have a strong influence on immigrant’s labor market outcomes. The effects of immigrants’ ethnic identity on labor market outcomes are clearly dominated by differences in the racial background. The results only provide weak support for recent calls for immigration policies that try to improve immigrants’ ethnic identity with their host country.

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Appendix

Table 6 Effect of home country immigrants' ethnic identity on labor market outcomes—probit estimates for Table 3

| | Probit | | |
|----------------------------|------------------|-------------------|----------------------|
| Unemployed | | | |
| Ethnicity very important | 0.009 (0.005) | | |
| Member of ethnic org. | | -0.004 (0.011) | |
| Strong belonging to Canada | | | -0.031*** (0.008) |
| First stage <i>F</i> -stat | 10.24 | 25.52 | 8.74 |
| Job via friend | | | |
| Ethnicity very important | 0.020 (0.014) | | |
| Member of ethnic org. | | 0.026* (0.016) | |
| Strong belonging to Canada | | | -0.011 (0.018) |

This table reports probit estimates (marginal effects) of the effect of immigrants' ethnic identity on two measures of labor market outcome a subsample of first generation immigrants: Unemployed, a dummy variable that takes the value of one if the respondent is unemployed and zero otherwise. Job via friend is a dummy variable that takes the value of one if the respondent found a job via an informal network and zero otherwise. Estimates use full sample of male and female immigrants. *Ethnicity very important* is a dummy variable that takes the value of one if the respondent considers his home country's ethnicity as very important and zero otherwise. *Member of ethnic org.* is a dummy variable that takes the value of one if the respondent is member of an ethnic organization and zero otherwise. Standard errors (in parentheses) are adjusted for within home country clustering. Additional control variables are gender, age, age², years since immigration², years since immigration, # of children in the household, as well as dummy variables for born in Canada, educational levels, marital status, religion, and Canadian residential province are additional controls. ***, **, * indicate significance at the 1, 5, and 10 % level, respectively

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