Education and Attitudes towards Workplace Diversity: Evidence from Canada

Maryam Dilmaghani, Department of Economics, Sobey School of Business, Saint Mary’s University, Halifax, Canada; Email: maryam.dilmaghani@smu.ca

Abstract

Using the Canadian General Social Survey of 2016, the present paper assesses the causal effect of education on attitudes towards workplace diversity. Education is instrumented using the changes in compulsory schooling laws. In the OLS and selection corrected regressions, education is found to positively associate with tolerance of cultural diversity in the workplace. But, the IV estimations result in null findings. The implications are discussed.

Keywords: Education; Diversity; Tolerance; Instrumental Variables; Canada

JEL codes: I26; I31

Data Availability Statement

This research was conducted at the Statistics Canada Research Data Centre at Dalhousie University, a part of the Canadian Research Data Centre Network. This service is provided through the support of Dalhousie University, the Canadian Foundation for Innovation, the Canadian Institutes of Health Research, the Social Science & Humanity Research Council, and Statistics Canada. The data are confidential, and can only be accessed by researchers approved by Statistics Canada. All views expressed in this work are the author’s.
I. Introduction

Around the globe, educational attainment has substantially risen over the past decades. Despite the higher education, several indicators of social capital, believed to be positively impacted by education, such as trust and tolerance, show signs of decline (Borgonovi 2012; Putnam 2000). These paradoxical trends are likely due to concomitant societal changes, such as an increased level of population heterogeneity with respect to race, ethnicity, and religion, which according to some, is less conducive to social capital formation (Borgonovi 2012). All aspects of social capital are important for instigating positive outcomes in a wide array of indicators, such as health, subjective wellbeing, and economic growth (Zak & Knack 2001). Hence, in face of a greater diversity in the Western world, policymakers are increasingly concerned with the promotion of factors which help fostering high levels of social capital in the society. Accordingly, many upstream policies have been implemented in the Western World, to promote Equity, Diversity, and Inclusion (EDI), especially in the education sector (Tilghman et al. 2021). Consistently, in the European Union, the 2015 Paris Declaration stipulated the promotion of tolerance and non-discrimination through education, and in 2017, the European Commission included “inclusion” as a goal in its agenda for higher education as well as for the Erasmus student exchange program (Barrett 2020; Claeys-Kulik 2019). Similar measures have been taken in North America, with respect to curriculum, teaching, and research funding (Government of Canada 2021; NIH 2021).

In fact, across disciplines, education is found to instigate a greater tolerance for stigmatized groups and ethnoracial minorities (Becker et al. 2017; Borgonovi 2012; Chan 2019; Kunovich 2004; Quillian 1995; Scheepers et al. 2002; Schwadel & Garneau 2017; Teixeira et al. 2021). Education has also been examined as a key factor in the promotion of democracy and tolerance for beliefs endorsing individual choice, for instance the legitimacy of abortion (Acemoglu et al. 2005;
Recent world events, such as the socially stratified support for Donald Trump and Brexit campaigns, have ostensibly showcased the downward-sloping education “gradient” regarding support for intolerant attitudes towards minorities and isolationist international politics (Becker et al. 2017; Chan 2019). The literature on the relationship between education and tolerance, scattered across disciplines of psychology, political science, sociology, and economics, suggests that the education-tolerance gradient varies rather significantly across countries (Borgonovi 2012). While the relationship has been examined for many European countries (Borgonovi 2012), there is no dedicated study examining the Canadian context.

The present paper uses the unique opportunity provided by the Canadian General Social Survey of 2016, to examine the effects of education on attitudes towards workplace diversity, among Baby Boomers and Generation Xers. To examine causality, education is instrumented using the changes in the Compulsory Schooling Laws of Canada. The results indicate a positive association between educational attainment and tolerant attitudes towards workplace diversity for both generations. But, the instrumental variable estimations result in null findings. The null results imply that the correlation might be driven by endogenous confounders. The remainder of this paper is organized as follows. Section II reviews the related literature. Section III presents the data and descriptive statistics. Section IV is concerned with the methodology. The results are reported in Section V. The concluding remarks follow.

II. Literature Review

This section reviews several interrelated strands of the literature. First, the interdisciplinary theories on the link among education, diversity, social capital, and tolerance are reviewed. Second, a selection of empirical studies on the relationship between education and social capital, inclusive
of trust and tolerance, are surveyed. Finally, the literature on the context-dependence of the education-tolerance gradient are showcased, with a special focus on the changing Canadian landscape with respect to population heterogeneity.

Tolerance is the acceptance of ideas and lifestyles different from or incompatible with one’s own ideas and lifestyle (Cohen 2004; Verkuyten & Killen 2021). Hence, tolerance can only be defined with existence of diversity in some dimensions of human characteristics, e.g. race, ethnicity, culture, language, religion, political affiliation, and social class (Borgonovi 2012; Fehr & Gachter 2000). Theoretically, the relationship between the level of diversity in a population and tolerance is ambiguous (Borgonovi 2012). A higher diversity may promote a greater tolerance as inter-group interactions and knowledge increase (Borgonovi 2012; Mulder & Krahn 2005). In contrast, the “group threat theory” suggests that intolerance grows as perceived inter-group threat increases (Bobo & Hutchings 1996; Case et al. 1989; Semyonov et al. 2004, 2006), where group threat is assumed proportional to the share of minorities (Borgonovi 2012; Gelfand et al. 2011; Kunovich 2004; Quillian 1995; Semyonov et al. 2006). Empirically, the recent surge of international migration and refugee population in Europe (d’Hombre & Schnepf 2021; Nunziata 2016; Spilimbergo 2009) and North America (Becker et al. 2017; Chan 2019) is suggested to have contributed to the rise in popularity of intolerant extreme right political parties. Examples are seen in Donald Trump’s campaign rhetoric in the US, the Front National in France, the Dutch Freedom Party, the Independence Party in the UK, and the Italian Lega Nord (Spilimbergo 2009). In addition, across countries, a negative relationship between economic development and population diversity has been found (Alesina et al. 2003, 2016; Ashraf & Galor 2013; Borgonovi 2012; Easterly & Levine 1997; Knack & Keefer 1997; Michalopoulos 2012). Beugelsdijk et al. (2019) show that diversity in cultural values has a sizeable negative association with regional GDP per
capita, and predicts a lower institutional quality and poorer public goods provision in Europe. Beugelsdijk et al. (2019) conclude that it is the degree of “sharedness” of culture that matters for economic development, rather than prevalence of specific values. This finding is in line with assertions made in cross-cultural psychology research (Schwartz & Sagie 2000).

Despite this evidence, it has been suggested that sustained positive inter-group interactions lead individuals to not only become more tolerant, but even trust those situated across group lines (Hardin 1992). Hence, diversity can increases interpersonal trust and tolerance, provided that people belonging to different groups meaningfully interact (Marschall & Stolle 2004; Uslaner 2002). But, social associations across group lines are costlier (Borgonovi 2012l; Mulder & Krahn 2005). As schooling increases the ability for rational decision making and problem solving, more educated individuals may be better able to judge the costs and benefits of social associations across group lines, as well as the socioeconomic value of diversity, and ultimately achieve a greater tolerance (Borgonovi 2012; Rohner & Saia 2019). The education induced by compulsory schooling laws increases inter-group exposure, which could directly influence attitudes towards diversity positively or negatively, depending on the context (Rauscher 2015a, 2015b; Rosenfeld 2008). In particular, it can lead to a greater rate of heterogamous marriage, an important determinant of inter-group tolerance (Blossfeld 2009; Blossfeld & Timm 2003; Kalmijn 1991; Schwartz et al. 2013; Voigtländer & Voth 2013). In contrast, education can serve as means of indoctrination and heighten inter-group tensions via nationalist sentiments (Spilimbergo 2009). An indoctrination approach to education, more common in non-democratic regimes, has also been previously observed in the West during the Cold War (Spilimbergo 2009).

Another way that education can relate to inter-group tolerance is through competition in the labour market. Specifically, given the usually lower socioeconomic status of minorities, those
with a lower education are more likely to perceive them as competition, and a threat to their jobs and livelihoods (Bobo & Hutchings 1996; Davidov & Meuleman 2012; Quillian 1995). In other words, as immigrants and minorities are more likely to accept jobs and working conditions that natives would not accept, some natives may attribute the worsening of labour conditions and lowered wages to immigrants and minorities. Those who stand to lose the most, i.e. natives with lower educational attainment, may then hold hostile views towards immigrants and minorities (Mulder & Krahn 2005). An alternative explanation for the correlation between education and tolerance, as observed in the social surveys, is that the more educated individuals may be more inclined to express the “politically correct” opinions, without holding these views deep inside (Li 2001; Mulder & Krahn 2005; Palmer 1996). Finally, empirically, the link between education and tolerance might be due to latent omitted variables, such as socioeconomic background and cognitive ability (Mulder & Krahn 2005).

At the individual level, empirical research has documented a strong relationship between education and levels of trust and tolerance of minorities in many countries (Gesthuizen et al. 2008; Kunovich 2004; Maykovich 1975; Quillian 1995; Scheepers et al. 2002; Semyonov et al. 2006). But, while educational attainment has sharply risen over the past decades, long term trends in key indicators of social capital and social cohesion have been declining (Inglehart 1999; Pharr et al. 2000; Putnam 2000). A concept related to tolerance is democracy (Castelló-Climent 2008; Rohner & Saia 2019). Seymour Lipset (1959), in his “Modernization Theory,” emphasizes the role of education in promoting democracy. Empirical evidence compatible with the modernization theory has been provided by high calibre economists (Barro 1999; Benhabib et al. 2013; Glaeser et al. 2004, 2007; Przeworski et al. 2000). For instance, Glaeser et al. (2004) show that changes in levels of schooling predict changes in democracy across countries. However, Acemoglu et al. (2005)
scrutinize this evidence and demonstrate that the positive correlation between education and democracy disappears when country fixed effects are included in the regressions.

Consistent with Acemoglu et al. (2005), it has been found that the relationship between education and levels of trust and tolerance differ by country and generation (Borgonovi 2012; Schwadel & Garneau 2017). In Europe, Borgonovi (2012) reports that Sweden and Switzerland are most tolerant towards migrants while Greece, Hungary, the Czech Republic and Portugal are the least tolerant countries. These differences are due to factors such as differences in the population composition of host country, institutional arrangements, and historical context. In particular, first, the quality of education differs substantially across countries, through pedagogical approaches, curricula contents, and institutional features. Second, aside from individual education level, education at the community level may matter distinctly for education-tolerance gradient. Third, sociopolitical and institutional contexts, different across countries, act to shape both values and educational attainment. Finally, the level of diversity may also be a factor, with a higher diversity actually reducing inter-group tolerance and trust (Alesina & La Ferrara 2002; Borgonovi 2008; Coleman 1990; Costa & Kahn 2003; Glaeser et al. 2007; Putnam 200).

In the past few decades, with a surge in migration from non-European origins, ethnoracial and religious diversity have substantially risen in Canada (Bélanger & Malenfant 2005; Dilmaghani 2018; Mulder & Krahn 2005). Currently, about 25% of Canadian workforce is foreign-born and one in five Canadians belongs to a visible minority group (Bélanger & Malenfant 2005; Dilmaghani 2018). These proportions are higher in larger cities and lower in smaller population centres (Mulder & Krahn 2005). In contrast to the ‘melting pot’ metaphor used for the assimilationist approach of the US, Canada has often been referred to as a ‘mosaic.’ It is so since Canada maintains that it is a nation of immigrants and encourages the newcomers to preserve their
distinct culture (Dilmaghani 2018; Rifaat & Ward 2004). In other words, Canada explicitly promotes multiculturalism. Examining the determinants of tolerance for diversity and using a 1998 public opinion survey drawn from the western province of Alberta, Mulder and Krahn (2005) find that the more educated, the younger, and those living in larger urban centres are more supportive of cultural diversity. Against this background, the present paper, for the first time, examines the link between education and tolerance for workplace diversity in Canada as a whole.

III. Data and Methodology

The data used in this paper are from the confidential microdata files of the Canadian General Social Survey of 2016 (GSS-2016), titled Canadians at Home and Work. Unlike the public use microdata files, access to the confidential files of the datasets collected by Statistics Canada requires the submission of an official application. Once the application is approved by Statistics Canada, the researchers are able to access these files in Statistics Canada’s secure data centres. In addition, the outputs of the analyses conducted using these data are first vetted by Statistics Canada’s staff, in order to prevent any infringement on privacy or misuse, then released to the researchers. The Canadian General Social Survey of 2016 is a randomly selected sample of non-institutionalized Canadian residents, 15 years of age or older (Statistics Canada 2017). The GSS-2016 data are collected by phone interviews, and the respondents are reached through ‘Random Digit Dialling’ of the phone numbers registered as “in service for residential use” in Statistics Canada’s administrative sources.

Rather uniquely, the GSS-2016 asks the respondents “To what extent would you say that cultural differences enrich your workplace?,” with response items of Completely, Mostly, Somewhat, Mostly not, Not at all, and No cultural differences exist in the workplace. This question, only asked from the gainfully employed, is used to create the dependent variables. While
alternative coding has also been implemented, to the benefit of simplicity, the main regressions show the results using two dummies for those who responded (i) “Completely”; and (ii) “Completely” and “Mostly.” As the response item of “No cultural differences in the workplace” indicates, there is a selection issue to address. This explicit selection adds to the selection resulting from the requirement of employment, in order to be part of the universe of this question. These selection issues are of the type “incidental truncation,” incorporating a self-selection component (Wooldridge 2010). In particular, we only observe diversity tolerance for those who have faced it in their workplaces, and the two choices of working and the workplace are determined by the individual as well as the context (e.g. geography, sector of activity, and importantly, education level). Using the Heckman and Wooldridge methodologies, the selection bias is corrected in both OLS and IV estimations (Heckman 1979; Wooldridge 2010).

To assess the existence of a causal link, education is instrumented using the Canadian Compulsory Schooling Laws (CSLs) applicable to the respondents. In Canada, the compulsory schooling legislations are under the authority of provincial governments (Oreopoulos 2005). Hence, the dataset includes several changes in the CSLs enacted at different times, by different provinces. Ontario is the first Canadian province to enact a school leaving age law at 16, in its 1921 Adolescent School Attendance Act. Subsequently, other provinces followed Ontario’s 1921 Act. As a result, in the 1970s, the minimum school leaving age was at least 15 across Canada. In the 1980s, provinces such as Prince Edward Island, Newfoundland, and Quebec raise the school leaving age to 16. Several other increases, less relevant to the cohorts covered in this paper, happened in the 1990s. Appendix Table 1 contains more detail on Compulsory Schooling Laws (CSLs) of Canada, relevant to this paper’s cohorts.
Ideally, to accurately assign a CSL to an individual, one must know the jurisdiction of residence during the teenage years. But, such precise information is often missing in the survey data (Dilmaghani 2021; Kemptner et al. 2011; Pischke & von Wachter 2008). While both province of birth and province of residence likely incorporate some noise, in absence of accurate information, the province of birth is usually preferred (Dilmaghani 2019, 2021 Oreopoulos 2005). An assignment based on province of birth is also the approach taken in this paper. Given the documented impact of generational successions on attitudes towards minorities and stigmatized groups (Schwadel & Garneau 2017), the analysis is done separately for the baby boom generation (born between 1946 and 1964) and the Generation X (born between 1965 and 1981). This separate analysis also allows to limit the age difference among the treated cohorts and sharpen the IV estimates (Galama et al. 2018). Since the samples became rather small for the subsequent generation, i.e. Millennials, who had finished their education and had a job, Millennials are not included in the study.

<Insert Table 1>

Rather than the exact number of years of schooling completed, like most other social surveys, the GSS-2016 contains information on the highest degree attained by the respondents. This education question introduces some measurement errors for those who dropped out of school before a degree completion or repeated a grade. Kennedy (2017) shows that in the United States, raising the CSLs has led to 10% increase in ninth grade repeating. Consequently, the CSL-based IV estimates of returns to education are likely biased upward (Kennedy 2017). This limitation applies to almost all studies of the kind, including the present paper (Dahmann & Schnitzlein 2019). Notwithstanding this limitation, the coding follows previous studies in terms of the assignment of years of schooling based on the highest degree attained (Dahmann & Schnitzlein
value of 12 is assigned to those who have finished high school, 13 to those with some post-secondary schooling, 14 to the individuals who have a post-secondary diploma below a bachelor degree, 16 to those with a bachelor degree, and 19 to those with a graduate degree. For the remainder of the respondents (below high school education), the value of 9 is assigned, unless they were treated by a CSL (Dahmann & Schnitzlein 2019).

<Insert Figures 1-2>

The GSS-2016 also includes information on marital status, non-heterosexual orientation, labour market status, income, ethnic belonging (Anglophone, Francophone, Aboriginal, visible minority) and immigration status. Immigrants, likely to have completed their schooling abroad, are excluded from the analyses. The observations with critical missing values (less than 2% of the sample) are dropped. With these restrictions, the GSS-2016 contains 6,147 observations on baby boomers and 3,756 observations on Generation Xers. The difference in the number of observations shows the well-known smallness of Generation X, compared with the Baby Boom generation (Foot & Stoffman 1996). It must, however, be noted that the sample likely omits some among the oldest baby boomers, retired by 2016. This is taken into account, to the extent permitted by the data, in the sample selection correction exercises. Table 1 reports the descriptive statistics by gender and generation. As shown in the table, Generation Xers have somewhat higher education and a greater positivity of attitudes towards workplace diversity. While little gender difference is found in education, females are more positive towards workplace diversity than males. Table 1 also reports the share of minority groups, such as visible minorities, francophones, Aborignals, and non-heterosexuals. Finally, as shown in the table, gender differences in employment income are large. Figures 1 and 2 provide visuals for responses to the dependent variable.
IV. Methodology

To assess the link between education and workplace diversity tolerance, first, the partial correlations of education and the outcomes are examined. These OLS estimations are based on Equation (1):

\[ y_i^h = \beta_0 + \beta_1 S_i + \sum_{j=0}^{2} \theta_j \times \text{Province}_i \times \text{Cohort}_i^j + X_i \delta + \chi_i \gamma + \epsilon_i \quad h = 1,2 \tag{1} \]

The dependent variable \( y_i^h \) captures the outcomes for individual \( i \), as a dummy taking the value of 1 for response items of (i) Completely; (ii) Completely and Mostly, to the question “To what extent would you say that cultural differences enrich your workplace?”. A linear probability model is assumed and the equations are estimated using OLS. Years of schooling are denoted by \( S_i \). Hence, the coefficient of interest is \( \beta_1 \). The coefficients for province of birth, and year of birth-specific trends are denoted by vector \( \theta_j \). The superscript \( j \) captures the powers for a second degree polynomial, to allow for nonlinear trends as well as provincial fixed effects. Equation (1) also controls for birth cohort fixed effects, (through year of birth) gender, non-heterosexual orientation, and ethnicity. All these exogenous covariates are included in matrix \( X_i \). On the other hand, the matrix \( \chi_i \) includes endogenous variables which are affected by education, such as marital status, occupational category, and income in natural logarithm.

Given the selection issue, i.e. the fact that both gainful employment and the presence of diversity in the workplace may be a function of educational attainment, the Heckman Selection Methodology is used (Heckman 1979). The selection equation relies on province of residence, education, field of study, occupation, industry, workplace size (small, medium, large), and the number of employees in the worksite. These variables are highly correlated with the likelihood of employment and that the workplace comprises a diverse set of coworkers. To keep the sample
sizes identical between OLS and Heckit models (i.e. the unselected samples of Heckman selection correction models), in the OLS estimations, two dummies control for those who work and those who stated there is no cultural difference in their workplaces, without excluding these respondents from the regressions. Dropping them from the sample does not affect the coefficients of interest.

To address the endogeneity issue, the changes in the school leaving age laws in Canada are exploited to instrument for education, as previously done in the literature (Oreopoulos 2005; Dilmaghani 2019, 2021; Hungeman 2014). The province of birth is taken as the cue for the exposure to a given school leaving age law. To account for possible secular upward trends in both education and the dependent variables, the IV regressions control for province-specific trends (second degree polynomials). These controls are important as noted in the recent literature scrutinizing the appropriateness of compulsory schooling laws as an instrument for education (Keane & Neal 2021; Stephens & Yang 2014).

The IV estimations are based on the following first stage equation:

\[ S_i = \alpha_0 + \psi Z_i + \sum_{j=0}^{2} \theta_j \times \text{Province}_i \times \text{Cohort}_i^j + X_i \delta + \omega_i \]  

The left-hand side variable \( S_i \) denotes years of schooling completed by individual \( i \) while \( Z_i \) stands for the instrument, that is, the compulsory schooling years faced by individual \( i \). Accordingly, the estimated IV equations are as follows:

\[ y_i^h = \beta_0 + \beta_1 \hat{S}_i + \sum_{j=0}^{2} \theta_j \times \text{Province}_i \times \text{Cohort}_i^j + X_i \delta + \epsilon_i \]  

For the IV estimations too, the selection issue is addressed, using the approach proposed by Wooldridge (2010). In this approach, first, a Probit selection equation is fitted to the full sample. Then, its Inverse Mills Ratio (IMR), sometimes referred to as “non-selection hazard,” is calculated.
and used as an additional regressor in the 2SLS estimations (Wooldridge 2010). The IMR is the ratio of the probability density function to the complementary cumulative distribution function of a distribution. It is often used when the distribution of a random variable is truncated through a selection bias, as is the case here for workplace diversity tolerance variable.

Formally, in addition to Equations (2) and (3), the population model includes Equation (4):

$$\Pr(Y = 1|Z) = \Phi\left(\beta_0 + \beta_1 S_i + \psi Z_i + \sum_{j=0}^{2} \theta_j \times Prov_i \times Cohort_i + X_i \delta + \zeta_i \eta + \nu_i\right)$$  \hspace{1cm} (4)

Where \(Y\) is a dummy taking the value of 1 when the dependent variable is observed, i.e. the respondent works and there is cultural diversity in the workplace. After estimating Equation (4) by Probit, the associated Inverse Mils Ratio must be included in Equation (3) as an additional regressor. Wooldridge (2010) shows that this approach produces consistent estimates of the parameters of interest in an IV regression. Unless there is precise information about the nature of selection, all exogenous variables should be included in the selection equation, i.e. Equation (4), as well as in the Stage 2 of the IV estimations. Wooldridge (2010) notes that dropping some exogenous variables in either the selection equation or the Stage 2 equation imposes unwarranted exclusion restrictions on a reduced form equation. Hence, the Probit selection equation includes the selection variables of province of residence, education, field of study, occupation, industry, workplace size (recorded as large, medium, and small), and the number of employees in the worksite, as well as the instrument and all exogenous variables. The selection equation is identified using workplace size, the number of employees in the worksite, and province of residence (as opposed to province of birth), excluded from the main equation.

The F-Statistics demonstrating the strength of the instruments are computed. It is known that relatively weaker instruments underestimate the variance of the IV coefficients and inflate the
odds of significant results (Stock & Yogo 2002; Moreira 2009). As reported in the next section, the instrument appears to be weak for the Generation X, while for the baby boomers, the instrument largely passes the validity threshold suggested by Staiger and Stock (1997).

V. Results

Table 2 shows the OLS and Heckman selection corrected estimates (Heckman 1979), without addressing the endogeneity of education. For each generation and outcome, Table 2 shows 3 specifications of (i) only exogenous controls; (ii) all the controls; (iii) selection corrected estimates with exogenous controls. To save space, only the coefficients of a number of exogenous covariates are shown in the table. All the controls are listed as note to the table. As shown in the table, for the baby boomers, education is positively correlated with the outcome in all the specifications, except in Column (2), where the variables affected by education, such as occupation and industry, are also accounted for. Among the controls, coefficient for Aboriginals is statistically significant and positive across specifications of Columns (1) to (3), suggesting a greater tolerance for cultural diversity in the workplace. No other demographic group coefficient is statistically significant. Particularly, as shown in the table, there is no gender difference among baby boomers regarding the outcomes. Note that in Columns (1) to (3) the dependent variable is the highest level of tolerance (response item of “Completely”). But, in Columns (4) to (6), the dependent variable covers both “Completely” and “Mostly.” A comparison of the two sets of specifications shows that the education gradient is stronger when the dependent variable is less restrictively defined. This pattern indicates that to attain the highest level of valuation for workplace diversity, factors other than education might be at work.

<Insert Table 2 Here>
Columns (7) to (12) of Table 2 cover the Generation X. For the subsample of Generation X, the coefficient for education is statistically significant and positive in all specifications, except in Columns (8) and (11), which also incorporate endogenous regressors such as occupation and industry. Therefore, while the net association of education with the outcome may not be significant, its direct association is statistically significant, for both baby boomers and the Generation X. However, for the Generation X, the coefficients are somewhat smaller than those found for baby boomers. This might be because of a higher average level of educational attainment in this generation. Like the baby boomers, the size of the partial correlations are larger when the dependent variable is less restrictively defined (i.e. it covers both response items of “Completely” and “Mostly”). Regarding the controls, no gender difference is found among the Generation X as well. Likewise, the coefficient for francophones, non-heterosexuals, and Aboriginals are not statistically significant among Generation X. However, the coefficient for visible minority is statistically significant and positive in several specifications, indicating a greater valuation for workplace diversity than whites.

<Insert Table 3 Here>

Table 3 shows the IV estimations, as proposed in Equation (3). The First Stage regressions are shown in Appendix Table 2. As reported in the appendix, the instrument is strongly and positively associated with education, having the sensible coefficient of 0.383 increase in years of schooling, among the baby boomers. The F-Statistic associated with this regression is 27.85, largely above the validity threshold of Staiger and Stock (1997), which is 10. In contrast, for Generation Xers, the instrument is not statistically significantly associated with education, and the F-Statistic is 0.45. Hence, for Generation Xers, the IV estimates are not reliably informative. They are nonetheless reported in the table.
As Table 3 reports, the IV and the selection corrected IV coefficients are statistically insignificant. Hence, it appears that the positive relationship between education and tolerance, documented in the literature (Becker et al. 2017; Chan 2019; Mulder & Krahn 2005) and the previous OLS estimations reported here does not stand a causal scrutiny. Note that some recent econometric developments suggests that the threshold for a truly strong instrument is a first-stage F-statistics of 50 (Keane & Neal 2021). According to Keane and Neal (2021), the OLS regressions mitigating the sources of endogeneity might be superior to the IV estimates without a truly strong instrument. Therefore, while a positive association between education and diversity tolerance is apparent, the existence of a causal link is not supported in these data and a CSL instrument, remaining at best inconclusive.

As noted in Angrist et al. (1996), the IV estimates of the kind must be interpreted as Local Average Treatment Effects (LATEs). The LATEs capture the change in the dependent variable which is brought about by the impact of the instrument on the independent variable (here, education). If different individuals have different returns to schooling, then the LATE estimates will differ from the OLS estimates, and among themselves (Angrist & Imbens 1995). Therefore, one reason for the heterogeneities is that the type of pupils who are induced to stay longer in school by the CSL reforms likely differ from the average person. Generally, the CSLs compel teenage students who would have otherwise dropped out, to stay in school for between a few months to a couple of years longer. In the context of education-health gradient and the causal effects estimated using CSLs, Arcaya and Saiz (2020) suggest that complying students may be the least able to translate the additional schooling into a better health. In contrast, Galama et al. (2018) suggest larger returns to schooling for the compliers than others. No such precedent has been established regarding education-tolerance gradient, due to a lack of scholarship, thus far. Nonetheless, to
ensure the robustness of the results, several sensitivity tests have been conducted. First, the OLS equations were re-estimated, dropping one province at a time, to verify whether the results are driven by any particular province. The results, remaining largely robust, are reported in the Appendix Tables 3 and 4. Second, using the raw responses of the “diversity” question of the GSS-2016, instead of the dummy dependent variables, does not change the results. The latter sensitivity tests are available upon request.

VI. Conclusion

Education engenders socially beneficial externalities, most prominently documented regarding health (Galama et al. 2018). The assessment of externalities of education is important (Acemoglu & Angrist 2000; McMahon 2007). If education fosters civic engagement, trust, and tolerance, these positive externalities should be accounted in education funding (Teixeira et al. 2021). It is robustly established that education strongly associates with social capital, especially when it is accompanied by positive direct interactions among groups of equals (Borgonovi 2008, 2012; Hooghe et al. 2008; Kunovich 2004; Semyonov et al. 2004). In parallel, evidence suggests that social capital also depends on the level of diversity across dimensions such as ethnicity, religion and social class, with lower diversity propitious to greater social capital (Alesina & La Ferrara 2002; Costa & Kahn 2003; Glaeser et al. 2002; Marschall & Stolle 2004; Putnam 2007). This means that education, if positively related to diversity tolerance, can play a major role in maintaining a high level of social capital in increasingly diverse Western democracies.

This is the first study to assess the causal effects of education on attitudes towards workplace diversity in Canada, a less studied positive externality of education. The investigation indicates that, in the correlational regressions, the upward sloping “education-tolerance gradient” generally stands. But, the IV estimates did not result in evidence for a causal relationship between
education and diversity tolerance for either of baby boomers or Generation Xers (for whom the instrument was weak). While the null findings do not immediately support the existence of a causal link, the results must be interpreted as Local Average Treatment Effects (Angrist & Imbens 1995). A multiplicity of factors, such as the characteristics of the compliers and the quality of education received by the compliers, can explain the results. Nonetheless, the emerging evidence suggest that non-tertiary schooling expansions implemented in the past century may have done little to bring about a greater tolerance for diversity. Given the increasing emphasis put on diversity across all levels of education (Byars-Winston et al. 2018; Clauson & McKnight 2018; Fuentes et al. 2021; Hagman 2021; Ham et al. 2018; Lee Peck et al. 2008; Otten et al. 2021; Tamtik & Guenter 2019; Tuters & Portelli 2017), the lack of a causal link may have already changed among the younger cohorts, through changes in the quality of education as well as changes in the composition of educational institutions since more minorities exists among the younger generations. Noting the importance of diversity tolerance for the social cohesion of increasingly diverse countries of the geopolitical west, future research must pay a greater attention to this question.

References


## Table 1. Descriptive Statistics

<table>
<thead>
<tr>
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<th>Baby Boomers</th>
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<th>Generation X</th>
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<td>SD</td>
<td>Females</td>
<td>SD</td>
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<td>0.285</td>
<td>0.452</td>
</tr>
<tr>
<td>Differences Enriches...†</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Completely</td>
<td>0.102</td>
<td>0.303</td>
<td>0.120</td>
<td>0.325</td>
</tr>
<tr>
<td>Mostly</td>
<td>0.141</td>
<td>0.348</td>
<td>0.139</td>
<td>0.346</td>
</tr>
<tr>
<td>Somewhat</td>
<td>0.231</td>
<td>0.422</td>
<td>0.186</td>
<td>0.389</td>
</tr>
<tr>
<td>Mostly not</td>
<td>0.074</td>
<td>0.262</td>
<td>0.091</td>
<td>0.287</td>
</tr>
<tr>
<td>Not at all</td>
<td>0.115</td>
<td>0.319</td>
<td>0.096</td>
<td>0.294</td>
</tr>
<tr>
<td>Not Applicable</td>
<td>0.336</td>
<td>0.472</td>
<td>0.370</td>
<td>0.483</td>
</tr>
<tr>
<td>Age</td>
<td>63.94</td>
<td>4.89</td>
<td>64.04</td>
<td>4.91</td>
</tr>
<tr>
<td>Aboriginal</td>
<td>0.041</td>
<td>0.197</td>
<td>0.033</td>
<td>0.178</td>
</tr>
<tr>
<td>Francophone</td>
<td>0.260</td>
<td>0.438</td>
<td>0.253</td>
<td>0.434</td>
</tr>
<tr>
<td>Visible Minority</td>
<td>0.013</td>
<td>0.115</td>
<td>0.001</td>
<td>0.092</td>
</tr>
<tr>
<td>Non Heterosexual</td>
<td>0.009</td>
<td>0.095</td>
<td>0.011</td>
<td>0.102</td>
</tr>
<tr>
<td>Employment Income</td>
<td>$71,660</td>
<td>38,453</td>
<td>$55,671</td>
<td>33,457</td>
</tr>
<tr>
<td>Partnered</td>
<td>0.777</td>
<td>0.415</td>
<td>0.678</td>
<td>0.467</td>
</tr>
<tr>
<td>Household Size</td>
<td>2.195</td>
<td>0.930</td>
<td>2.155</td>
<td>1.024</td>
</tr>
</tbody>
</table>

**Observations by Gender**

<table>
<thead>
<tr>
<th></th>
<th>Baby Boomers</th>
<th></th>
<th>Generation X</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Males</td>
<td>2,982</td>
<td>3,165</td>
<td>1,882</td>
<td>1,874</td>
</tr>
<tr>
<td>Females</td>
<td>6,147</td>
<td>3,756</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Total Observations**

<table>
<thead>
<tr>
<th></th>
<th>Baby Boomers</th>
<th></th>
<th>Generation X</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Males</td>
<td>6,147</td>
<td>3,756</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note:** The data are from the Canadian General Social Surveys of 2016. See [this link](https://www150.statcan.gc.ca/n1/pub/89f0115x/89f0115x2019001-eng.htm).

† Conditional of being an employee working in a worksite where diversity exists.
Figures

Figure 1. Attitudes towards Workplace Diversity, Baby Boomers

*Note:* The data are from the Canadian General Social Survey of 2016, subsample of working respondents.
Figure 2. Attitudes towards Workplace Diversity, Generation Xers

Note: The data are from the Canadian General Social Survey of 2016, subsample of working respondents.
Appendix Tables

Appendix Table 1. Compulsory Schooling Laws (CSLs) by Canadian Province

<table>
<thead>
<tr>
<th>Province</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Newfoundland &amp; Labrador (NL)</td>
<td>1942 (none to 14); 1951 (14 to 15); 1987 (15 to 16)</td>
</tr>
<tr>
<td>Prince Edward Island (PEI)</td>
<td>1938 (13 to 15); 1980 (15 to 16)</td>
</tr>
<tr>
<td>Nova Scotia (NS)</td>
<td>1996 (14 to 16)</td>
</tr>
<tr>
<td>New Brunswick (NB)</td>
<td>1945 (12 to 16); 1999 (16 to 18)</td>
</tr>
<tr>
<td>Québec (QC)</td>
<td>1943 (14); 1961 (14 to 15); 1988 (15 to 16)</td>
</tr>
<tr>
<td>Ontario (ON)</td>
<td>No change: 1921 (16)</td>
</tr>
<tr>
<td>Manitoba (MN)</td>
<td>1962 (14 to 16)</td>
</tr>
<tr>
<td>Saskatchewan (SK)</td>
<td>1965 (15 to 16)</td>
</tr>
<tr>
<td>Alberta (AB)</td>
<td>1966 (15 to 16); 2001 (16 to 17)</td>
</tr>
<tr>
<td>British Columbia (BC)</td>
<td>1990 (15 to 16)</td>
</tr>
</tbody>
</table>

Note: Source for school leaving age laws is Oreopoulos (2005).

Appendix Table 2. First Stage Estimations

<table>
<thead>
<tr>
<th></th>
<th>Baby Boomers</th>
<th>Generation Xers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
</tr>
<tr>
<td>SLA</td>
<td>0.382***</td>
<td>0.071</td>
</tr>
<tr>
<td></td>
<td>(0.073)</td>
<td>(0.106)</td>
</tr>
<tr>
<td>Observations</td>
<td>6,147</td>
<td>3,756</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.008</td>
<td>0.000</td>
</tr>
<tr>
<td>F-Statistics</td>
<td>27.85</td>
<td>0.45</td>
</tr>
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</table>

Note: Robust standard errors in parentheses; * significant at 5% level; ** significant at 1% level. The standard errors are clustered by the province of birth and survey cycle. The controls are a dummy for female, squared and cubic of age, dummies for the province of birth, year of birth interacted with the province of birth, province of interview, the year of interview interacted with the province of interview, and survey cycle dummies.
Appendix Table 3. OLS Sensitivity Tests, Baby Boomers

<table>
<thead>
<tr>
<th>Excluded →</th>
<th>NL</th>
<th>PEI</th>
<th>NS</th>
<th>NB</th>
<th>QC</th>
<th>ON</th>
<th>MN</th>
<th>SK</th>
<th>AB</th>
<th>BC</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
<td>(5)</td>
<td>(6)</td>
<td>(7)</td>
<td>(8)</td>
<td>(9)</td>
<td>(10)</td>
</tr>
</tbody>
</table>

A. Outcome: Completely

<table>
<thead>
<tr>
<th>Education</th>
<th>0.007***</th>
<th>0.007***</th>
<th>0.007***</th>
<th>0.007***</th>
<th>0.008***</th>
<th>0.008***</th>
<th>0.006***</th>
<th>0.006***</th>
<th>0.006***</th>
<th>0.006***</th>
</tr>
</thead>
<tbody>
<tr>
<td>(0.002)</td>
<td>(0.002)</td>
<td>(0.002)</td>
<td>(0.002)</td>
<td>(0.002)</td>
<td>(0.002)</td>
<td>(0.002)</td>
<td>(0.002)</td>
<td>(0.002)</td>
<td>(0.002)</td>
<td>(0.002)</td>
</tr>
</tbody>
</table>

| Observations | 5,643       | 5,900      | 5,667      | 5,625      | 5,090      | 4,880      | 5,771      | 5,656      | 5,656      | 5,435      |
| R-Squared    | 0.097       | 0.097      | 0.097      | 0.102      | 0.108      | 0.096      | 0.098      | 0.089      | 0.097      |

B. Outcome: Completely & Mostly

<table>
<thead>
<tr>
<th>Education</th>
<th>0.013***</th>
<th>0.013***</th>
<th>0.013***</th>
<th>0.013***</th>
<th>0.014***</th>
<th>0.014***</th>
<th>0.013***</th>
<th>0.013***</th>
<th>0.013***</th>
<th>0.013***</th>
</tr>
</thead>
<tbody>
<tr>
<td>(0.002)</td>
<td>(0.002)</td>
<td>(0.002)</td>
<td>(0.002)</td>
<td>(0.002)</td>
<td>(0.002)</td>
<td>(0.002)</td>
<td>(0.002)</td>
<td>(0.002)</td>
<td>(0.002)</td>
<td>(0.002)</td>
</tr>
</tbody>
</table>

| Observations | 5,643       | 5,900      | 5,667      | 5,625      | 5,090      | 4,880      | 5,771      | 5,656      | 5,656      | 5,435      |
| R-Squared    | 0.218       | 0.217      | 0.216      | 0.217      | 0.224      | 0.222      | 0.217      | 0.218      | 0.212      | 0.216      |

Note: The data source is the Canadian General Social Survey of 2016. Robust standard errors in parentheses; *: p<0.1, **: p<0.05, ***: p<0.01. The controls correspond to those used in the main text Table 2, Columns (2) and (5).

Appendix Table 4. OLS Sensitivity Tests, Generation Xers

<table>
<thead>
<tr>
<th>Excluded →</th>
<th>NL</th>
<th>PEI</th>
<th>NS</th>
<th>NB</th>
<th>QC</th>
<th>ON</th>
<th>MN</th>
<th>SK</th>
<th>AB</th>
<th>BC</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
<td>(5)</td>
<td>(6)</td>
<td>(7)</td>
<td>(8)</td>
<td>(9)</td>
<td>(10)</td>
</tr>
</tbody>
</table>

A. Outcome: Completely

<table>
<thead>
<tr>
<th>Education</th>
<th>0.008***</th>
<th>0.008***</th>
<th>0.008***</th>
<th>0.009***</th>
<th>0.011***</th>
<th>0.006*</th>
<th>0.008***</th>
<th>0.009***</th>
<th>0.008***</th>
<th>0.008***</th>
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</thead>
<tbody>
<tr>
<td>(0.003)</td>
<td>(0.003)</td>
<td>(0.003)</td>
<td>(0.003)</td>
<td>(0.003)</td>
<td>(0.003)</td>
<td>(0.003)</td>
<td>(0.003)</td>
<td>(0.003)</td>
<td>(0.003)</td>
<td>(0.003)</td>
</tr>
</tbody>
</table>

| R-Squared    | 0.068       | 0.068      | 0.069      | 0.069      | 0.074      | 0.066    | 0.068      | 0.070      | 0.069      | 0.069      |

B. Outcome: Completely & Mostly

<table>
<thead>
<tr>
<th>Education</th>
<th>0.018***</th>
<th>0.019***</th>
<th>0.018***</th>
<th>0.019***</th>
<th>0.021***</th>
<th>0.018***</th>
<th>0.019***</th>
<th>0.019***</th>
<th>0.020***</th>
<th>0.015***</th>
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</thead>
<tbody>
<tr>
<td>(0.004)</td>
<td>(0.004)</td>
<td>(0.004)</td>
<td>(0.004)</td>
<td>(0.004)</td>
<td>(0.004)</td>
<td>(0.004)</td>
<td>(0.004)</td>
<td>(0.004)</td>
<td>(0.004)</td>
<td>(0.004)</td>
</tr>
</tbody>
</table>

| R-Squared    | 0.162       | 0.164      | 0.162      | 0.163      | 0.166      | 0.160    | 0.162      | 0.165      | 0.165      | 0.163      |

Note: The data source is the Canadian General Social Survey of 2016. Robust standard errors in parentheses; *: p<0.1, **: p<0.05, ***: p<0.01. The controls correspond to those used in the main text Table 2, Columns (8) and (11).