

# Demographic Divides in Perceptions of Electoral Integrity

## Abstract

This article addresses two issues in the literature on electoral integrity. First, demographic measures have produced inconsistent results that remain unaddressed. Second, existing electoral integrity indices may represent some demographic groups more than others. The study analyses almost a million survey respondents from 135 countries between 1995 and 2015, with data from 10 sources compared against 13 electoral integrity indices. Methods include data visualisation, mixed-effects multilevel models, and pairwise correlations. Results suggest inconsistencies between demographic groups are due to national conditions such as levels of socioeconomic development and economic globalisation. Findings also demonstrate that higher socioeconomic groups correlate more strongly with electoral integrity indices. Widening political divisions can produce surprising election results and often predict civil unrest, but existing indices have difficulty forecasting these outcomes and trends. Supplementing these indices with public opinion indicators could broaden our perspective and provide earlier warnings of growing public discontent.

## Keywords

electoral integrity, public opinion, demographics, expert indices, survey data, cross-national

## 1. Introduction

Citizens who believe elections are fair are more likely to vote, trust political institutions, express satisfaction with democracy, and support the government, even if their preferred political parties or candidates are defeated (Birch, 2010; Carreras & Irepoglu, 2013; Cho, 2012; Farrell & McAllister, 2006; Kerr, 2014; McAllister & White, 2011; McCann & Dominguez, 1998; Moehler, 2009; Rose & Mishler, 2009). Conversely, perceptions that elections are rigged can undermine confidence in government, erode political legitimacy, and trigger civil unrest or violence (Birch, 2010; Dercon & Gutiérrez-Romero, 2012; Norris, 2014; Norris, Frank, & Coma, 2015). Perceptions of electoral fairness are thus important and initiatives such as the Electoral Integrity Project have done well raising awareness of the issue (Norris, 2013a, 2013b, 2014, 2015; Norris, Frank, et al., 2015; Norris, Frank, & Martínez i Coma, 2014; Norris, i Coma, Nai, & Gromping, 2016). Numerous studies have analysed factors that may affect perceptions of electoral integrity. Findings suggest that income inequality (Han & Chang, 2016; Jung & Sunde, 2014; Schäfer, 2012), corruption (Anderson & Tverdova, 2003; Birch, 2008a; Flesken & Hartl, 2017), the electoral system (Aarts & Thomassen, 2008; Birch, 2007, 2008a; Birch & van Ham, 2017; Blais & Aarts, 2006; Farrell & McAllister, 2006; Jackman, 1987; Lindberg, 2005; Norris, 1997; Powell, 1986), and economic development or performance are consistently strong predictors (Friedrichsen & Zahn, 2014; Graham & Sukhtankar, 2004; Kotzian, 2011; Lewis-Beck & Stegmaier, 2000; Mishler & Rose, 2001; Moehler, 2009; Nannestad & Paldam, 1994; Quaranta & Martini, 2016; Wong, Wan, & Hsiao, 2011). However, demographic factors remain relatively overlooked and are often used merely as control variables if they are included.

## **1.1 Socioeconomic development and economic globalisation**

Most studies analysing demographic effects against public perceptions of electoral integrity have been conducted using a single developed country, the United States or its subnational divisions (Alvarez, Hall, & Llewellyn, 2008; Ansolabehere & Persily, 2008; Atkeson, Alvarez, Hall, & Sinclair, 2014; Atkeson & Saunders, 2007; Barnes & Beaulieu, 2014; Bullock, Hood, & Clark, 2005; Claassen, Magleby, Monson, & Patterson, 2013; Hall, Monson, & Patterson, 2009; Hall & Stewart, 2014; Nunnally, 2011; Stein, Vonnahme, Byrne, & Wallach, 2008), while a few studies examine elections in Russia or China, (Landry, Davis, & Shiru Wang, 2010; McAllister & White, 2011; Rose & Mishler, 2009). This limits our ability to reliably generalise results or make conclusions regarding other countries. There are regional studies covering multiple countries in the Americas (Maldonado & Seligson, 2014; Rosas, 2010) and Africa (Kerr, 2013, 2014; Mattes, 2014; Moehler, 2009). Studies using Module 1 of the Comparative Study of Electoral Systems (CSES) tend to reflect tendencies in Europe because eighteen of its twenty-nine countries (62%) are in Europe (Anderson, Blais, Bowler, Donovan, & Listhaug, 2005; Birch, 2008a; Farrell & McAllister, 2006; Singh, Lago, & Blais, 2011). However, regional studies reflect differing trends for demographic factors and we lack an adequate explanation for these differences. Studies using the World Values Survey are perhaps the most globally representative, but there are few studies using its electoral integrity module that include demographic factors (Flesken & Hartl, 2017). The current state of this topic is that single country studies are difficult to generalize, regional studies reflect divergent findings, and not many globally representative studies include demographic factors.

A possible explanation for demographic inconsistencies could be differing national contexts such as levels of socioeconomic development or integration into the global economy. Using education as an example, studies containing mostly economically advanced countries with higher levels of international trade have often shown positive associations between education and attitudes towards democracy and elections (Anderson & Guillory, 1997; Anderson & Tverdova, 2003; Birch, 2008a; Farrell & McAllister, 2006; Maldonado & Seligson, 2014; Rosas, 2010; Singh et al., 2011). Conversely, studies including less developed countries that are less integrated into the global economy reveal negative associations between education and similar measures of public opinion (Kerr, 2013, 2014; Mattes, 2014; Moehler, 2009; Seligson, 2002). This pattern deserves a more careful analysis and an explanation. A potential causal mechanism has to do with international trade and the relocation of manufacturing and lower skill jobs. Many multinational firms have gradually moved production overseas, leaving workers in affected industries with less job security and lower incomes (Scheve & Slaughter, 2004). Lower skilled jobs requiring less education have thus been moving from countries with higher labour costs to countries with lower labour costs. People with lower education then become less financially secure than people with more education in developed economies such as the United States (Hacker, Rehm, & Schlesinger, 2013). This economic insecurity could translate into negative attitudes towards politics and undermine perceptions of electoral integrity. The levels of socioeconomic development and economic globalisation could affect demographic groups differently.

## **1.2 Demographic divides and electoral integrity indices**

A second issue related to demographic divides is that there may be some disconnection between ratings provided by existing electoral integrity indices and what large portions of the public perceive. There are often strong correlations between aggregated public opinion and indices of electoral integrity, meaning the public overall tends to understand when there are problems

with democracy and elections (Greenberg & Mattes, 2013; Mattes, 2014; Norris, Frank, & Martinez i Coma, 2013; Rosas, 2010). This could be because citizens often pay closer attention to elections than other government processes (Birch, 2008a). Random samples of citizens could provide a more representative evaluation compared with non-random groups such as election observers or academic experts (Norris, 2013a; Rose & Mishler, 2009). However, aggregating all respondents within public surveys does not tell us if some demographic groups correlate more strongly than others with existing electoral integrity indices. These differences would be important because they imply that expert indices, such as those created by researchers to measure electoral integrity, may be more representative of some demographic groups rather than others.

Electoral victories for Brexit and Trump in 2016 caught many experts by surprise and many electoral integrity indices did not reflect public attitudes in 2015. For example, the 2015 Freedom in the World report gave top rankings to both countries for their Political Rights and Civil Liberties indices, while its Electoral Process indicator gave top scores at or above 11 out of 12 for both countries (Freedom House, 2016a). The 2015 Economist Intelligence Unit (EIU) Democracy Index labelled both countries full democracies and granted them scores above 9 out of 10 on its Electoral Process and Pluralism indicator (EIU, 2016). Indices based on expert assessments have only recently started warning of global backsliding towards less democratic forms of government (EIU, 2017; Freedom House, 2017). It took until 2017 for the United States to be labelled a ‘flawed democracy’ and the change was largely because public trust in its political institutions had reached unprecedented lows after having declined for decades (EIU, 2017; Foa & Mounk, 2016). However, the data from public opinion surveys used in this study reveal that the downward trend has been going on for decades. This is important because popular support is essential for maintaining democratic stability (Easton, 1965, 1975). It should be alarming that large portions of the public in both the United Kingdom (UK) and United States of America (USA) were discontent enough to support nationalistic, xenophobic, anti-establishment, and anti-globalisation movements or candidates.

Voters supporting Brexit and Trump tended to belong to demographic groups with lower education and income levels. A report in the United States found that only about 21% of postgraduates and 34% of graduates supported Trump, while Clinton received the support of 59% and 47% of these two groups (Pew Research Center, 2016). The same report found that Trump received far less support from the highest income earners but dominated amongst the lower-middle income bracket. Support for Brexit in the UK divided along similar demographic lines. A recent report showed that 75% of people without educational qualifications voted in favour of leaving the European Union, while only 27% of postgraduates supported the same choice (Goodwin & Heath, 2016). Income was also important, but the magnitude of the effect was not as large as for education. Of those with household incomes below £20,000, 58% voted to leave, while only 35% of people with household incomes above £60,000 voted to leave (Goodwin & Heath, 2016). The general trend was therefore that Brexit and Trump were supported by lower socioeconomic groups, as measured using education and income.

Experts tend to belong to higher socioeconomic groups than those that supported Brexit and Trump, which could be one reason that these events shocked many. Experts generally have higher levels of education and income, which could bias the aspects of democracy and elections that are measured. These characteristics could translate into expert indices more closely paralleling public opinion groups with similar demographics. Using the sixth World Values Survey (WVS), Norris (2014) observed that formal educational qualifications increases the strength of correlations between the public and experts. This is unsurprising since 99.9% of

Electoral Integrity Project (EIP) experts have tertiary education (Norris et al., 2016). Norris and colleagues have published extensively on electoral integrity and constructed an index of electoral integrity based on expert surveys (Norris, 2013a, 2013b, 2014, 2015; Norris, Frank, et al., 2015; Norris et al., 2013; Norris et al., 2014; Norris et al., 2016). However, there is a risk to political stability when electoral integrity indicators are biased towards the perspectives of some groups over others. The risk comes from marginalized groups tending to be ignored until some threshold is reached, and perhaps Brexit and Trump indicate that we reached that point for the UK and USA in 2016. Many of the electoral integrity indices used in this study did not show declines in the quality of democracy or elections for the UK or USA, but looking at aggregated demographic groups in survey data would have provided warning signs.

## 2. Data and Methods

Public opinion data for this study comes from 35 cross-national surveys produced by the 10 sources summarised in Table 1. This data covers 135 countries between 1995 and 2015 and includes 967,005 respondents in 846 separate national surveys. Each survey is designed to be representative of the national adult population and includes randomly selected respondents from each county. Most national surveys include at least 1000 respondents, with an average of about 1143. This means there are usually enough respondents to analyse demographic groups within each country. The data is aggregated into 779 country-year scores, which can be combined with demographic variables to create indices representing different groups. The sources ask similar questions about the freeness, fairness, honesty, trustworthiness, or cleanliness of elections.

Table 1: Survey sources, years. and number of respondents

	Years	Respondents
Afrobarometer	1999 – 2015	162,626
AmericasBarometer	2004 – 2014	195,957
ArabBarometer	2006 – 2014	28,047
Asian Barometer Survey	2005 – 2010	22,355
Comparative Study of Electoral Systems	1996 – 2002	51,619
European Social Survey	2012 – 2013	44,405
Latinobarómetro	1995 – 2013	167,964
New Europe Barometer	2004 – 2005	13,271
Voice of the People Series	2000 – 2007	234,985
World Values Survey	2011 – 2014	45,776

### 2.1 Dependent Variables

The dependent variable in this study is perceived electoral integrity, but there are two versions: one for respondent data and another for country-year data. The respondent version dichotomises all answer scales into either 0 or 1, with 1 indicating respondents made a positive assessment of electoral integrity and 0 indicating a negative or neutral response. Midpoint values are coded as 0 rather than omitting them or coding them as 1. This produced stronger correlations with overlapping surveys that used originally dichotomous variables and avoided discarding any data. Coding midpoints this way has the advantage of being a conservative estimate because it only codes clearly positive responses as such. This dichotomous version of the dependent variable enables meaningful individual level comparisons across multiple

surveys to uncover generalizable patterns and trends. However, since the data is merged from multiple sources, the dichotomised variable should be broadly interpreted as an overall estimate of approval regarding electoral integrity versus disapproval or neutral sentiments. The study seeks general patterns and avoids making comparisons between individual countries unless they are included within the same survey round from the same source.

To create the country-year version of the dependent variable, original answer scales were first transformed to range from 0 for the lowest electoral integrity to 100 for the highest. These rescaled answers were next averaged within each country-survey observation, keeping all answers from each national survey together. Finally, these country-survey scores were averaged by country-year to create this second version of the dependent variable. Two stages of averaging scores was necessary because some national surveys span multiple years and sources sometimes conduct surveys in the same country within the same year. If surveys span multiple years, then one of the years often includes a relatively small number of respondents. Creating scores using this smaller number of respondents can distort the scores and widen confidence intervals, making them unreliable and not representative of the wider population. When multiple sources conduct surveys within the same country-year, which often occurs, the existence of overlapping scores prevents cross-sectional time-series regression analysis. Therefore, respondent answers are first rescaled, then averaged by country-survey, and finally averaged by country-year. These scores can then be merged with other country-year datasets. Figure 1 displays county-year perceived electoral integrity scores in a histogram, heat map, and bar chart.

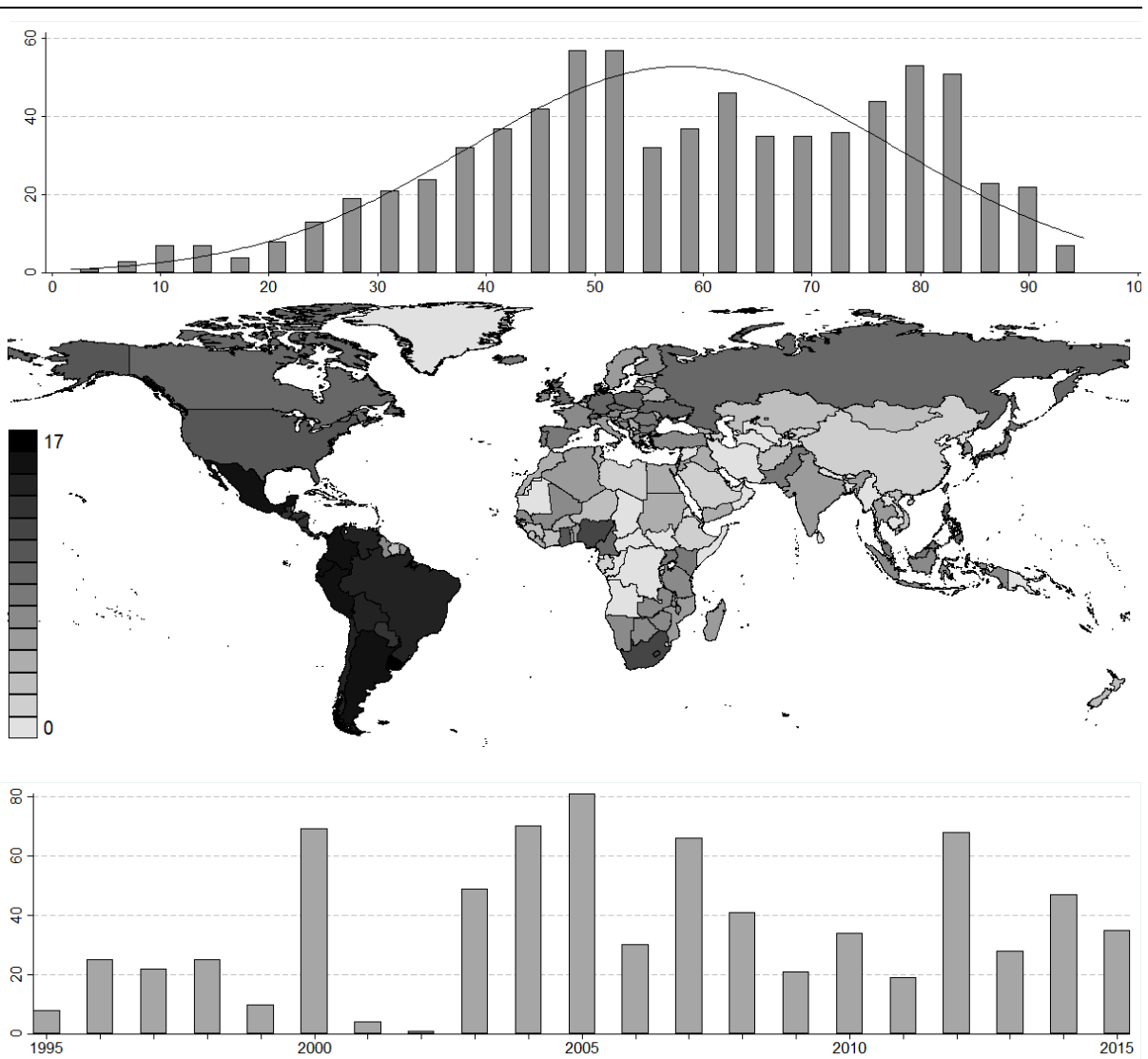


Figure 1: Histogram shows frequency distribution and normal curve, with scores on horizontal axis and frequencies on vertical. Heat map shows number of scores per country, with darker shades indicating more scores. Bar chart shows number of scores per year, with higher bars indicating more scores.

## 2.2 Independent Variables

This study uses four respondent level demographic variables and twelve national level variables. The four demographic variables include age categories (1 = under 30, 2 = 30 to 50, 3 = over 50), gender (1 = male, 2 = female), income groups (1 = lower, 2 = middle, 3 = higher), and education levels (1 = primary or lower, 2 = secondary or vocational, 3 = tertiary or higher). Education refers to the highest level of educational achievement, with estimates if surveys used years of education or age completed education. Income refers to total household income, or personal income if household income is unavailable. Survey questions were recoded to estimate the lowest 25%, middle 50%, and highest 25% income groups within each national survey. These four demographic variables are used as independent variables, but they are also combined with the scale (0 to 100) country-year version of perceived electoral integrity to create indicators representing different demographic groups. These demographic group indicators are then compared with existing electoral integrity indices.

Twelve national level variables control for the political and electoral system, socioeconomic conditions, and quality of government. Most of these variables were used as made available through the 2018 release of the Quality of Government Standard dataset (Teorell et al., 2018), but original sources are cited here. A binary variable indicates whether the political system is parliamentary rather than presidential or semi-presidential, with data combined from the Database of Political Institutions (Beck, Clarke, Groff, Keefer, & Walsh, 2001) and gathered by Gerring and Thacker (2008). A binary variable indicates whether the electoral system include a component of proportional representation, with data combined from the Institutions and Elections Project (Wig, Hegre, & Regan, 2015), Democracy Timeseries Data (Norris, 2009), Database of Political Institutions (Beck et al., 2001), and Democratic Electoral Systems (Bormann & Golder, 2013). A binary variable indicates whether political parties regularly report their finances, with data from the Electoral System Design Database (IDEA, 2016). A percentage variable indicates the proportion of women in national parliaments, with data from the World Development Indicators (World Bank, 2017). A level of democracy scale combines averaged Political Rights and Civil Liberties scores (Freedom House, 2017) with revised and imputed Polity scores (Marshall, Gurr, & Jaggers, 2015). A scale indicator for the Quality of Government combines measures for corruption, law and order, and bureaucracy quality (PRS Group, 2018). A scale index of political corruption averages scores for public sector, executive, legislative, and judicial corruption from the Varieties of Democracy dataset (Coppedge, Gerring, Lindberg, Skaaning, Teorell, Altman, et al., 2015). The Gini coefficient measures income inequality using data from the United Nations (UNU-WIDER, 2017) supplemented with data from World Development Indicators (World Bank, 2017), Deininger and Squire (1996), and the Luxembourg Income and Wealth Study Database (LIS, 2016). A logged measure of gross domestic product (GDP) per capita in current United States dollars is uses data from the United Nations (National Accounts Section, 2017). GDP growth is measured as an annual percentage using data from the World Development Indicators (World Bank, 2017) and International Monetary Fund (IMF, 2017).

The last two national level variables are interacted with binary measures for demographic groups to analyse their attitudes at different levels of socioeconomic development and economic globalisation. The first of these is the Human Development Index (HDI), which combines life expectancy, education, and per capita income indicators (UNDP, 2015). The second interaction variable is an Economic Globalisation index that measures the international flow of goods and services as well as trade restrictions such as tariffs or investment limitations (Dreher, 2006; Gygli, Haelg, & Sturm, 2018). This indicator is divided by 100 to make its values more comparable to those of the HDI and to make regression coefficients easier to display within three decimal places.

### **2.3 Electoral Integrity Indices**

Thirteen indices measuring different aspects of electoral integrity are compared with public opinion indicators representing different demographic groups. Some of the indices in Table 2 were modified to increase the reliability and appropriateness of comparisons. Index values were reversed if necessary to ensure higher values represented higher levels of electoral integrity. Component indicators that included survey data were removed to avoid misleadingly inflating correlations. Modifications to some aggregation methods were necessary for ensuring consistency. For example, Democracy Barometer categories of electoral competition, participation, and representation were aggregated to create an Electoral Quality index following the same method used to create earlier versions of index (Bühlmann, Merkel, Müller,

& Weßels, 2012; Merkel et al., 2014a; Merkel et al., 2014b). This helped ensure older and newer versions of this index measured the same aspects of electoral integrity. Some new indices were created for this article to compare with aggregated demographic group scores. For example, ten NELDA questions are aggregated to construct a Competitive Elections index (Hyde & Marinov, 2012). PELA survey responses were recoded for consistency and aggregated to create a new index representing legislator attitudes (PELA, 1994-2012).

Table 2: Electoral integrity indices

<b>Data Source</b>	<b>Index Name</b>
Bertelsmann Transformation Index (BTI)	Free and Fair Elections
Centre for the Study of African Economies (CSAE)	Free and Fair Elections
Cingranelli-Richards Human Rights Dataset (CIRI)	Electoral Self-Determination
Democracy Barometer (DB)	Electoral Quality
Electoral Integrity Project (EIP)	Electoral Integrity
Economic Intelligence Unit (EIU)	Electoral Process and Pluralism
Freedom House (FH)	Electoral Process
Global Integrity Report (GIR)	Election Integrity
Index of Electoral Malpractice (IEM)	Electoral Process
National Elections across Democracy and Autocracy (NELDA)	Competitive Elections
Parliamentary Elites of Latin America (PELA)	Electoral Trust
Project on International Election Monitoring (PIEM)	Election Quality
Varieties of Democracy (V-Dem)	Clean Elections

Each electoral integrity measures different aspects of electoral integrity, and each comes with different potential biases or limitations. For example, PELA data includes an inherent bias because the surveyed legislators won the most recent election, meaning their assessments are likely to be more positive than a full sample of all electoral candidates including election losers. CIRI uses US State Department Country Reports, so its Electoral Self-Determination index could potentially be biased in favour of US allies (Cingranelli & Richards, 2010; Cingranelli, Richards, & Clay, 2014a; US Department of State, 2015). Freedom House uses fewer country experts than the number of countries assessed (Freedom House, 2016b), which leaves room for expertise gaps. The analysis of some indices will be limited by too few matching cases. Public opinion data is often not released quickly, so comparisons with newer indices that have conducted their research more recently may be limited. This is likely to be an issue limiting comparisons with expert survey data from the Electoral Integrity Project (Norris, Wynter, & Cameron, 2018). On the other hand, comparisons with the V-Dem Clean Elections index should be robust because it includes data extending back to 1900 for all sovereign or semi-sovereign territories (Coppedge, Gerring, Lindberg, Skaaning, Teorell, Andersson, et al., 2015).

## 2.4 Methods

This paper uses three methods to analyse demographic divides in perceptions of electoral integrity. The first compares pairs of demographic indicators against measures of socioeconomic development and economic globalisation. These comparisons are displayed in scatter plots using fitted lines for five pairs of indicators, each representing a demographic group. These include people under 30 versus over 50, male versus female, primary versus tertiary educated, lower versus higher income, and two composite socioeconomic groups. The first composite group represents females under 30 with lower incomes and primary education. The second represents males over 50 with higher incomes and tertiary education. These



composite groups were selected for display over others because their mean perceived electoral integrity scores were some of the furthest apart.

The second method of analysis is multilevel mixed-effect regression models using respondent-level data and perceived electoral integrity as the dependent variable. Respondents are grouped within country-surveys to reflect the structure of the data and the models use robust standard errors to provide more conservative estimates of significance. The models analyse interactions between different demographic groups and variables measuring national levels of socioeconomic development and economic globalisation. These models were constructed to analyse the same pairs of demographic groups used in scatter plots, with additional variables included to control for important factors such as the electoral system, quality of government, and levels of corruption.

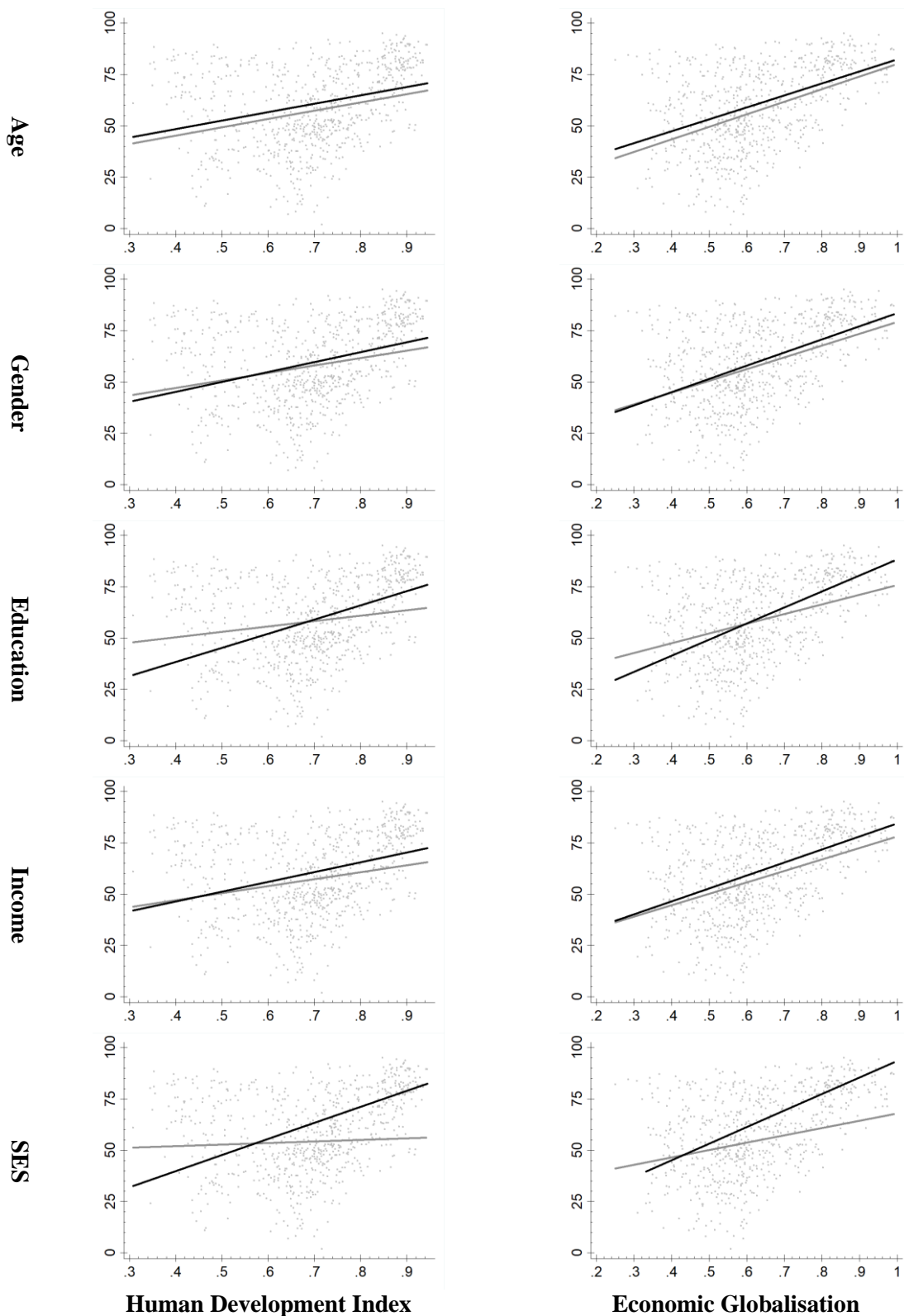
The third method used in this paper is pairwise correlations between public opinion indicators and other electoral integrity indices. The public opinion indicators are the same ones used to construct scatter plots. They represent the aggregated attitudes toward electoral integrity of different demographic groups. These groups are compared with the thirteen electoral integrity indices outlined in section 2.3 above.

In addition to models presented in this paper, numerous exploratory regressions and robustness checks consistently showed the same demographic trends outlined in this study. The issue of survey design effects is often raised by colleagues, but the broad demographic patterns in this study maintain across hundreds of cross-national models limited to survey rounds from each source. These models included different control variables such as the effective number of political parties, electoral district magnitudes, multiple economic performance indicators, different measures of corruption, different measures of government quality or integrity, and variables measuring multiple aspects of the political system. These variables were not included because they were either not significant or not widely available and this study was designed to provide generalizable results spanning as many countries as possible.

### **3. Results**

Results are presented starting with scatter plots in Figure 2. Light grey scatter points show perceived electoral integrity scores for all survey respondents. The black and grey lines show fitted values for opposing demographic group indicators compared against either Human Development Index or Economic Globalisation scores. The fitted lines thus display patterns in demographic group attitudes as levels of socioeconomic development and economic globalisation increase. Overall patterns show that attitudes towards electoral integrity are positively correlated with both socioeconomic development and economic globalisation. However, the rates at which different demographic groups become more positive can differ substantially.

Figure 2: Demographic groups compared against development and globalisation



Black lines represent tertiary educated, higher income, over 50, males, or all these combined for low SES. Grey lines represented primary educated, lower income, under 30, females, or all these combined for high SES. Vertical axes show country-year perceived electoral integrity scores. Horizontal axes show scores for the Human Development Index and economic globalisation.

Looking first at age, we see that the attitudes of people over 50 are consistently more positive than the attitudes of people under 30 at all levels of socioeconomic development and economic globalisation. For gender, women start out with more positive attitudes at lower development levels, but the relative attitudes of men become more positive as levels of socioeconomic development increase. The relative attitudes of men and women are similar at lower levels of economic globalisation, but women become relatively less positive than men as levels of economic globalisation increase. Education shows the most divergent patterns, with attitudes of tertiary educated groups substantially more negative than primary educated groups at lower development levels, but substantially more positive as levels of socioeconomic development increase. A similar transition occurs for education groups between countries with lower versus higher levels of economic globalisation. Opposing income groups start out with similar attitudes towards electoral integrity in lower development countries and in those with lower levels of economic globalisation. As countries develop socioeconomically and globalise economically, the attitudes of higher income groups become progressively more positive than lower income groups.

The broad pattern is for gaps between gender, education, and income groups to widen as levels of development and globalisation increase. Combining these measures with age into composite socioeconomic status (SES) indicators reveals that divides grow wider as we account for more demographic factors. The final set of scatter plots compares two composite groups as an example, since we cannot display all the possible combinations here. The black line represents tertiary educated, higher income, males over 50. The grey line represents primary educated, lower income, females under 30. As displayed in Figure 2, the gaps between these composite groups are much wider than for any single demographic factor. This means that as levels of development and globalisation increase, the attitude gaps between people with lower and higher socioeconomic status tend to widen. The next set of results analyse demographic factors using interactions in two sets of multilevel mixed-effects models.

Table 3: Perceived electoral integrity and demographic interactions with the Human Development Index

	Model 1			Model 2		
	C	SE	P	C	SE	P
Human Development (HD)	-0.466	0.101	0.000	-0.545	0.392	0.164
HD x Under 30	-0.046	0.010	0.000	-0.057	0.014	0.000
HD x Over 50	0.053	0.009	0.000	0.065	0.013	0.000
HD x Female	-0.091	0.010	0.000	-0.076	0.016	0.000
HD x Primary Educated	-0.143	0.012	0.000	-0.169	0.018	0.000
HD x Tertiary Educated	0.166	0.012	0.000	0.191	0.017	0.000
HD x Lower Income	-0.040	0.010	0.000	-0.048	0.017	0.004
HD x Higher Income	0.032	0.010	0.001	0.038	0.017	0.023
Age Categories	-0.017	0.006	0.005	-0.027	0.009	0.004
Female Gender	0.050	0.007	0.000	0.035	0.012	0.004
Education Levels	-0.100	0.008	0.000	-0.117	0.013	0.000
Income Groups	-0.002	0.007	0.746	-0.006	0.013	0.631
Political Corruption	-0.508	0.048	0.000			
Party Finances Reported	-0.057	0.029	0.045			
GDP Growth	0.000	0.002	0.926			
Level of Democracy	-0.011	0.010	0.277			
Women in Parliament	0.004	0.001	0.000			
Income Inequality				-0.001	0.004	0.842
Parliamentary Government				0.121	0.048	0.012
Proportional Representation				0.002	0.015	0.895
GDP Per Capita (logged)				0.100	0.053	0.060
Quality of Government				0.122	0.094	0.195
Respondents	721,675			492,434		
Country-Surveys	684			471		
Wald Chi2	832.3			1047.5		
Degrees of Freedom	17			17		
Log pseudolikelihood	-404,004			-288,375		

Cells report coefficients (C), robust standard errors (SE), and significance p-values (P). Models are multilevel mixed-effects linear regressions with respondents grouped by country-surveys.

Table 3 displays interactions between demographic groups and HDI scores, showing the effects for each demographic group as levels of socioeconomic development increase. For each demographic interaction, the middle value is omitted as the reference group and males are omitted as the gender reference group. The overall patterns reflect similar tendencies as those visually displayed in Figure 2 scatter plots. Starting again with age, the combined age categories variable is negative for the main effects, suggesting that older individuals tend to have more negative attitudes. However, age group interaction effects show that, as socioeconomic development levels increase, people under 30 tend to have more negative attitudes while those over 50 tend to make more positive assessments of electoral integrity. For female gender, the main effects are positive, suggesting that women tend to have more positive attitudes overall. However, the stronger negative interaction effects suggest that female attitudes become relatively more negative as socioeconomic development levels increase. With education, the main effects suggest that educated individuals tend to have more negative attitudes overall. However, interactions with HDI scores suggest that tertiary educated

individuals have increasingly positive attitudes towards electoral integrity as levels of socioeconomic development increase, while primary educated groups have relatively more negative attitudes. Education shows the strongest effects, reflecting the more divergent fitted value slopes for these two groups in Figure 2 scatter plots. The main effects for income groups are not significant, but interaction effects suggest that lower income groups tend to have more negative attitudes than higher income groups as levels of socioeconomic development increase.

Table 4: Perceived electoral integrity and demographic interactions with economic globalisation

	Model 3			Model 4		
	C	SE	P	C	SE	P
Economic Globalisation (EG)	0.300	0.088	0.001	0.458	0.103	0.000
EG x Under 30	-0.019	0.010	0.062	-0.013	0.013	0.293
EG x Over 50	0.028	0.009	0.002	0.024	0.012	0.037
EG x Female	-0.058	0.012	0.000	-0.035	0.014	0.013
EG x Primary Educated	-0.124	0.013	0.000	-0.125	0.015	0.000
EG x Tertiary Educated	0.151	0.012	0.000	0.152	0.014	0.000
EG x Lower Income	-0.029	0.011	0.012	-0.035	0.015	0.019
EG x Higher Income	0.023	0.012	0.054	0.025	0.015	0.101
Age Categories	0.002	0.006	0.705	0.005	0.008	0.501
Female Gender	0.022	0.007	0.003	0.002	0.009	0.849
Education Levels	-0.077	0.008	0.000	-0.074	0.009	0.000
Income Groups	0.006	0.007	0.399	0.006	0.010	0.548
Political Corruption	-0.282	0.054	0.000			
Party Finances Reported	-0.079	0.030	0.008			
GDP Growth	0.002	0.002	0.413			
Level of Democracy	-0.016	0.012	0.173			
Women in Parliament	0.003	0.001	0.000			
Income Inequality				-0.001	0.005	0.794
Parliamentary Government				0.090	0.054	0.092
Proportional Representation				-0.001	0.016	0.931
GDP Per Capita (logged)				0.014	0.032	0.660
Quality of Government				0.105	0.103	0.305
Respondents		683,041			477,480	
Country-Surveys		651			456	
Wald Chi2		680.9			977	
Degrees of Freedom		17			17	
Log pseudolikelihood		-385,027			-278,677	

Cells report coefficients (C), robust standard errors (SE), and significance p-values (P). Models are multilevel mixed-effects linear regressions with respondents grouped by country-surveys.

Results in Table 4 repeat the same models as Table 3, but interact demographic factors with economic globalisation scores instead of Human Development Index scores. The patterns are similar however, indicating that attitudes of opposing demographic groups also diverge as levels of economic globalisation increase. The main effects for age categories and income groups are not significant, but all interactions and other demographic variables maintain significance. This means that as countries become more integrated into the global economy, males, people over 50, tertiary educated individuals, and higher income groups tend to have

more positive attitudes. Conversely, females, people under 30, primary educated individuals, and lower income groups tend to have more negative attitudes towards electoral integrity as levels of economic globalisation increase.

The country-level control variables in Table 3 and Table 4 reveal that some political system variables and national conditions matter more than others for public perceptions of electoral integrity. Political corruption and parties reporting their finances regularly have significant negative effects in both sets of models, while income inequality displays negative effects in the socioeconomic development model. The percentage of women in parliament and having a parliamentary system of government show positive effects in both sets of models, while proportional representation shows a positive effect in the socioeconomic development model, as do GDP per capita and the quality of government. GDP growth and the level of democracy do not obtain significance in either set of models, suggesting they do not matter as much as the other control variables. We next move to comparing aggregated country-year indicators representing different demographic groups against existing electoral integrity indices.

Table 5: Demographic groups compared against electoral integrity indices

	<b>Under 30</b>	<b>Over 50</b>	<b>Male</b>	<b>Female</b>	<b>Primary Edu.</b>	<b>Tertiary Edu.</b>	<b>Lower Inc.</b>	<b>Higher Inc.</b>	<b>Lower SES</b>	<b>Higher SES</b>
BTI	-0.040	0.013	0.003	-0.025	-0.032	0.030	-0.017	0.061	-0.092	0.176
	0.642	0.882	0.972	0.771	0.711	0.729	0.848	0.500	0.295	0.061
	139	138	139	139	139	139	138	123	132	114
CSAE	0.382	0.393	0.446	0.357	0.210	0.515	0.311	0.498	-0.093	0.498
	0.007	0.005	0.001	0.011	0.148	0.000	0.040	0.001	0.586	0.002
	49	49	50	50	49	49	44	42	37	36
CIRI	0.224	0.221	0.269	0.198	0.124	0.344	0.164	0.302	0.056	0.305
	0.000	0.000	0.000	0.000	0.004	0.000	0.000	0.000	0.234	0.000
	559	557	562	562	550	554	507	487	455	429
DB	0.422	0.412	0.431	0.399	0.351	0.451	0.393	0.390	0.280	0.315
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	447	445	449	449	438	443	412	401	368	371
EIP	-0.138	-0.101	-0.084	-0.116	-0.190	0.184	-0.067	-0.258	-0.135	-0.108
	0.540	0.655	0.709	0.606	0.398	0.412	0.767	0.334	0.570	0.725
	22	22	22	22	22	22	22	16	20	13
EIU	0.198	0.171	0.241	0.164	0.082	0.386	0.193	0.250	0.040	0.317
	0.000	0.001	0.000	0.002	0.125	0.000	0.000	0.000	0.484	0.000
	354	353	354	354	349	352	352	320	309	293
FH	0.211	0.193	0.262	0.176	0.113	0.390	0.191	0.294	0.066	0.357
	0.000	0.000	0.000	0.000	0.023	0.000	0.000	0.000	0.209	0.000
	408	406	408	408	403	406	406	373	361	340
GIR	-0.053	0.016	0.001	-0.026	-0.167	0.077	-0.094	0.105	-0.173	0.072
	0.687	0.906	0.992	0.842	0.208	0.560	0.475	0.446	0.206	0.625
	60	59	60	60	59	60	60	55	55	48
IEM	0.293	0.061	0.228	0.134	-0.003	0.338	0.077	0.245	0.033	0.270
	0.079	0.725	0.169	0.421	0.988	0.038	0.672	0.169	0.870	0.157
	37	36	38	38	38	38	33	33	28	29
NELDA	0.393	0.375	0.429	0.361	0.262	0.474	0.319	0.445	0.082	0.376
	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.335	0.000
	174	173	175	175	171	171	159	154	141	133
PELA	0.566	0.609	0.520	0.506	0.470	0.552	0.526	0.413	0.492	0.524
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000
	59	59	60	60	60	60	59	59	57	54
PIEM	0.417	0.388	0.486	0.365	0.280	0.497	0.329	0.491	0.091	0.404
	0.000	0.000	0.000	0.000	0.004	0.000	0.001	0.000	0.430	0.000
	106	105	108	108	106	105	91	88	77	75
V-Dem	0.356	0.352	0.413	0.320	0.252	0.515	0.306	0.394	0.131	0.399
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000
	754	751	757	757	743	748	702	661	625	586

Results in Table 5 display pairwise correlations between different demographic groups and multiple indices of electoral integrity. Three indices are not significantly associated with any of the aggregated public opinion indicators. There are few matching observations for the EIP and GIR indices, but there are more matches with the BTI index, suggesting it measures aspects of electoral integrity that are far removed from public awareness. The IEM index also has fewer matching observations and only two correlations obtain significance. The general patterns amongst the remaining electoral integrity indices tend to match findings outlined in the scatter plots and mixed-effect models.

All significant correlation coefficients in Table 5 are positive, meaning that the different demographic groups tend to agree with the direction of existing electoral integrity indices. However, the relationships are stronger and achieve higher levels of significance for male, tertiary educated, and higher income groups than for female, primary education, and lower income groups. Results for age groups are the least consistent with findings from previous methods. The under 30 groups created stronger correlations with existing indices than the over 50 group, although the differences were usually not large. Correlations between the indices and gender are much stronger, with indicators representing males consistently producing stronger relationships. This suggests that expert indices tend to represent the attitudes of males more than females. This difference is even most notable when contrasting education groups. Correlations with tertiary educated groups are both stronger and more frequently significant than for correlations with primary educated groups. The attitudes for tertiary educated groups are thus considerably more aligned with electoral integrity indices than for primary educated groups. The pattern is not as consistent with contrasting income, since two lower income groups produce stronger correlations than for their higher income counterpart group. For correlations with DB the differences are so small that the two groups are effectively the same (0.393 versus 0.390), but for PELA the differences are more substantial (0.526 versus 0.413). PELA measures the opinion of elected representatives, and this finding suggests their assessments of electoral integrity are more aligned with lower income than with higher income groups. This is not the case with other significant index correlations, which show stronger positive relationships with higher income groups.

The last two columns in Table 5 display correlations for the same composite demographic groups displayed at the bottom of Figure 2. The correlations lower SES are smaller and less frequently significant than those for the higher SES group. The lower SES group shows significant relationships with only three indices and when it does the higher SES group shows much substantially stronger correlations. There are eight instances where only the higher SES group attains significance. This means that the aggregated attitudes of lower socioeconomic groups are not significantly related to most electoral integrity indices. This pattern is reflected across the correlations for separate demographic measures. Tertiary educated groups often generate the largest positive correlations with electoral indices, usually followed by the higher SES groups. Overall, the findings show that existing indices tend to be better at reflecting the electoral integrity attitudes of higher socioeconomic groups, whether measured as separate demographic groups or as composite indicators.

#### **4. Discussion**

The first part of this study examined perceptions of electoral integrity for different demographic groups to help explain inconsistencies between previous findings. For example, some previous studies showed positive effects for education (Birch, 2008a; Farrell & McAllister, 2006; Maldonado & Seligson, 2014; Rosas, 2010; Singh et al., 2011), while others showed negative



effects (Kerr, 2013, 2014; Mattes, 2014; Moehler, 2009). The findings here provide evidence to support the proposition that these inconsistencies could be due to differing levels of socioeconomic development and economic globalisation. The study found that attitudes of different education and income groups diverge further apart as levels of development and globalisation increased. This overall trend between contrasting groups was most apparent at higher levels of socioeconomic development and economic globalisation. As economies develop and globalise, people with lower education levels face rising job insecurity because advancing economies tend to require more educated workers. Those with less education will on average tend to have less job security as levels of socioeconomic development and economic globalisation increase. This could erode the income levels of less educated groups. Lower incomes then reduce standards of living and savings, which tends to leave people more vulnerable to the unexpected emergencies of life and increasingly stressed about their uncertain futures. The results are consistent with previous studies that find higher income groups tend to have more positive attitudes towards democracy and elections (Atkeson & Saunders, 2007; Birch, 2008a; Claassen et al., 2013; Farrell & McAllister, 2006; Mattes, 2014; Singh et al., 2011).

The widening divides between different socioeconomic groups is an important issue that could potentially undermine political and economic stability. The divisions in many developed countries have already caused civil unrest and, if left unchecked, could lead to further political violence and conflict. Democracy is supposed to provide a way for the public to hold government accountable, but large numbers of the population are discontent with their national political situations. In 2016, Brexit was a major electoral upset, but seen as an outlier at the time. Few believed the same thing would happen in the USA, but then Trump won the presidency. Italy's 2016 constitutional referendum was similarly viewed as an anti-establishment vote of no confidence in the government and the Italian president resigned shortly after the referendum failed. It remains to be seen whether anti-establishment and anti-globalisation sentiment will gain further momentum. This is an important area to watch as public discontent with democracy and elections can lead to civil unrest and political violence (Dercon & Gutiérrez-Romero, 2012; Norris, 2014; Norris, Frank, et al., 2015). The demographic patterns outlined in this paper are unlikely to shift anytime soon, and the pressure for continued socioeconomic development and economic globalisation are too great to stop. Nor should we stop these trends. Globalisation has raised hundreds of millions out of poverty and raised the standard of living for billions. The overall effects of socioeconomic development and economic globalisation are generally positive on perceptions of electoral integrity across all demographic groups. However, this paper reveals that the relative benefits are disproportionately going to higher socioeconomic groups. This is driving demographic divides in public attitudes and contributing to greater social divisions.

The second part of this study examined relationships between the aggregated attitudes of different demographic groups and indices of electoral integrity. The results paralleled previous findings that aggregated public opinion tends to agree with expert indices (Greenberg & Mattes, 2013; Mattes, 2014; Norris et al., 2013; Rosas, 2010). However, previous studies were not designed to distinguish between demographic subgroups. The findings demonstrate that expert indices tend to be more representative of wealthy educated survey respondents than of poor uneducated individuals. Even if experts make more informed judgments of democratic quality and electoral integrity, what the public thinks still matters because citizens participate in elections, contribute to civil unrest, and plan rebellions. Large segments of the population in developed countries, especially those with lower socioeconomic status who may feel left behind by globalisation, are angry enough to elect xenophobic anti-establishment candidates

that want to shelter their nations from international trade and immigration. This could stifle innovation and harm the long term economic health of entire nations. If we do not pay attention to indicators representing different socioeconomic groups, we will not have a complete picture and miss warning signs. The demographic group indicators created for this article provide a research tool to supplement expert indices and a perspective that has been overlooked.

This study was designed to find generalizable tendencies across many countries, which means this study has an important limitation. While the size of the study provided a broad scope to reveal previously undiscovered patterns, some countries may prove to be exceptions to the generalized findings. Most notably, some developed countries do not exhibit the widening divides between educational or income groups seen in many other countries. This is one of the potentially most fruitful avenues for future research. If we could better understand why the widening divides outlined in this article are not happening in some countries, then this could provide appropriate solutions to this problem and create more stable societies. Exploratory investigation revealed that countries with narrow or stable gaps between demographic groups appeared to be countries with free or affordable and widely available education.

Tertiary education becomes increasingly important as economies develop and globalise. This was also the strongest demographic predictor in this study. The proportion of jobs requiring only primary education tends to fall as economies develop, become more complex or specialized, and integrate into the global economy. Many jobs in developed countries tend to require specialised skills and training. Large numbers of less educated workers already need retraining because entire industries have been vanishing or shifting overseas across developed countries, reducing job security and standards of living for those left unemployed. This could be one reason primary educated groups in these countries tend to perceive lower electoral integrity than tertiary educated groups. However, countries that provide their citizens with free or affordable tertiary education and support while studying make it easier for their citizens to get additional education and training when it is needed. This could be why these countries tend to have smaller gaps between the attitudes and behaviours of contrasting educational groups.

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