

Trading Places, Trading Platforms: The Geography of Realignment

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Abstract

In advanced democracies with plurality electoral systems, formerly pro-trade Right parties have become proponents of protectionism, while previously protectionist Left parties are now championing free trade. This “partisan realignment” has been accompanied by a “voter realignment,” as educated voters who once supported Right parties now vote overwhelmingly for the Left. I explain these puzzling realignments by developing a formal theory linking political and economic geography. In advanced plurality countries, Left parties control high-density electorates, while Right parties are responsive to low-density constituencies. Employing a spatial equilibrium model from Economic Geography, I demonstrate that trade exposure (and technology) causes skilled workers to sort into high-density areas in pursuit of higher wages, while unskilled workers move towards low-density areas in search of a lower cost of living (“skill-sorting”). As skilled workers sort into high-density districts, Left incumbents choose more pro-trade platforms, while Right platforms increasingly endorse protectionism, yielding a “partisan realignment” on trade. Due to changing party platforms, educated voters increasingly vote for the Left, and uneducated voters defect to the Right, resulting in a “voter realignment” as well. I substantiate the mechanisms of the theory with evidence from the United States.

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Industry should and can be assisted... the government must be prepared to use a range of tools—including tax, import, and regulatory relief.

1984 Democratic Party Platform

We can't let countries like China write the rules of the global economy. We should write those rules, opening new markets to American products.

(Democratic) President Barack Obama, October 2015

We know that if America wants more jobs...the answer is more world trade, not less.

(Republican) President Ronald Reagan, 1984

We need better negotiated trade agreements that put America first.

Republican Party Platform 2016

Introduction

In recent years, the success of populist politicians and parties in advanced democracies has created a surge of academic interest in understanding the relationship between trade exposure and anti-globalization backlash.¹ However, existing research fails to address the puzzling realignment of parties in plurality countries with regards to trade issues. I demonstrate that formerly protectionist left-wing parties are now endorsing globalization, while formerly “free market” right parties are increasingly becoming the parties of protectionism.² Furthermore, I show that Left parties in advanced plurality countries that were once favored by uneducated voters have become more popular with highly educated citizens, while Right parties have gained uneducated supporters at the expense of losing their allure among educated voters. What is driving these realignments?

Though a number of papers have assessed the electoral effects of trade exposure, the role of political parties as strategic actors responding to globalization has been largely neglected in

¹Examples include [Cameron Ballard-Rosa and Scheve \(2018\)](#), [Colantone and Stanig \(2017\)](#), [Dippel, Gold and Hebllich \(2015\)](#) [Feigenbaum and Hall \(2015\)](#), [Jensen, Quinn and Weymouth \(2017\)](#), [Margalit \(2012\)](#) and [Autor \(2016\)](#).

²This shift in rhetoric extends beyond the Trump-era Republican party; take, for example, the shift in the U.K. Labour party’s position, from its 1983 platform arguing “We must therefore be ready to act on imports directly...to safeguard key industries... using tariffs and quotas, if these prove necessary” to its most recent platform in 2017, arguing “Labour is pro-trade...prosperity depends on minimising tariff and non-tariff barriers.”

the literature.³ Furthermore, the rise of a more protectionist Right and the development of a pro-market “New Left” have largely been studied separately. One possible factor driving party repositioning on trade is changing voter preferences; exposure to import competition seems to induce “authoritarian” preferences and support for far-right parties.⁴ While preference change in favor of authoritarianism can explain more protectionist positioning by the Right, it cannot explain why Left parties have become more supportive of free trade in advanced plurality countries.

A separate literature studies the emergence of a “New Left” in advanced democracies that is increasingly capitalistic and supportive of free trade. For example, [Ford and Goodwin \(2014\)](#) argue that the UK’s Labour party abandoned its working class constituency to gain the support of the expanding university-educated middle class (see also [Evans and Tilley \(2012\)](#)). However, arguments of this nature cannot explain why Right parties in advanced plurality countries have become more protectionist at the same time that a “New Left” has emerged.

I will also demonstrate empirically that advanced plurality countries have experienced voter realignments by education. [Piketty \(2018\)](#) finds evidence of voter realignments in the United States, France and the United Kingdom. He offers two explanations for this realignment: the rising salience of immigration (which makes uneducated voters that once supported the high-tax Left embrace the low-tax but anti-immigrant Right) and the expansion of higher education (highly educated voters support taxation to fund public spending on education). Looking only at the United States, [Kitschelt and Rehm \(2018\)](#) also find evidence of a gradual defection of educated voters to the Democrats and of less educated voters to the Republicans; they argue that this voter realignment has emerged due to the growing salience of “second-dimension” politics (i.e. social issues) relative to traditional class issues. While the theories put forward in [Piketty \(2018\)](#) and [Kitschelt and Rehm \(2018\)](#) are not necessarily inconsistent with a partisan realignment on trade, they do not offer an explicit explanation of changes in party positioning on protectionism.

In this paper, I argue that internal migration is driving both protectionist pressures on the Right and liberalizing pressures on the Left. In plurality countries, Left incumbents are responsive to high-density constituencies, while Right incumbents control low-density constituencies.⁵ Due to skill and location-biased economic factors like trade and technology, skilled workers move towards high-density areas (i.e. areas with highly agglomerated industries like finance and technology) in pursuit of higher wages, while unskilled workers move away from these areas in search of cheaper cost of living elsewhere. Research in American Politics suggests that responsiveness to constituency preferences does matter; [Canes-Wrone, Brady and Cogan \(2002\)](#) contend that voters do not re-

³For exceptions, see [Milner and Judkins \(2004\)](#), [Burgoon \(2009\)](#) and [Burgoon \(2012\)](#).

⁴See [Cameron Ballard-Rosa and Scheve \(2018\)](#), [Cerrato, Ferrara and Ruggieri \(2018\)](#), [Colantone and Stanig \(2017\)](#) and [Malgouyres \(2017\)](#).

⁵For more on the relationship between population density and party politics in advanced plurality countries, see [Rodden \(2010\)](#) and [Rodden \(2011\)](#).

elect incumbents whose positions are out of step with theirs, so politicians adopt the preferred policy positions of their constituents. I therefore expect that the migration of skilled workers to high-density districts will induce more pro-trade positioning by Left parties, while a “brain drain” of highly educated workers from low-density electorates yields more protectionist positioning by the Right.⁶ In response to changing positions, educated voters increasingly support the Left, while uneducated voters increasingly turn out for Right candidates.

To explore these dynamics, I embed a spatial equilibrium model from Economic Geography⁷ within a formal model of incumbents choosing party platforms (this is, to my knowledge, the first use of a spatial equilibrium model in International Political Economy, if not the first in Political Science). I test the observable implications of the model on the American case, and find evidence for the mechanisms of the theory.

Effects of Globalization on Partisan Politics

My article contributes to a growing literature exploring the effects of globalization on partisan politics in advanced democracies. While a number of political scientists have assessed the effects of globalization on domestic politics (i.e. “the second image reversed”⁸), these analyses have largely focused on the effects of globalization on domestic policies like welfare spending or taxation.⁹ However, the effect of trade exposure on political party positioning on protectionism remains an under-explored area of research.

There is a long standing literature on the effects of globalization on party systems and societal cleavages more generally. [Rogowski \(1989\)](#) argues that trade exposure either produces class conflict or urban-rural conflict depending on the relative abundance of labor, capital and land. Alternatively, [Kriesi et al. \(2006\)](#) argue that globalization “transforms” the structure of the Western European political space as conflict between winners and losers of globalization crosscuts other cleavages like the religious-secular or urban-rural divides. There is disagreement within the literature as to whether exposure to globalization increases or diminishes future support for trade. For example, [Milner \(1988\)](#) argues that trade creates pro-globalization constituencies among firms with international interests. Examining support for trade among political parties, [Milner and Judkins \(2004\)](#) finds that exposure to globalization leads to higher support for trade among all parties:

⁶Implicit in my theory is the assumption that voters are not such intense partisans that they would never vote for a candidate from the other party if the party changes its position. Empirical research suggests this assumption is reasonable; [Brown \(1981\)](#) finds that migrants to Democratic (Republican) areas were more likely to subsequently develop Democratic (Republican) partisan identification after moving. Similarly, [Gallego et al. \(2016\)](#) finds that English citizens who moved to more Conservative districts were more likely to subsequently identify as Conservative; the same effect held (more weakly) for those moving to Labour districts. More generally, [Carsey and Layman \(2006\)](#) writes that “Issue-based change in party identification should occur among individuals who are aware of party differences on an issue and find that issue to be salient.”

⁷The spatial equilibrium model relies on the local labor markets framework of [Moretti \(2004\)](#).

⁸[Gourevitch \(1978\)](#)

⁹See, for example, [Garrett \(1998\)](#) and [Swank \(2006\)](#).

“Parties in countries that are more open (holding size and level of development constant) are less protectionist... As globalization grows, the differences among parties in a country over trade policy decline, as all become more free trade oriented.”¹⁰ However, more recent work finds a link between trade exposure and backlash to globalization at the voter level (Autor (2016), Colantone and Stanig (2017)) and at the party platform level (Burgoon (2009)). My argument finds a middle ground between these competing findings: in plurality countries, trade exposure leads to more support for trade among Left parties, and less support for trade among Right parties.

My paper also contributes to an emerging literature on the relationship between electoral rules, geography and trade policy. In *Spending to Win*, Rickard writes that “Countries’ international economic relations are shaped by the interactive effect of domestic political institutions and economic geography.”¹¹ She finds that politicians in plurality systems favor geographically concentrated interest groups, while geographically diffuse interest groups perform better under proportional representation.¹² However, Rickard takes economic geography as given, analyzing “the political implications of existing patterns of economic geography.”¹³ By contrast, I allow for economic geography to endogenously evolve by employing spatial equilibrium modeling tools, allowing me to assess the implications of changes in economic geography for partisan positioning and voter behavior.

Though international migration is often analyzed in International Political Economy, internal migration has been neglected as a salient factor for understanding the politics of globalization.¹⁴ Internal migration is an important phenomenon around the world – “as of 2005, there were approximately 763 million persons living within their own country but outside their region of birth.”¹⁵ There is comparatively little data on population movement at the congressional district level, but

¹⁰Milner and Judkins (2004) find that right parties are more pro-trade than left parties in advanced democracies, and argue that this is because right-wing parties depend more on capital owners for support, whereas left parties depend more on labor. In opposition to this finding, I demonstrate that Right parties in plurality countries have become more protectionist as globalization has progressed. Like Milner and Judkins, Dutt and Mitra (2005) also focus on capital and labor, predicting that left-wing governments will be protectionist in capital-abundant countries. However, their model cannot account for an increasingly pro-trade left in capital-abundant advanced democracies.

¹¹Rickard (2018), page 17

¹²Relatedly, McGillivray (1997) finds that large, “electorally dispersed” industries are more likely gain protection when parties are weak. Strong parties in Canada protect industries concentrated in marginal districts, while weaker parties in the US protect industries in safe districts. Similarly, Ehrlich (2007) finds that OECD countries with less party discipline (and more electoral districts) have higher tariffs.

¹³Rickard (2018), page 31

¹⁴The relationship between trade and international migration is explored in depth in Peters (2015).

¹⁵See Bell and Charles-Edwards (2013). A United Nations Secretariat Technical Paper on internal migration finds that “Migration intensities tend to be highest in the new world countries of Australia, Canada, New Zealand and the United States of America, and lowest in Asia. Intensities in Europe, Latin America and Africa stand at intermediate levels.”¹⁶ Among European countries, the United Kingdom and France are the most internally mobile countries in Europe other than Denmark and Finland.¹⁷ The importance of internal migration in the United States cannot be overstated: Ian McDonald writes, “Residential mobility is a defining characteristic of the American experience, and Americans generally regard changing residences as easy and unremarkable. But the flow of internal migration in the United States is steady and its effects are cumulative. The 2000 census reports that 31.6 % of all native-born Americans now reside in a state that does not include their birthplace. Although the rates have declined slightly in recent years, the percentage of all Americans who move to a new state has never fallen below 2% in any single year from 1947 to 2006, while the annual percentage of residents moving between counties has never dropped below 7.9%” (McDonald (2011)). About 20 percent of Americans change counties during a 5 year period (Glaeser and Gottlieb (2009)). These findings suggest that the countries in my sample are countries in which internal migration may be an unusually important aspect of politics.

we do know that 11 percent of Americans moved from one congressional district to another between 2006 and 2007.¹⁸ In England, 31 percent of respondents relocated to a different parliamentary constituency at least once between 1991 and 2008.¹⁹

Despite discussion of a decline in internal migration in the United States and other countries, migration patterns have not changed all that much over time.²⁰ Furthermore, what matters for my argument is not the absolute amount of internal migration, but rather the extent of skill-sorting: [Diamond \(2016\)](#) writes of “a substantial increase in geographic sorting of workers by skill.”²¹ I argue that it is this skill-sorting that is driving partisan and voter realignments in advanced plurality countries.

The Emerging Partisan Realignment on Trade

In this section, I present descriptive data showing that in advanced plurality countries, formerly protectionist left parties became more supportive of trade between 1984 and 2014, while formerly pro-trade right parties became increasingly protectionist.²² The countries in the sample are Australia, Canada, France,²³ New Zealand,²⁵ the United Kingdom and the United States. The Right parties in my sample include the Republican party in the U.S., the Conservative party in the U.K., the Progressive Conservative party in Canada from 1984 to 2000 and the Conservative party in Canada from 2004 to 2011, the Liberal party in Australia,²⁶ and the National party in New Zealand. In France, partisan organization has been less stable, as the primary Center-Right party has changed name and form over the period in question. I made a subjective judgment to code the French right party as the Union for a New Majority - Conservatives/Gaullists in 1986 and 1988, the Rally for the Republic in 1993 and 1997, the Union for the Presidential Majority in 2002, and the Union for a Popular Movement in 2007 and 2012.²⁷ The Left parties in the sample are the Democratic party in the U.S., Labour in the U.K., the Liberal party in Canada, Labor in Australia,

¹⁸See [Ansolabehere and Lovett \(2008\)](#). Other research in American politics look at whether partisans sort geographically; [McDonald \(2011\)](#) and [Anastasopoulos \(2017\)](#) find evidence of partisan sorting, while [Mummolo and Nall \(2017\)](#) find that partisans do not sort.

¹⁹[Gallego et al. \(2016\)](#)

²⁰For example, [Molloy, Smith and Wozniak \(2011\)](#) finds that life-time cross-state migration rates of U.S. natives were about 30 percent in each year of measurement (1980, 1990, 2001, 2009).

²¹[Diamond \(2016\)](#), page 479

²²Plurality systems here are countries with geographically-defined single-member constituencies in which voters cast ballots for individuals, rather than parties. [Cox \(1990\)](#) provides a similar definition.

²³Unlike the other countries in the sample, France is not a Single Member District system; [Elgie \(2005\)](#) classifies the electoral system for the French National Assembly (lower house) as “a single-member, semi-closed, majority-plurality system.”²⁴ In each constituency, a single member is elected in the first ballot if they win a majority of votes; if no candidate wins an outright majority in the first round, a second ballot is held in which only a plurality of votes is needed. Because of these constituency-level electoral incentives, French legislators have extensive ties to their local constituencies (see [Costa and Kerrouche \(2009\)](#) and [Brouard et al. \(2013\)](#)), and a vast majority of Assembly members simultaneously hold elected office at the local level ([Elgie \(2005\)](#), page 131.)

²⁵Though New Zealand became a mixed system in 1996, the dominance of its two major parties has largely persisted, as has its political geography.

²⁶There are arguably two major Right parties in Australia, the Liberal party and the National party, but I only include one party in each country-election year. Though the Liberal party and National party are often in a coalition government together, the Liberal party is generally the dominant partner and the larger party.

²⁷The results are robust to alternate codings of the French Right; see the Appendix for more details.

Labour in New Zealand, and the Socialist party in France.

I measure parties' support for tariffs in a given election year by taking the Manifesto Project variable "per406" (a measure of favorable mentions of protectionism in a party's platform) and subtracting from it "per407" (a measure of unfavorable mentions of protectionism in a party's platform).²⁸ I examine partisan positioning on tariffs in every election between 1984 and 2014.

I test whether these time trends are statistically significant in Table 1. As expected, there is a negative and significant time trend in Left support for tariffs, and a positive and significant time trend in support for tariffs among Right parties.²⁹ Figure 1 shows negative trends in each Left party's support for tariffs, while Figure 2 shows positive trends for each Right party's level of protectionism over time. The data suggest that Left parties were largely in favor of protectionism until the mid-1990's, when they began to embrace free trade. Right parties have only recently begun to endorse protectionism, having been strongly pro-trade in the 1980's.

Table 1: Support for Tariffs Over Time in Plurality

	<i>Dependent variable:</i>	
	Left Support for Tariffs	Right Support for Tariffs
	(1)	(2)
Year	-0.044** (0.018)	0.075*** (0.027)
Country FE	✓	✓
Observations	51	51
R ²	0.193	0.332
Adjusted R ²	0.083	0.241
Residual Std. Error (df = 44)	1.101	1.673
F Statistic (df = 6; 44)	1.751	3.651***

Note:

*p<0.1; **p<0.05; ***p<0.01

²⁸For robustness, I disaggregate these two Manifesto Project measures in the appendix; the results hold when analyzing only positive or negative mentions of tariffs.

²⁹In the appendix, I show that these time trends do not hold in advanced Proportional Representation (PR) countries, which do not have the same political geography dynamics (i.e. the positive relationship between population density and Left political control) as plurality countries. For more on the political geography of PR countries, such as the disproportionate political power of geographically diffuse groups, see [Rickard \(2018\)](#).

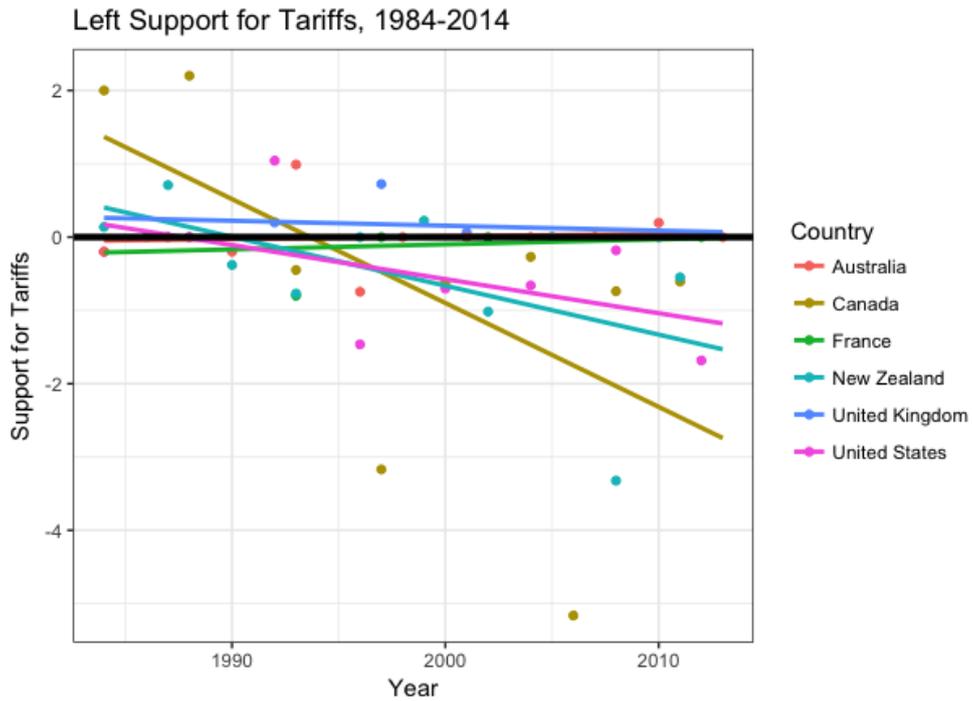


Figure 1: *Left Support for Tariffs in Advanced Plurality Countries*

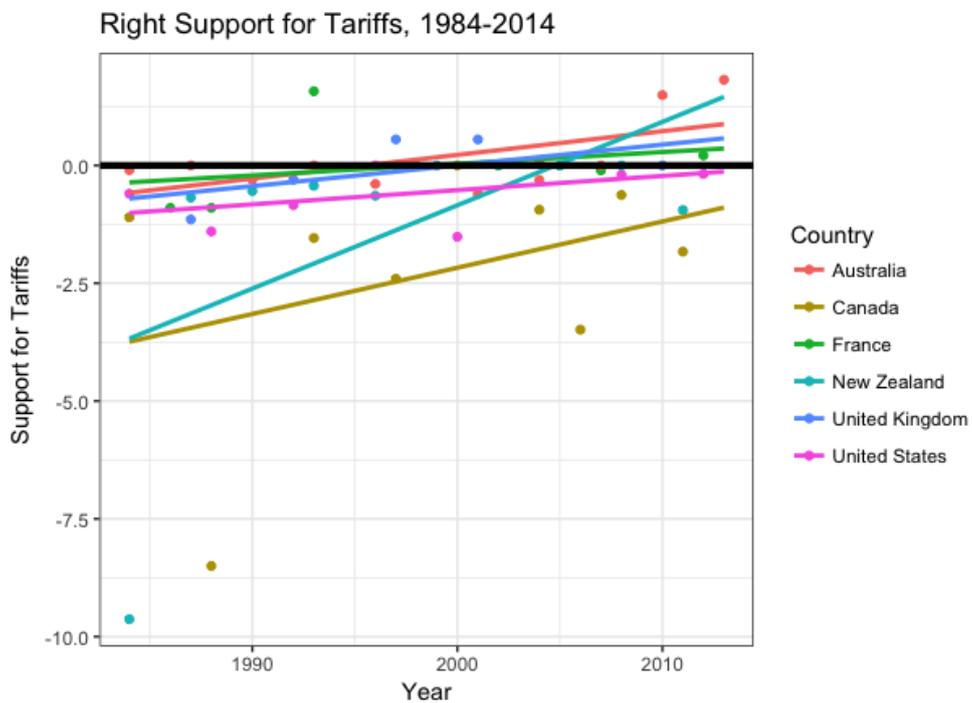


Figure 2: *Right Support for Tariffs in Advanced Plurality Countries*

The preceding analysis shows Left platforms have become more pro-trade and Right platforms have become more protectionist in absolute terms, but it does not explicitly indicate whether the

Left has become the relatively pro-trade party within each country.³⁰ To examine whether there has been a partisan realignment on trade, I measure the “Relative Protectionism of the Right” in each country-election year by subtracting the major Left party’s “Support for Tariffs” value from that of the major Right party’s value (i.e. for the United States in 1984, the “Relative Protectionism” measure captures the Republicans’ 1984 “Support for Tariffs” score minus the Democrats’ 1984 “Support for Tariffs” value).

I examine the Relative Protectionism of the Right over time, and find a statistically significant positive trend. In line with my expectations, most Relative Protectionism measures are negative in the 1980’s, indicating a relatively pro-trade Right; by 2000, most values are positive, indicating a partisan realignment on trade.³¹

Table 2: Relative Protectionism of the Right

	<i>Dependent variable:</i>
	Relative Protectionism of the Right
Year	0.119*** (0.033)
Country FE	✓
Observations	51
R ²	0.286
Adjusted R ²	0.189
Residual Std. Error	2.051 (df = 44)
F Statistic	2.938** (df = 6; 44)
<i>Note:</i>	*p<0.1; **p<0.05; ***p<0.01

³⁰If Left parties were initially more pro-trade, a simple polarization model would predict an increasingly pro-trade Left and protectionist Right. Over time, the Left would win more skilled constituencies, generating pressures for more pro-trade policy in a self-reinforcing cycle; for this type of polarization model with incumbents choosing party platforms, see [Polborn and Snyder Jr \(2017\)](#).

³¹In the Appendix, I demonstrate the same time trend holds when excluding France from the sample.

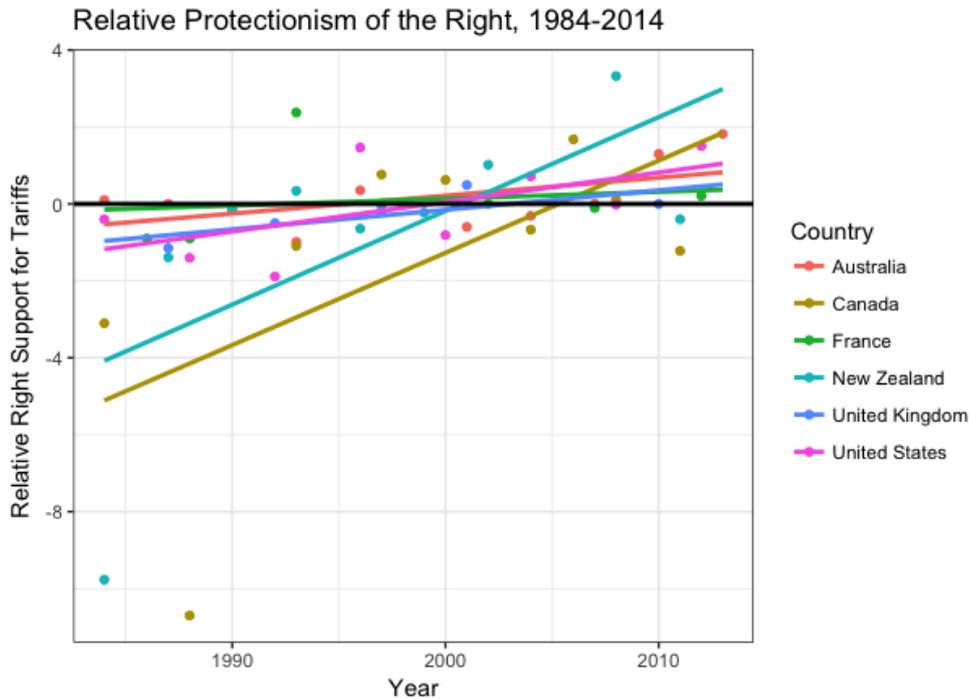


Figure 3: *Relative Protectionism of the Right*

I therefore demonstrate that Right parties in advanced plurality countries have become both relatively and absolutely more protectionist over the last three decades, while Left parties have increasingly embraced free trade. I will assert a geography-based theory that accounts for both of these developments, improving on previous theoretical accounts that can only explain a liberalizing left or a more protectionist Right.

Table 3: Theories of Partisan Re-Positioning on Trade in Advanced Plurality Countries

Theory	Source	Explains Liberalizing Left	Explains Protectionist Right
Trade-induced Authoritarianism	Ballard-Rosa et. al. (2017), Ballard-Rosa et. al. (2018)		✓
Increased Number of University-Educated Citizens	Evans and Tilley (2011), Ford and Goodwin (2014)	✓	
Sorting of Skilled and Unskilled Workers	Schonfeld (2018)	✓	✓

Voter Realignment (by Education)

The realignment on tariff positions in plurality countries has been accompanied by a corresponding “voter realignment.” [Piketty \(2018\)](#) finds evidence for a gradual defection of educated voters from Right parties to Left parties, and the parallel movement of less educated voters to Right parties, in the United States, France, and the United Kingdom. I extend his analysis to Australia, Canada and New Zealand, finding evidence of a voter realignment by education in all six advanced plurality countries.

To analyze trends in voting by education, I rely on post-electoral survey data. I divide each country’s sample into voters with university education and those without, and calculate the per-

centage of each voter type that supported the major Left (Right) candidate in their district’s legislative election. For Canada, I rely on the Canadian Election Study (CES), which ran in 1984, 1988, 1993, 1997, 2000, 2004, 2008, 2011 and 2015. For each year, I dichotomize voters by education level (less than a college education and bachelor’s degree and above). I then calculate the percentage of each voter type that said they voted for the Liberal (Left) party, and the percentage of each voter type that voted for the Conservative (Right) party in their district’s legislative election. For Australia, I utilize the Australian Election Study (AES), which ran in 1987, 1990, 1993, 1996, 1998, 2001, 2004, 2007, 2010, 2013, and 2016. As with Canada, I dichotomize voters by education level, and then calculate the percentage of each voter type that voted for the Labor (Left) and Liberal (Right) party in each year. For New Zealand, I utilize the New Zealand Election Study (NZES), which ran in 1990, 1993, 1996, 1999, 2002, 2005, 2008, 2011, and 2014. Prior to the electoral reforms, I simply measure votes for the Labor (Left) and National (Right) parties among educated and uneducated voters. Following the 1996 electoral reforms that produced a mixed electoral system, I measure the “electorate vote” (rather than the “party vote”). For France, I employ post-election studies from 1988, 1995 (which includes a question about voting in the 1993 legislative elections), 1997, 2002, 2007, and 2012. I measure (first-round) votes for legislators to avoid the selection-bias that is present in second-round voting.³² Data on British voting comes from the British Election Studies (BES) conducted in 1987, 1992, 1997, 2001, 2005, 2010, 2015 and 2017. Finally, I analyze voting in the United States using American National Election Study (ANES) data from 1984, 1988, 1992, 1996, 2000, 2004, 2008, 2012, and 2016. As for France, I assess voting for legislators (members of Congress) rather than presidential voting. Like [Piketty \(2018\)](#), I measure the discrepancy between the percentage of educated voters that supported the major Left (Right) party in legislative elections and the percentage of uneducated voters that supported the party in each country-election year.³³ I call this measure the “Skill Gap in Voting;” a positive value indicates a party is more popular with educated voters, while negative values suggest a party is favored by uneducated voters.

I examine time trends in voting by education for each country; the results are shown in Table 4. As expected, the time trend is positive and significant for the Left, and negative and significant for the Right. I plot the regression lines for each party in Figures 4 and 5. In the beginning of the time period, the Left is more favored by uneducated voters, and the Right is popular with educated voters; by the end of the time period, the Left is the high-education party, while the Right is the unskilled party. These descriptive data line up with the Relative Protectionism of the Right data, as the Left is initially supported by unskilled voters when it is the relatively protectionist party;

³²Piketty analyzes votes for presidential candidates, rather than legislative candidates, in the U.S. and France; he also analyzes aggregated voting for all Left parties, rather than the major Right and Left parties.

³³I exclude survey respondents who did not vote.

as the Left becomes relatively pro-trade, the Left becomes the party of educated voters.

Table 4: Skill Gap in Voting by Party

	<i>Dependent variable:</i>	
	Left (1)	Right (2)
Year	0.003*** (0.001)	-0.002*** (0.001)
Country FE	✓	✓
Observations	52	52
R ²	0.605	0.472
Adjusted R ²	0.552	0.401
Residual Std. Error (df = 45)	0.037	0.041
F Statistic (df = 6; 45)	11.470***	6.699***

Note: *p<0.1; **p<0.05; ***p<0.01

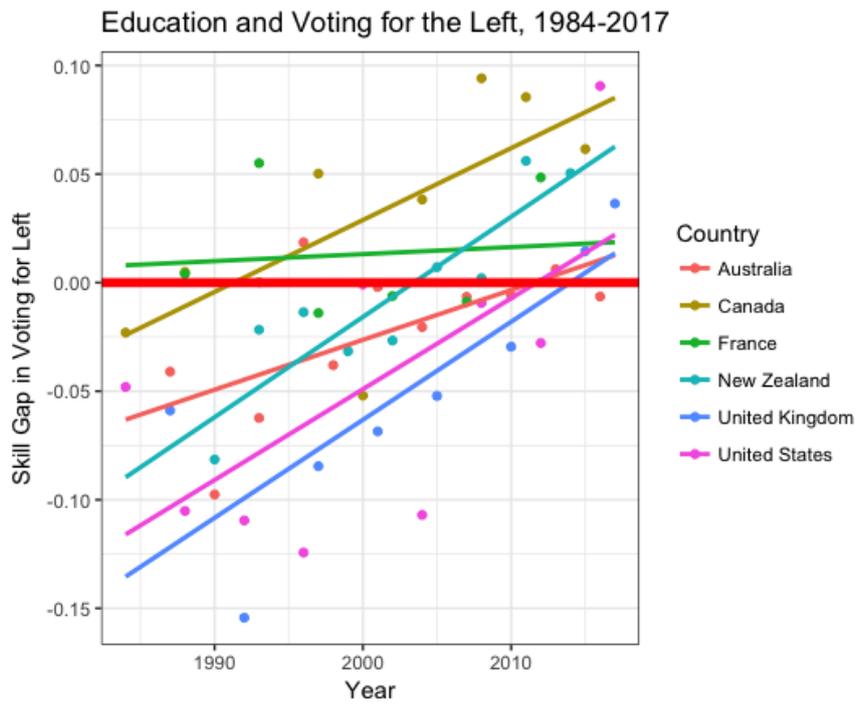


Figure 4: *Education and Voting for the Left in Advanced Plurality Countries*

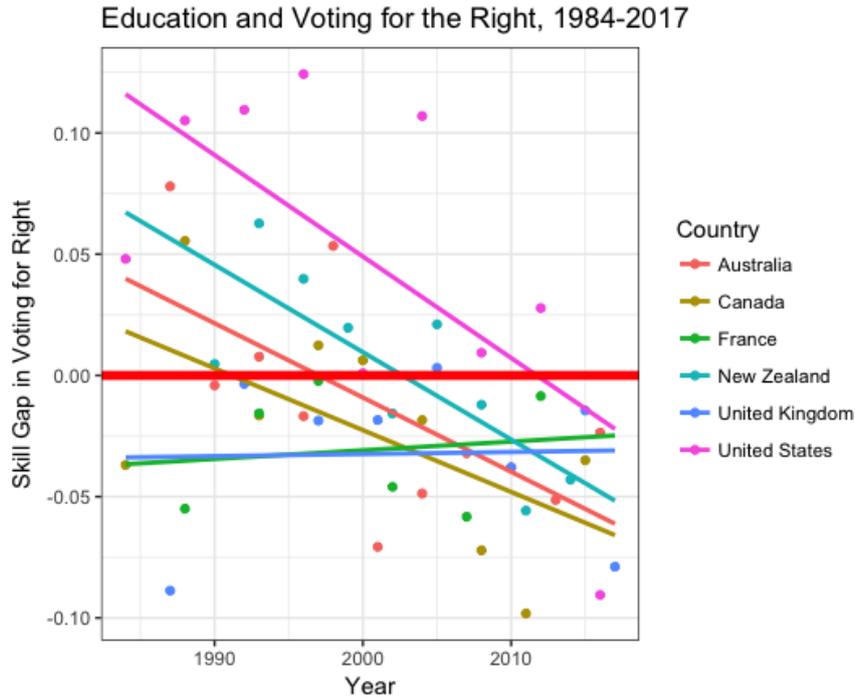


Figure 5: *Education and Voting for the Right in Advanced Plurality Countries*

These findings suggest that advanced plurality countries have experienced voter realignments by education in the knowledge economy era. While there are other working papers documenting this voter realignment in a subset of these countries (Kitschelt and Rehm for the U.S., Piketty for the U.S., France and the U.K.), none of these papers can theoretically explain both the partisan realignment on trade and the voter realignment by education.³⁴

Table 5: Theories of Partisan and Voter Realignments by Education

Theory	Source	Explains Voter Realignment by Education	Explains Partisan Realignment on Trade
Increasing Salience of Immigration	Piketty (2018)	✓	
Expansion of Higher Education	Piketty (2018)	✓	
Increasing Importance of “Second-Dimension” Politics	Kitschelt and Rehm (2018)	✓	
Sorting of Skilled and Unskilled Workers	Schonfeld (2018)	✓	✓

Political Geography

My theoretical argument links political geography to economic geography in advanced plurality countries. In forthcoming work, Rodden argues that the positive relationship between population density and Left voting in plurality countries emerged out of the working class politics of the Industrial Revolution, but has since then persisted into the emergence of “urban-rural sectionalism,”

³⁴These findings also challenge a literature in American Politics linking partisan realignments to “critical elections,” or distinct junctures of drastic political change.³⁵ Instead, I find evidence of gradual political change resulting in realignment. I also challenge accounts of voter realignments that emphasize the emergence of a new dominant voter cleavage, such as [Schattschneider \(1960\)](#); I find that voters change the party they support even though the issue cleavage (tariff policy) stays the same.

in which population density and Left political power have become inextricably linked in countries like the United States, Canada, Australia and the United Kingdom.

To substantiate my theoretical assumption that Left (Right) incumbents control high (low) density constituencies, I divide British parliamentary constituencies by population density into a top half (“high-density”) and a bottom half (“low-density”) in each of the two years in my sample. I only have access to population density data for the 2001 and 2011 censuses, so I analyze the incumbents in the UK parliament for those years (matching data on members elected to the House of Commons in those years, i.e. the parliament elected in 2001 and serving until 2005, and the parliament elected in 2011 and serving until 2015). Finally, I calculate the percentage of Labour seats that are in high-density areas, and do the same for the Conservative party. I also perform this analysis on the Canadian House of Commons elected in 2011 and 2016 (Liberal Party is the Left party, and the Conservative Party is the Right party), and the Australian House of Representatives in 2011, 2013 and 2016 (Labor is Left and the Liberal and National parties are coded as Right).³⁶ In every year for which I have data, a majority of each country’s major Left party constituencies are high-density, and a majority of each country’s major Right party constituencies are low-density.

Percentage of Constituencies That Are High-Density

	Australia 2011	Australia 2013	Australia 2016	Canada 2001	Canada 2006	Canada 2011	Canada 2016	U.K. 2001	U.K. 2011
Left	61	67	64	59	66	77	67	58	71
Right	41	40	39	29	34	35	21	36	34

I explore the case of the United States in more detail later in the paper.

Economic Geography

Having established that Left (Right) parties in advanced plurality countries control high (low) density areas, I now link this political geography to developments in economic geography. The fields of “New Economic Geography” and Urban Economics have explored the emergence of high-density clusters of economic activity in postindustrial knowledge economies (“agglomeration economies”) in export-oriented industries like technology and finance.³⁷

In a seminal 1996 article, urban economist J. Vernon Henderson notes that large cities tend to produce high-tech and financial services products (the kind of goods exported from advanced countries), while lower density areas tend to produce manufactured goods.³⁸ Similarly, sociologist Saskia Sassen links globalization to the development of highly agglomerated advanced industries in

³⁶By 2011, the Liberal and National parties had merged in two Australia states and territories (Queensland and the Northern Territories); the parties also were in a coalition government together. For this reason, I coded the combination of parties as “Right” for 2016.

³⁷Economics explains the clustering of economic activity in high-productivity areas by focusing on three primary reasons for the spatial clustering of firms: external economies of scale (due to specialized suppliers), labor market pooling, and knowledge spillovers. See for example [Krugman et al. \(2016\)](#).

³⁸[Henderson \(1996\)](#)

high density areas, writing “global integration has created a new strategic role for major cities...as key locations for finance and for specialized service firms”³⁹ As globalization continues, large, high-tech cities only become more important: “the more globalized the economy becomes, the higher the agglomeration of central functions in relatively few sites, that is, the global cities.” Agglomeration dynamics are especially important for the increasingly important information technology sector; Economist Jed Kolko writes, “Because high-IT industries tend to have skilled labour forces, and because skilled industries tend to benefit more from concentration, high-IT industries are likely to remain concentrated geographically.”⁴⁰

As globalization and technological forces have strengthened industries like finance and technology that are based in high-density areas of advanced countries, skilled workers have increasingly concentrated in these areas. In his forthcoming book, Rodden writes, “very powerful forces of agglomeration have taken hold in the so-called ‘knowledge’ economy...educated individuals now seek higher wages by clustering in cities that generate benefits from the externalities associated with the production of innovative technology.”⁴¹ Low density areas have become correspondingly less skilled as internal population movement occurs: “The forces of agglomeration associated with the knowledge economy are creating strong incentives for high-skilled individuals to move to a relatively small set of successful cities, which generates a “brain drain,” such that lower-skilled individuals are left behind...in the rest of the country outside those knowledge economy hubs.”⁴²

Indeed, research in Economic Geography finds evidence of increased skill-sorting in advanced countries. [Lindley and Machin \(2014\)](#) finds evidence of “increased spatial concentration of more educated workers” in U.S. Metropolitan Statistical Areas between 1980 and 2010 ⁴³ Relatedly, [Diamond \(2016\)](#) finds that American “cities which became disproportionately productive for high skill workers attracted a larger share of skilled workers...driving up local rents... low skill workers were less willing to pay the “price” of a lower real wage... leading them to prefer more affordable...locations.”⁴⁴ Similarly, [Ganong and Shoag \(2017\)](#) find that the “divergence in the skill-specific returns to moving to high-income places” and rising costs of housing in high productivity areas have deterred low skill migration to high productivity (high rent and high wage) areas. In Canada, because of “the interprovincial migration process, human capital is redistributed from the more rural to the predominantly urban provinces;”⁴⁵ in France, “Workers with better labour market characteristics tend to agglomerate in the larger, denser and more skilled local labour market.”⁴⁶

³⁹[Sassen \(2001\)](#) Pages 3-4

⁴⁰[Kolko \(2002\)](#)

⁴¹Rodden 2018, page 101

⁴²Rodden 2018, page 109

⁴³[Lindley and Machin \(2014\)](#), page 131).

⁴⁴[Diamond \(2016\)](#), page 479.

⁴⁵[Coulombe \(2006\)](#)

⁴⁶[Combes, Duranton and Gobillon \(2008\)](#), page 19. See also [Combes et al. \(2012\)](#), which finds that denser areas tend to be more skilled, partly due to migration. This phenomenon of skilled workers sorting into high-density areas in the knowledge economy era is also present in advanced Proportional Representation democracies. In Spain, [De la](#)

The Model

In this section, I present a formal model embedding a spatial equilibrium framework (largely based on [Moretti \(2004\)](#))⁴⁷ within a model of party platform-setting by incumbent legislators (an application of [Snyder Jr \(1994\)](#)). I then consider changes over time in the spatial distribution of workers due to trade exposure, and demonstrate that skilled workers move into the high-density district, making the low-density district proportionally less skilled. These demographic changes cause the Left incumbent to adopt a more pro-trade platform position, and induce a more protectionist Right party platform. Finally, I show that these changes in party platforms cause educated citizens to increasingly support the Left, while uneducated voters defect to the Right.

Throughout the analysis, I consider an advanced democracy with a plurality electoral system containing a continuum of citizens of mass 1 dispersed across two districts, low density district a and high density district b , where the number of people in each district (B and A) are determined endogenously.⁴⁸ S of the citizens are skilled, while the remaining mass U of workers are unskilled. The distribution of skill types within each district (S_b, U_b, S_a, U_a) is determined endogenously in the model, with $S_b + U_b = B$, $S_a + U_a = A$, $U_b + U_a = U$ and $S_b + S_a = S$. All citizens vote in their district's election and work in their district's economy.

Spatial Equilibrium

Each worker gets a wage $W_{\theta d}$ for skill type $\theta \in (S, U)$ and district $d \in (a, b)$, and pays a cost of renting ρ_d for district $d \in (a, b)$.⁴⁹ Each worker's utility is simply their real wage, which is $W_{Gd} - \rho_d$. Workers of each skill type seek to maximize their skill and city specific real wage; population movement occurs until workers of each skill type are indifferent between living in district a and district b (spatial equilibrium). Formally, this means $W_{Sb} - \rho_b = W_{Sa} - \rho_a$ and $W_{Ub} - \rho_b = W_{Ua} - \rho_a$ in equilibrium.⁵⁰

Wages for a given skill type in a particular district are increasing in labor productivity $X_{\theta d}$ and decreasing in the number of workers of the same skill type working in the same district (θ_d for district d and skill type θ). We therefore have $W_{Sb} = X_{Sb} - S_b$, $W_{Sa} = X_{Sa} - S_a$, $W_{Ub} = X_{Ub} - U_b$,

Roca (2017) finds that "migrants to big cities are positively selected in terms of education, occupational skills, and individual productivity;" other research finds evidence of sorting of skilled workers to high density areas in Italy ([Mion and Naticchioni \(2009\)](#)) and Sweden ([Ahlin et al. \(2016\)](#)).

⁴⁷The spatial equilibrium framework was initially explored in Rosen (1979) and Roback (1982).

⁴⁸One concern might be that district type (based on population density) is not purely exogenous given that the number of people in each district is an endogenous part of the model. However, I will show below that this is not a concern, as the high density district gains population in response to trade exposure, while the low density district loses population; formally, $B_2 > B_1$ and $A_2 < A_1$.

⁴⁹There is no commuting in the model, which is a realistic assumption given the size of electoral districts. There is also no homeownership in the model; while this is not a realistic assumption, including homeownership is unnecessary to show the interesting spatial dynamics of the model. Furthermore, one can think of the rent parameter ρ_d as a proxy for the general cost of living in the district; [Moretti \(2013\)](#) finds that rising housing costs (in US Metropolitan Statistical Areas) are associated with increases in the cost of local services.

⁵⁰See [Kennan and Walker \(2011\)](#) for evidence that individual migration responds to economic prospects.

and $W_{Ua} = X_{Ua} - U_a$.⁵¹ The price of rent in district d , is directly proportional to the number of people living in district d , so $\rho_d = N_d$.⁵² Finally, I assume $X_{Sd} > X_{Ud} > 1$ such that wages are never negative.⁵³

District-level elections are held in each period $t \in [1, 2]$: B_t citizens vote for either Right candidate r_b or Left candidate l_b , while A_t vote for either the Left candidate l_a or the Right candidate r_a . The incumbent in district b is l_b , while the incumbent in district a is r_a ; this operationalizes the fact that in advanced plurality countries, Left incumbents control high density areas, while Right incumbents dominate low density districts.⁵⁴ Incumbents are advantaged over challengers in having the power to choose their party’s platform; challengers must commit to enact whatever tariff policy was chosen by their co-partisans.⁵⁵ Formally, l_b gets to set the Left’s tariff policy τ_l (which l_a must also commit to) while r_a gets to set the Right’s tariff policy τ_r (which r_b must also commit to).⁵⁶ Nature assigns one of the districts to be the “median district;” if a is the median district, then the incumbent in a , p_a , sets $\tau_{G1} = \tau_{r1}$, and if b is the median district, then the incumbent in b , p_b , sets $\tau_{G1} = \tau_{l1}$. More generally, following each election, the party that controls the median district p_t ($p \in l, r$) sets government tariff policy $\tau_{Gt} \in [0, 1]$, where $\tau_G = 1$ indicates autarky and $\tau_G = 0$ signifies free trade.⁵⁷

⁵¹This comes from taking the log of total labor productivity ($X_{\theta d}$) divided by the number of workers of that skill type in each district, i.e. $\log(\frac{X_{\theta d}}{\theta_d})$

⁵²This simple equation captures the positive relationship between demand for housing and the price of housing (assuming imperfectly elastic housing supply); I chose this linear functional form for reasons of parsimony, but it is not necessary for the main results.

⁵³In spatial equilibrium, all four labor markets clear:

- Skilled labor supply and demand in district b are equalized: $W_{Sb} = W_{Sa} + \rho_b - \rho_a = X_{Sb} - S_b$
- Unskilled labor supply and demand in district b are equalized: $W_{Ub} = W_{Ua} + \rho_b - \rho_a = X_{Ub} - U_b$
- Skilled labor supply and demand in district a are equalized: $W_{Sa} = W_{Sb} + \rho_a - \rho_b = X_{Sa} - S_a$
- Unskilled labor supply and demand in district a are equalized: $W_{Ua} = W_{Ub} + \rho_a - \rho_b = X_{Ua} - U_a$

Both housing markets clear as well:

- Housing supply and demand in district b are equalized: $\rho_b = N_b = W_{Sb} - W_{Sa} + \rho_a = W_{Ub} - W_{Ua} + \rho_a$
- Housing supply and demand in district a are equalized: $\rho_a = N_a = W_{Sa} - W_{Sb} + \rho_b = W_{Ua} - W_{Ub} + \rho_b$

⁵⁴See Rodden (2018) for more on this relationship.

⁵⁵Tariff policy is assumed to be a “pliable policy”, i.e. a policy dimension in which parties are open to changing their policies in response to electoral incentives. These differ from “fixed policies,” which might include redistributive policies or particular positions on social issues. For more on this distinction, see Grossman and Helpman (1996).

⁵⁶I assume that candidates cannot deviate from their party’s platform by creating their own policy platform. In parliamentary countries like Australia, Canada and the United Kingdom, candidates are directly associated with the legislative agenda of the party in parliament encapsulated in the national party platform. Even in a Presidential system like the United States, citizens cannot distinguish policy positions between co-partisans, but can easily distinguish cross-partisans; voters know about the policies supported by parties, but little about the policies supported by particular candidates (for more on this, see analysis of National Election Studies survey data during the time period in question in Snyder and Ting (2002)). This suggests that when incumbents choose a party’s “brand”, all candidates from that party become associated with those policies.

⁵⁷For simplicity, I do not explicitly include the World Trade Organization in the model. Though all of the advanced plurality democracies in my sample are in the World Trade Organization, they often apply tariff rates below the WTO Most-Favored-Nation rates, suggesting that they can increase tariffs from those levels without violating WTO rules. For example, according to the World Trade Organization’s “World Tariff Profiles 2017” report, Australia applies a lower MFN tariff rate (2.5 percent) than the bound rate (9.9 percent) on all products; the same can be said for Canada (4.1 percent average applied MFN tariff rate, 6.5 percent bound) and New Zealand (2.0 percent applied average tariff rate versus 10.1 percent bound rate). Furthermore, Rosendorff (2005) notes that there are institutional mechanisms allowing states to temporarily suspend compliance with international trade law in times of intense domestic political support for protectionism. The ongoing trade war between the United States and China following the implementation of tariffs by the Trump administration casts further doubt on the ability of the WTO to insulate trade from protectionist pressures in domestic politics.

I now turn to assessing what values are chosen for τ_l and τ_r in Period 1. Denote the Period 1 platform for the right party as τ_{r1} and the Period 1 platform for the left party as τ_{l1} . I assume that legislative candidates desire election. Because challengers are not strategic actors, I focus on incumbents. Incumbent l_b gains positive utility from winning re-election in period t , and gets no utility otherwise; the same holds for incumbent r_a .

In each district, the candidate who wins the majority of votes wins the election; formally, a candidate in district d must win the vote of the median voter in district d , m_d . Voters are not strategic, and simply vote for the candidate in their district whose party's platform is closest to their ideal tariff policy. Formally, voter j in district d with ideal point τ_j votes for candidate l_d if $|\tau_l - \tau_j| < |\tau_r - \tau_j|$, and votes for candidate r_d if $|\tau_r - \tau_j| < |\tau_l - \tau_j|$. If the median voter in district d , m_d , prefers tariff τ_{m_d} , l_d wins if $|\tau_l - \tau_{m_d}| < |\tau_r - \tau_{m_d}|$, and r_d wins if $|\tau_r - \tau_{m_d}| < |\tau_l - \tau_{m_d}|$.⁵⁸

Voter Tariff Preferences

A voter's tariff preference depends on their skill level. I conceptualize "trade" as an increase of Δ to skilled labor productivity in district b in Period $t + 1$, i.e. $X_{Sb(t+1)} = (1 - \tau_{Gt})\Delta + X_{Sbt}$, with $\Delta > 0$.⁵⁹

What are the effects of trade on the real wages of skilled and unskilled workers? Real wages for skilled workers increase by $(1 - \tau_{Gt})\frac{\tau\Delta}{12}$ and real wages for unskilled workers decline by $(1 - \tau_{Gt})\frac{\Delta}{6}$.⁶⁰ We therefore have that, based purely on the economics, skilled workers prefer $\tau_S = \tau_{Gt} = 0$, while unskilled workers prefer $\tau_U = \tau_{Gt} = 1$, indicating that unskilled voters are more protectionist than skilled voters.⁶¹

To capture the notion of heterogenous cultural attitudes towards trade, suppose that workers are subject to idiosyncratic trade preference shocks; each skilled worker S_i draws a tariff preference shock from the uniform distribution $\epsilon \sim U(-.5, 0)$, while every unskilled worker U_i draws a tariff preference shock $\epsilon \sim U(0, .5)$.⁶² We therefore have $\tau_U \sim U(.5, 1)$ and $\tau_S \sim U(0, 0.5)$.

Because district median voters have preferences $\tau_{m_d} = 0$ or $\tau_{m_d} = 1$ with probability 0, we avoid the corner cases of free trade and complete autarky, and instead have some level of trade in every period, i.e. $(1 - \tau_G)\Delta \neq 0$ and $(1 - \tau_G)\Delta \neq \Delta$. The function M maps the skill ratio of a district to its median tariff preference; formally, $M(\frac{S_d}{U_d}) = \tau_{m_d}$, where M is a decreasing function

⁵⁸Ties occur with probability 0, as I will discuss below.

⁵⁹One think of the model as beginning in autarky.

⁶⁰This can also be conceptualized as an increase in foreign demand for products made by high skilled workers in high density areas, i.e. increased demand for products made by highly agglomerated industries like finance and technology, which tend to benefit from trade in advanced democracies.

⁶¹The relationship between college education and support for trade is robustly supported in the literature (see, for example, Margalit (2012), Hainmueller and Hiscox (2006) and Scheve and Slaughter (2001)).

⁶²This could capture heterogeneous cultural attitudes; a cosmopolitan unskilled worker might be less protectionist than a more nativist unskilled worker, while a more ethnocentric skilled worker may be skeptical of completely liberalized trade despite its economic benefits.

(more skilled demographics imply a lower ideal tariff).⁶³

Sequence of Play

The sequence of the political and economic game is as follows:

- At the start of Period 1, incumbents l_b and r_a simultaneously set platform tariff positions τ_{l1} and τ_{r1}
- Elections are held and politician payoffs are realized
- Nature chooses either a or b as the median district
- Party p_1 that controls the median district enacts $\tau_{G1} = \tau_{p1}$
- At the start of Period 2, population movement occurs until spatial equilibrium is achieved
- Period 2 incumbents set platform tariff positions τ_{l2} and τ_{r2}
- Elections are held and politician payoffs are realized
- Nature chooses either a or b as the median district
- Party p_2 that controls the median district enacts $\tau_{G2} = \tau_{p2}$

From this I derive Lemmas 1A through 1F:

Lemma 1A. *To maximize the probability of winning re-election, Left incumbent l_b chooses $\tau_l = \tau_{m_b}$, while Right incumbent r_a chooses $\tau_r = \tau_{m_a}$.*

Lemma 1B. *If m_b is type S , then $\tau_l = \tau_S \in (0, .5)$, and if m_b is type U , then $\tau_l = \tau_U \in (.5, 1)$.*

Lemma 1C. *If m_a is type S , then $\tau_r = \tau_S \in (0, .5)$, and if m_a is type U , then $\tau_r = \tau_U \in (.5, 1)$.*

Lemma 1D. *Incumbents l_b and r_a keep their seats (challengers l_a and r_b lose their elections).*

Lemma 1E. *If the median district is type a , then $\tau_G = \tau_r$.*

Lemma 1F. *If the median district is type b , then $\tau_G = \tau_l$.*

Spatial Equilibrium in Period 2

I now consider what happens to the spatial distribution of workers following the enactment of τ_{G1} at the end of Period 1. As defined above, $W_{Sb2} = X_{Sb1} + (1 - \tau_{G1})\Delta - S_{b2}$. As a result of exposure to trade, we have the following inter-temporal population movement:

⁶³If $U_d > S_d$, then $M(\frac{S_d}{U_d}) = \tau_{m_d} = \frac{3U_d - S_d}{4U_d}$. If $U_d < S_d$, then $M(\frac{S_d}{U_d}) = \tau_{m_d} = \frac{U_d + S_d}{4S_d}$.

- $S_{b2} - S_{b1} = (1 - \tau_{G1}) \frac{5\Delta}{12} > 0$, i.e. $S_{a2} - S_{a1} = -(1 - \tau_{G1}) \frac{5\Delta}{12} < 0$
- $U_{b2} - U_{b1} = -(1 - \tau_{G1}) \frac{\Delta}{4} < 0$, i.e. $U_{a2} - U_{a1} = (1 - \tau_{G1}) \frac{\Delta}{4} > 0$

Following the implementation of τ_{G1} , district b becomes proportionally more skilled, while district a becomes proportionally less skilled.⁶⁴

Lemma 2. *Trade exposure induces population movement such that $S_{b2} > S_{b1}$ and $U_{b2} < U_{b1}$ (i.e. skill-sorting), which also implies $S_{a2} > S_{a1}$ and $U_{a2} > U_{a1}$.*⁶⁵

Inter-Temporal Platform Changes in Response to Migration

Because of internal migration, there is always inter-temporal change in partisan positioning. By lemma 1A, we have $\tau_l = \tau_{m_b}$ and $\tau_r = \tau_{m_a}$. It is always the case that any amount of trade exposure causes the Left to adopt a less protectionist platform and causes the Right party to adopt a more protectionist platform.

Regardless of the level of protectionism chosen in period 1, population movement occurs such that $\tau_{m_{b2}} < \tau_{m_{b1}}$ and $\tau_{m_{a2}} > \tau_{m_{a1}}$. There is always some inter-temporal change in tariff positioning; $\tau_{l2} < \tau_{l1}$ and $\tau_{r2} > \tau_{r1}$.

Proposition 1 characterizes the relative protectionism of party platform positions before and after trade exposure:

Proposition 1. *As a result of Lemmas 1A, 1B, 1C and 2, $\tau_{r2} > \tau_{r1}$, and $\tau_{l2} < \tau_{l1}$.*

Trade exposure induces protectionist backlash if the Right is in power, but produces lower trade barriers in the future if the Left is in power.

Proposition 2. *As a result of Lemmas 1A, 1B, 1C, 1D, 1E, 1F, and 2, $\tau_{G2} > \tau_{G1}$ if the median district is type a , and $\tau_{G2} < \tau_{G1}$ if the median district is type b .*

Whether trade exposure therefore makes government policy more protectionist or more liberal depends on which district type is the median district.

Partisan Realignment on Trade

Define a “partisan realignment” as either one of the following:

⁶⁴We also have $\rho_{b2} = \rho_{b1} + \frac{\Delta}{6}$ and $\rho_{a2} = \rho_{a1} - \frac{\Delta}{6}$, so rent in b goes up ($\rho_{b2} > \rho_{b1}$) while rent in a declines (i.e. $\rho_{a2} < \rho_{a1}$). In terms of wages, $W_{Ub2} = W_{Ub1}$, $W_{Ua2} = W_{Ua1} - \frac{\Delta}{3}$, $W_{Sb2} = W_{Sb1} + \frac{3\Delta}{4}$ and $W_{Sa2} = W_{Sa1} + \frac{5\Delta}{12}$. We therefore have the high-density district b as the relatively high-wage, high-rent district, and the low-density district a as the relatively low-wage, low-rent district, as expected. The clustering of skilled workers in the high-wage, high-rent area (and of unskilled workers in the low-wage, low-rent area) is consistent with the findings of Diamond (2016).

⁶⁵It is also worth noting that $U_{b2} + S_{b2} = B_2 > B_1$ and $U_{a2} + S_{a2} = A_2 < A_1$. We therefore know that trade exposure causes the high density district to gain population, and the low density district to lose population, so we do not need to worry about the districts changing types (i.e. a low density district becoming more dense or a high density district becoming less dense).

- $\tau_{l1} > \tau_{r1}$ and $\tau_{l2} < \tau_{r2}$
- $\tau_{l1} < \tau_{r1}$ and $\tau_{l2} > \tau_{r2}$

According to my model, the second type of partisan realignment is impossible (there are no conditions under which the Left is initially the pro-trade party and becomes the protectionist party). However, the second case has been observed in some of the countries in our sample: using the definition above, partisan realignments on trade have occurred in France and the United States. More generally, we can say the following about partisan realignments on trade:

Proposition 3. *A partisan realignment occurs if $\frac{S_{a1}}{U_{a1}} > \frac{S_{b1}}{U_{b1}}$ and $\frac{S_{a2}}{U_{a2}} < \frac{S_{b2}}{U_{b2}}$.*⁶⁶

Partisan Voting of Skilled and Unskilled Voters

I will now consider the implications of my model for the relationship between skill level and partisan voting. Define S_{pt} as the number of skilled voters that vote for party p in period t , where $S_{lt} + S_{rt} = S$. Analogously, define U_{pt} as the number of unskilled voters that vote for party p in period t , where $U_{lt} + U_{rt} = U$. If $\frac{S_{pt}}{S} > \frac{U_{pt}}{U}$, then party p is more popular with skilled workers than it is with unskilled workers.

Proposition 4. *Because $\tau_{r2} > \tau_{r1}$ and $\tau_{l2} < \tau_{l1}$, $\frac{S_{l2}}{U_{l2}} > \frac{S_{l1}}{U_{l1}}$, and $\frac{S_{r2}}{U_{r2}} < \frac{S_{r1}}{U_{r1}}$.*

The Right loses educated voters and gains uneducated supporters after becoming relatively more protectionist over time.

Proposition 6 is consistent with the data on education and voting presented above; as a result of changes in partisan positioning, a relatively higher percentage of skilled voters support the Left, while unskilled voters increasingly support the Right.

Voter Realignment by Education

Define a “voter realignment” as either one of the following:

- $\frac{S_{l1}}{U_{l1}} < \frac{S_{r1}}{U_{r1}}$ and $\frac{S_{l2}}{U_{l2}} > \frac{S_{r2}}{U_{r2}}$
- $\frac{S_{l1}}{U_{l1}} > \frac{S_{r1}}{U_{r1}}$ and $\frac{S_{l2}}{U_{l2}} < \frac{S_{r2}}{U_{r2}}$

According to my model, the second type of voter realignment is impossible (there are no conditions under which the Left is initially the relatively educated party and becomes the less educated party).

⁶⁶Substituting in for population movement, we need $\frac{S_{a1}}{U_{a1}} > \frac{S_{b1}}{U_{b1}}$ and $\frac{S_{a1} - \frac{(1-\tau_{G1})5\Delta}{12}}{U_{a1} + \frac{(1-\tau_{G1})\Delta}{4}} < \frac{S_{b1} + \frac{(1-\tau_{G1})5\Delta}{12}}{U_{b1} - \frac{(1-\tau_{G1})\Delta}{4}}$. Conditional on these conditions being satisfied, it is clear that lower values of τ_{G1} and higher values of Δ make realignment more likely, as do lower values of $(\frac{S_{a1}}{U_{a1}} - \frac{S_{b1}}{U_{b1}})$.

Proposition 5. *If a partisan realignment on trade occurs, then there is a voter realignment by education as well. Formally, if $\tau_{l1} > \tau_{r1}$ and $\tau_{l2} < \tau_{r2}$, then $\frac{S_{l1}}{U_{l1}} < \frac{S_{r1}}{U_{r1}}$ and $\frac{S_{l2}}{U_{l2}} > \frac{S_{r2}}{U_{r2}}$.*

In summary, my model embeds a spatial equilibrium framework from Economic Geography within a formal model of party platform-setting by re-election driven incumbents. As a result of inter-temporal skill-sorting, the high-density district becomes more skilled, while the low-density district becomes proportionally less skilled ($\frac{S_{b2}}{U_{b2}} > \frac{S_{b1}}{U_{b1}}$ and $\frac{S_{a2}}{U_{a2}} < \frac{S_{a1}}{U_{a1}}$). In response to changing constituency demographics, the Left incumbent adopts a more pro-trade platform than before, while the Right platform becomes increasingly protectionist ($\tau_{l2} < \tau_{l1}$ and $\tau_{r2} > \tau_{r1}$). Finally, inter-temporal changes in party platforms drive skilled voters towards the Left and make unskilled voters more likely to vote for the Right ($\frac{S_{l2}}{U_{l2}} > \frac{S_{l1}}{U_{l1}}$ and $\frac{S_{r2}}{U_{r2}} < \frac{S_{r1}}{U_{r1}}$). A “partisan realignment” occurs if $\tau_{l1} > \tau_{r1}$ and $\tau_{l2} < \tau_{r2}$; if a partisan realignment occurs, then a “voter realignment” takes place as well ($\frac{S_{r1}}{U_{r1}} > \frac{S_{l1}}{U_{l1}}$ and $\frac{S_{r2}}{U_{r2}} < \frac{S_{l2}}{U_{l2}}$).

The Case of the United States

To test the mechanisms of my theory, I undertake a case study of the United States, which has the broadest data coverage for population density, internal migration and percent college-educated of all the countries in the sample.⁶⁷ I test four observable implications of my theory for the case of the United States:

Implication 1. *A majority of Democratic (Republican) Congressional Districts are High-Density (Low-Density)*

Implication 2. *Educated (Uneducated) Citizens Move to High-Density (Low-Density) Districts*

Implication 3. *Increasing Relationship between Density and Skill at District Level Over Time*

Implication 4. *Democratic Districts Become More Skilled Relative to Republican Districts Over Time*

I first validate the assumption of the model that Left incumbents control high-density districts. I perform this analysis by matching congressional district-level data on population density

⁶⁷An extensive literature in American Politics finds that migration into and out of the American South was an important contributor to the civil rights realignment in the second half of the 20th century. Writing about the South in the 1960’s and 1970’s, Beck argues “Interregional population migrations have diluted Democratic strength and slightly increased that of the GOP by exchanging strongly Democratic ‘rebels’ for more Republican and less Democratic ‘Yankees’”(Beck (1977), page 494). Campbell (1977) similarly argues that the partisan realignment in the South was partly affected by in and out-migration. A broader literature in American politics links internal migration to political change. In 1988, Thad Brown wrote “by importing new political preferences, which they express directly at the polls, new residents may alter the political and partisan balance of the neighborhoods where they settle”(Brown (1988), page 23). Similarly, Freundreis (1989) argues that migration into an area changes the preferences of the local electorate and thereby changes the local partisan balance. Examples include migration within the U.S. making the Tennessee electorate more liberal and more Republican (Lyons and Durant (1980)) and an influx of educated voters into the Rocky Mountain West boosting the strength of the Democratic party there (Robinson and Noriega (2010)).

from the United States (1990 census, 2000 census, and 2006, 2008, 2010, 2012, 2014 and 2016 American Community Surveys) to VoteView data on membership of the United States House of Representatives in those years (from the 101st, 106th, 109th, 110th, 111th, 112th, 113th and 114th Congresses, respectively). I then calculate what proportion of Democratic and Republican members of the House of Representatives are in high-density districts; these proportions are shown in the plot below (Democrats in blue, Republicans in red). As shown below, a majority of Democratic members of the House are in high-density districts in all years of the sample, while a majority of Republican representatives are in low-density districts in each year. This confirms my assumption that Left (Right) incumbents must cater to high-density (low-density) constituencies in the United States.

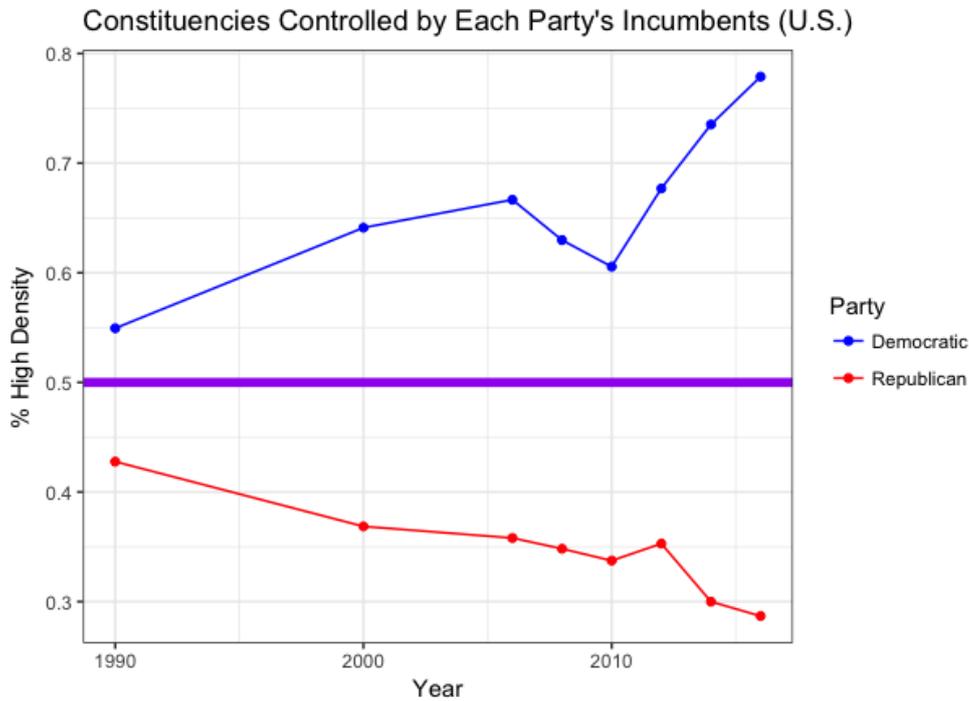


Figure 6: *Proportion of Democratic (blue) and Republican (red) Seats in High-Density Districts*

I next explore the mechanism of skill-biased internal migration. I do so both at the individual level using panel data from the Cooperative Congressional Election Study (CCES) in 2010 and 2012, and at the district level using Census and American Community Survey data. I first subset the CCES data to respondents who moved Congressional Districts between 2010 and 2012.⁶⁸ I then divide respondents into “skilled” (college-degree and above) and “unskilled” (those without a college degree).

⁶⁸I match this data to American Community Survey data on population density from 2012; the 2010 ACS is missing this data for all Texas districts, so I use 2012 data for both years to avoid introducing selection bias (data not missing at random). Population density measures do not change much between 2010 and 2012, so using the 2012 measure for both years should not affect inference when analyzing internal migrants.

After sub-setting on individuals who switched Congressional Districts between 2010 and 2012,⁶⁹ I calculate the mean difference in population density between respondents' 2012 districts and their 2010 districts for each skill type. I call this measure the "Density Gap." As expected, the Density Gap is positive for skilled migrants, and negative for unskilled migrants. In the Appendix, I demonstrate that this internal migration is driven by skill-sorting rather than partisan sorting.

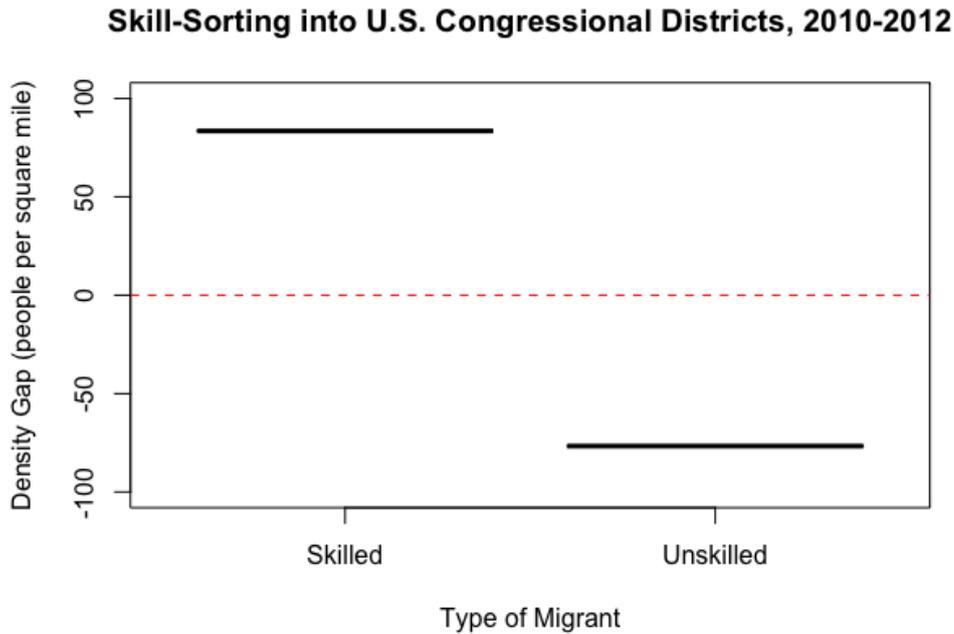


Figure 7: *Density Gap in Migration by Skill Type*

Having shown skill-sorting at the level of individual citizens, I now examine the positive relationship between population density and percent college educated at the Congressional Districts level over time. I regress percent skilled (the percent of adults over 25 years old with a bachelor's degree or higher) on log population density in each year (1990, 2000, 2006, 2008, 2010, 2012, 2014 and 2016). As shown in the coefficients plot below (the coefficient of log population density regressed on percent skilled), this relationship has increased in a positive and linear fashion over the last decade (redistricting in 2013 did not significantly affect this relationship).⁷⁰ Over time, a one unit increase in log population density becomes associated with a greater increase in percent college educated.

⁶⁹About 10 percent of respondents moved between Congressional Districts during the two-year period: 11 percent of skilled respondents moved, while 9 percent of unskilled respondents migrated.

⁷⁰Standard errors are plotted in gray.

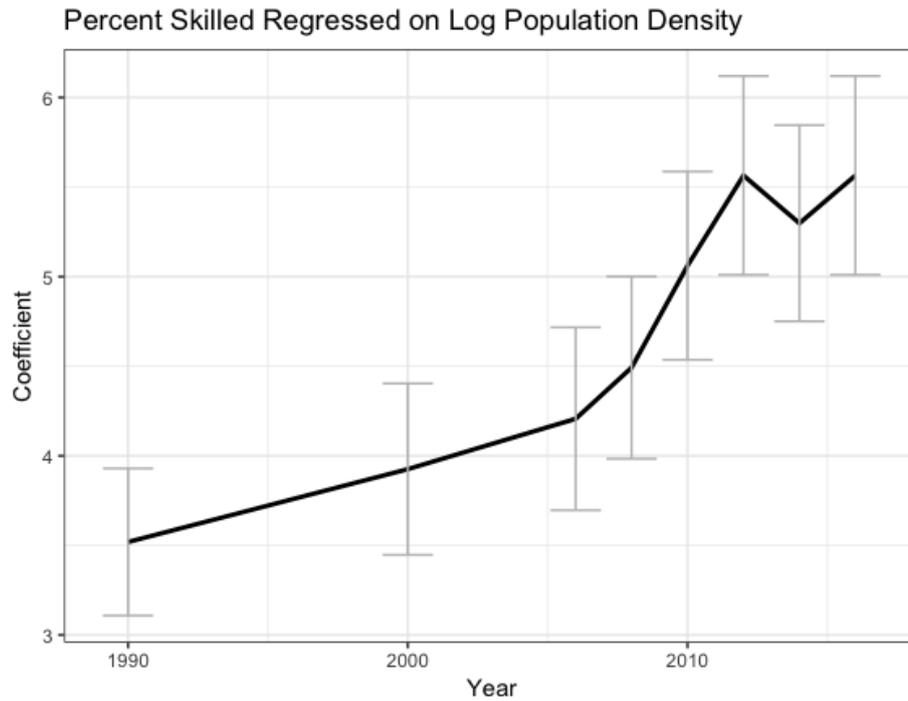


Figure 8: *Percent Skilled Regressed on Log Population Density*

Given that the relationship between population density and Left political control has persisted, an increasing relationship between population density and percent skilled should result in Left constituencies that are increasingly skilled (and Right districts that are relatively less skilled). I combine data on the proportion of college educated workers in each district from Milner and Tingley (2011) with more recent American Community Survey data (matched to VoteView political data). I find that the average Republican district was more skilled than the average Democratic district until 2008; Democratic districts are now more skilled on average than Republican districts, as expected. This change coincides with the partisan realignment on trade in the United States.

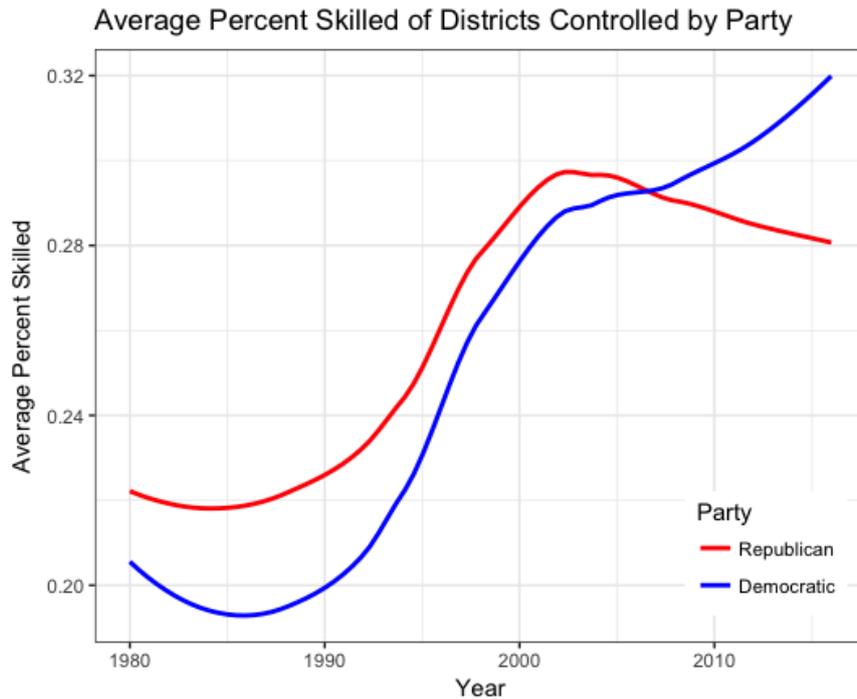


Figure 9: *Average Percent Skilled of Districts Controlled by Party (U.S.)*

The American case is therefore consistent with the mechanisms of the theory. As educated citizens sort into high-density districts controlled by Democrats, Democratic districts become more skilled on average, in both absolute and relative terms. These demographic changes coincide with a liberalizing Left and a Republican party trending towards protectionism—changes that have brought with them the defection of educated voters from the Republicans to the Democrats.

Conclusion

Over the last three decades, two puzzling realignments have occurred in advanced plurality countries. I demonstrate that the initially protectionist Left became the party of free trade, while the initially pro-trade Right now endorses protectionism. I also show that the Right has lost its appeal among educated citizens; the Left has gained these voters at the expense of losing support among the unskilled. In this paper, I offer an original theoretical framework for understanding these developments. Drawing on empirical research in Economic and Political Geography, I argue that knowledge-economy economic forces like trade (and technology) cause skilled workers to sort into high-density districts controlled by Left incumbents and motivate unskilled workers to concentrate in low-density areas controlled by Right incumbents. Left incumbents adopt a more liberal party platform to win the votes of their increasingly skilled constituencies, while Right incumbents endorse more protectionist platforms to gain support from increasingly unskilled electorates. In

response to these changes in partisan positioning, educated voters vote for the Left at increasingly high rates, while uneducated voters defect to the Right. I formalize this argument by embedding a spatial equilibrium model from economic geography within a formal model of incumbents choosing party platforms to cater to their districts' median voters. From the empirically-validated political and economic geography assumptions of the model, I generate predictions that are consistent with the otherwise puzzling partisan and voter realignments observed in plurality countries. I conclude by examining the case of the United States, and find evidence consistent with the mechanisms of my model.

The ongoing partisan realignment on trade in advanced plurality countries has its roots in long-standing trends in political and economic geography. Ultimately, it is impossible to understand the seismic shifts disrupting partisan politics in countries like the United States, the United Kingdom and France without accounting for geographic factors. Future research should further investigate the influence of internal migration on the International Political Economy.

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Appendix

Partisan Realignment on Trade Robustness Checks

Given the difficulties of coding the French right, I exclude France from the sample in the following analysis, and show that the time trends in Table 3 still hold when only examining Australia, Canada, New Zealand, the United States and the United Kingdom from 1984 to 2014.

Table 6: Left and Right Support for Tariffs Over Time in Plurality (excluding France)

	<i>Dependent variable:</i>	
	Left Support for Tariffs	Right Support for Tariffs
	(1)	(2)
Year	-0.053** (0.020)	0.083*** (0.030)
Country FE	✓	✓
Observations	44	44
R ²	0.217	0.332
Adjusted R ²	0.114	0.245
Residual Std. Error (df = 38)	1.160	1.760
F Statistic (df = 5; 38)	2.102*	3.784***

Note:

*p<0.1; **p<0.05; ***p<0.01

Even after excluding France, the positive and significant relationship between Right Support for Tariffs and Year remains, as does the negative and significant time trend in Left support for tariffs.

I now show that the analysis in Table 1 holds when not including country fixed effects; the results from the robustness check above hold as well.

Table 7: Support for Tariffs Over Time in Plurality, without FE

	<i>Dependent variable:</i>	
	Left Support for Tariffs	Right Support for Tariffs
	(Left)	(Right)
Year	-0.044** (0.017)	0.073** (0.029)
Constant	87.574** (34.780)	-147.510** (58.143)
Observations	51	51
R ²	0.115	0.115
Adjusted R ²	0.097	0.097
Residual Std. Error (df = 49)	1.092	1.826
F Statistic (df = 1; 49)	6.384**	6.374**

Note:

*p<0.1; **p<0.05; ***p<0.01

Table 8: Support for Tariffs Over Time in Plurality (excluding France), without FE

	<i>Dependent variable:</i>	
	Left Support for Tariffs	Right Support for Tariffs
	(Left)	(Right)
Year	-0.052** (0.020)	0.082** (0.033)
Constant	104.201** (39.727)	-165.200** (65.792)
Observations	44	44
R ²	0.142	0.129
Adjusted R ²	0.121	0.109
Residual Std. Error (df = 42)	1.155	1.912
F Statistic (df = 1; 42)	6.924**	6.241**

Note:

*p<0.1; **p<0.05; ***p<0.01

I also disaggregate the “Support for Tariffs” measure into positive and negative mentions of protectionism, and find the same time trends.

Table 9: Positive Mentions of Tariffs Over Time in Plurality

	<i>Dependent variable:</i>	
	per406	
	(Left)	(Right)
Year	-0.024**	0.019
	(0.010)	(0.012)
Country FE	✓	✓
Observations	51	51
R ²	0.201	0.148
Adjusted R ²	0.092	0.032
Residual Std. Error (df = 44)	0.623	0.761
F Statistic (df = 6; 44)	1.842	1.279

Note: *p<0.1; **p<0.05; ***p<0.01

Table 10: Negative Mentions of Tariffs Over Time in Plurality

	<i>Dependent variable:</i>	
	per407	
	(Left)	(Right)
Year	0.021 (0.015)	-0.055** (0.027)
Country FE	✓	✓
Observations	51	51
R ²	0.253	0.338
Adjusted R ²	0.152	0.248
Residual Std. Error (df = 44)	0.930	1.694
F Statistic (df = 6; 44)	2.490**	3.746***

Note: *p<0.1; **p<0.05; ***p<0.01

Finally, I demonstrate below that the “Relative Protectionism of the Right” exhibits a positive and significant time trend even when excluding France from the analysis.

Table 11: Relative Protectionism of the Right (excluding France)

	<i>Dependent variable:</i>
	relative
Year	0.136*** (0.037)
Country FE	✓
Observations	44
R ²	0.314
Adjusted R ²	0.224
Residual Std. Error	2.123 (df = 38)
F Statistic	3.485** (df = 5; 38)

Note: *p<0.1; **p<0.05; ***p<0.01

PR “Placebo Test”

While there are many differences between plurality countries like the U.S. and Canada and Proportional Representation (PR) countries like the Netherlands or Finland, I undertake a basic “Placebo Test” to determine whether the trends in partisan positioning observed in advanced plurality countries are also present in advanced PR countries (I do not expect the same time trends given that the relationship between Left incumbency and high density constituencies does not hold for PR). The advanced PR countries in my sample are Austria, Belgium, Denmark, Finland, Ireland, Israel, the Netherlands, Norway, Sweden and Switzerland. I divided left and right parties based on their Manifesto Project “rile” scores. The phenomenon of Left and Right parties going in opposite directions on trade policy does not hold in PR countries, as shown in the time-trend plots below; it is clear that the advanced plurality phenomenon of an increasingly protectionist right and an increasingly pro-trade left does not hold in PR countries.

Table 12: Right and Left Support for Tariffs in PR, 1984-2014

	<i>Dependent variable:</i>	
	Left Support for Tariffs	Right Support for Tariffs
	(1)	(2)
Year	-0.006*	-0.014**
	(0.003)	(0.006)
Constant	11.617*	27.565**
	(6.168)	(12.624)
Observations	352	271
R ²	0.010	0.018
Adjusted R ²	0.007	0.014
Residual Std. Error	0.503 (df = 350)	0.869 (df = 269)
F Statistic	3.562* (df = 1; 350)	4.806** (df = 1; 269)

Note:

*p<0.1; **p<0.05; ***p<0.01

Voter Realignment by Education Robustness Checks

I now show that the time trends for the “Skill Gap in Voting” measure are robust to excluding France and to eliminating country fixed effects.

Table 13: Skill Gap in Voting by Party, without FE

	<i>Dependent variable:</i>	
	Left	Right
	(1)	(2)
Year	0.003*** (0.001)	-0.002*** (0.001)
Constant	-6.371*** (1.400)	4.954*** (1.400)
Observations	52	52
R ²	0.292	0.201
Adjusted R ²	0.278	0.185
Residual Std. Error (df = 50)	0.047	0.047
F Statistic (df = 1; 50)	20.615***	12.554***

Note: *p<0.1; **p<0.05; ***p<0.01

Table 14: Skill Gap in Voting by Party (excluding France)

	<i>Dependent variable:</i>	
	Left	Right
	(1)	(2)
Year	0.003*** (0.001)	-0.002*** (0.001)
Country FE	✓	✓
Observations	52	52
R ²	0.605	0.472
Adjusted R ²	0.552	0.401
Residual Std. Error (df = 45)	0.037	0.041
F Statistic (df = 6; 45)	11.470***	6.699***

Note: *p<0.1; **p<0.05; ***p<0.01

Supplemental Evidence on Political Geography

In this section, I provide additional evidence in favor of the political geography assumption of my model. I first match congressional district-level data on population density from the United States (1990 census, 2000 census, and 2006, 2008, 2010, 2012, 2014 and 2016 American Community Surveys) to VoteView data on membership of the United States House of Representatives in those years (from the 101st, 106th, 109th, 110th, 111th, 112th, 113th and 114th Congresses, respectively). I create an indicator variable for “Democratic Control” for each congressional district. As expected, population density is a positive and significant predictor of whether a district is controlled by a Democratic incumbent in any given year.⁷¹

⁷¹The coefficient estimates are stable over time, indicating that political geography has been stable; it is the demographics of these constituencies that have changed, which I will explore in the next section.

Table 15: Population Density and Democratic Control in the U.S., 1990-2016

		<i>Dependent variable:</i>							
		Democratic Control							
		(1990)	(2000)	(2006)	(2008)	(2010)	(2012)	(2014)	(2016)
Density	0.00001** (0.00000)	0.00001*** (0.00000)	0.00002*** (0.00000)	0.00001*** (0.00000)	0.00001*** (0.00000)	0.00001*** (0.00000)	0.00001*** (0.00000)	0.00002*** (0.00000)	0.00001*** (0.00000)
Constant	0.638*** (0.024)	0.490*** (0.025)	0.429*** (0.025)	0.483*** (0.025)	0.569*** (0.025)	0.400*** (0.025)	0.387*** (0.024)	0.370*** (0.024)	
Observations	437	436	424	434	407	439	443	441	
R ²	0.009	0.019	0.055	0.042	0.031	0.028	0.048	0.039	
Adjusted R ²	0.007	0.016	0.053	0.040	0.029	0.026	0.046	0.036	
Residual Std. Error	0.474 (df = 435)	0.496 (df = 434)	0.486 (df = 422)	0.490 (df = 432)	0.483 (df = 405)	0.489 (df = 437)	0.483 (df = 441)	0.482 (df = 439)	
F Statistic	4.121** (df = 1; 435)	8.192*** (df = 1; 434)	24.515*** (df = 1; 422)	19.125*** (df = 1; 432)	13.145*** (df = 1; 405)	12.757*** (df = 1; 437)	22.465*** (df = 1; 441)	17.664*** (df = 1; 439)	

Note:

*p<0.1; **p<0.05; ***p<0.01

I undertake the same analysis for the United Kingdom. I only have access to population density data for the 2001 and 2011 censuses, so I analyze the incumbents in the UK parliament for those years (matching data on members elected to the House of Commons in those years, i.e. the parliament elected in 2001 and serving until 2005, and the parliament elected in 2011 and serving until 2015). I create indicator variables for Labour and Conservative control of a parliamentary constituency for those years. Population density is a significant and positive predictor of Labour control in 2001 and 2011, while the same variable is a negative and significant predictor of Conservative control of a constituency.

Table 16: Population Density and Partisan Control in the U.K., 2001 and 2011

		<i>Dependent variable:</i>			
		Labour		Conservative	
		(2001)	(2011)	(2001)	(2011)
Density	0.008*** (0.001)	0.006*** (0.001)	-0.007*** (0.001)	-0.007*** (0.001)	
Constant	0.425*** (0.028)	0.213*** (0.024)	0.435*** (0.026)	0.686*** (0.025)	
Observations	475	556	475	556	
R ²	0.118	0.097	0.117	0.146	
Adjusted R ²	0.116	0.096	0.115	0.144	
Residual Std. Error	0.465 (df = 473)	0.447 (df = 554)	0.430 (df = 473)	0.462 (df = 554)	
F Statistic	62.978*** (df = 1; 473)	59.718*** (df = 1; 554)	62.611*** (df = 1; 473)	94.572*** (df = 1; 554)	

Note:

*p<0.1; **p<0.05; ***p<0.01

I do the same analysis for the Liberal (Left) and Conservative parties in Canada matching 2011 and 2016 census population density data to members of the Canadian House of Commons elected

in that year. As before, population density significantly and positively (negatively) predicts Left (Right) control of a constituency.

Table 17: Population Density and Partisan Control in Canada, 2011 and 2016

	<i>Dependent variable:</i>			
	Liberal		Conservative	
	(2011)	(2016)	(2011)	(2016)
Density	0.0001*** (0.00001)	0.0001*** (0.00001)	-0.0001*** (0.00001)	-0.0001*** (0.00001)
Constant	0.143*** (0.027)	0.450*** (0.031)	0.593*** (0.031)	0.380*** (0.028)
Observations	307	338	307	338
R ²	0.150	0.073	0.150	0.091
Adjusted R ²	0.148	0.070	0.147	0.088
Residual Std. Error	0.401 (df = 305)	0.482 (df = 336)	0.462 (df = 305)	0.435 (df = 336)
F Statistic	53.957*** (df = 1; 305)	26.497*** (df = 1; 336)	53.828*** (df = 1; 305)	33.489*** (df = 1; 336)

Note:

*p<0.1; **p<0.05; ***p<0.01

Finally, I assess the relationship between log population density and Labour and Liberal (Right) control of an electoral division in Australia in 2016, the only year for which I have census population density data. Once again, population density positively (negatively) predicts Left (Right) control.

Table 18: Log Population Density and Partisan Control in Australia (2016)

	<i>Dependent variable:</i>	
	Labor	Liberal
	(1)	(2)
Log Density	0.116*** (0.033)	-0.099*** (0.033)
Constant	0.200** (0.083)	0.728*** (0.085)
Observations	150	150
R ²	0.078	0.056
Adjusted R ²	0.072	0.050
Residual Std. Error (df = 148)	0.482	0.489
F Statistic (df = 1; 148)	12.575***	8.838***

Note: *p<0.1; **p<0.05; ***p<0.01

Internal Migration in the United States: Skill-Sorting, Not Partisan Sorting

I now demonstrate that the internal migration pattern for the U.S. case is driven by skill-sorting, rather than partisan sorting. I divide CCES respondents who moved Congressional Districts into six types: skilled Democrats, unskilled Democrats, skilled Independents, unskilled Independents, skilled Republicans and unskilled Republicans. If partisan sorting is driving migration, we would expect positive values for the “Density Gap” for Democrats regardless of skill type and negative values for Republicans regardless of skill type. Instead, I find evidence for skill-sorting: Republicans do not have lower Density Gap scores than Democrats, but skilled individuals of all partisan types have higher Density Gap scores than their unskilled co-partisans.

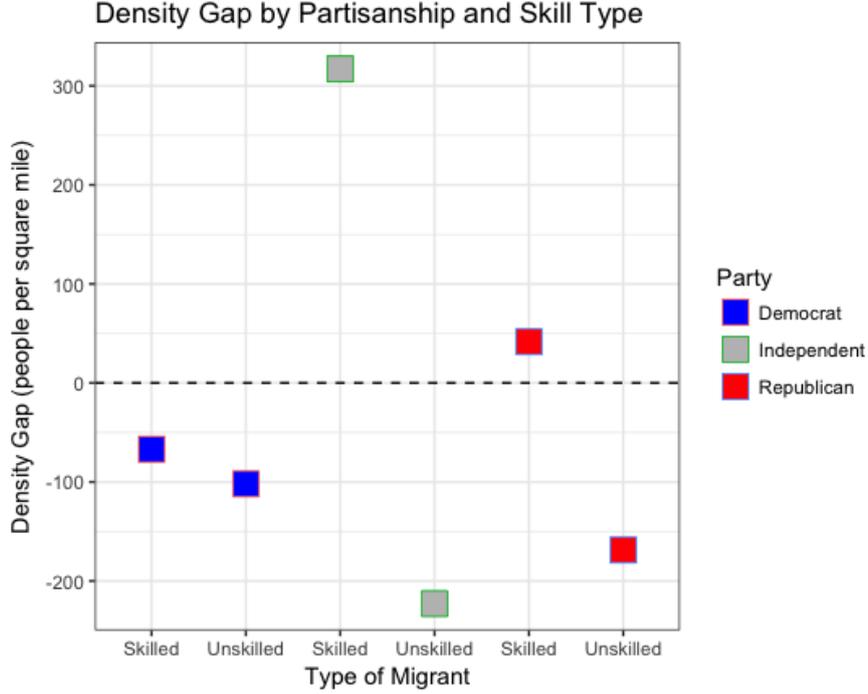


Figure 10: *Density Gap in Migration by Skill Type and Partisanship*

Formal Model: Proof that Platforms Always Change Inter-Temporally

If $U_c > S_c$, then $M(\frac{S_c}{U_c}) = \tau_{m_c} = \frac{3U_c - S_c}{4U_c}$. If $U_c < S_c$, then $M(\frac{S_c}{U_c}) = \tau_{m_c} = \frac{U_c + S_c}{4S_c}$.

Let's start with the high density district, district b . If the median voter switches from unskilled to skilled, it is clear that $\tau_{m_{b2}} = \tau_{l2} < \tau_{l1} = \tau_{m_{b1}}$.⁷² However, unlike in the discrete case, the ideal tariff policy of the median changes even if the median voter does not change inter-temporally change skill types. Suppose the median voter in district b is unskilled in periods 1 and 2, i.e. $N_{Ub1} > N_{Sb1}$ and $U_{b2} > S_{b2}$. Because the median voter in district b is unskilled, we have $\frac{3N_{Ub1} - N_{Sb1}}{4N_{Ub1}} = \tau_{m_b}$. We therefore have $\frac{3U_{b1} - N_{Sb1}}{4N_{Ub1}} = \tau_{m_{b1}}$ and $\frac{3U_{b2} - S_{b2}}{4U_{b2}} = \tau_{m_{b2}}$. Following the enactment of τ_{G1} , there is population movement such that $S_{b2} - S_{b1} = \frac{5\Delta(1-\tau_{G1})}{12}$ and $U_{b2} - U_{b1} = -\frac{\Delta(1-\tau_{G1})}{4}$. Substituting in for the second period population values, we have $\frac{3U_{b2} - S_{b2}}{4U_{b2}} = \frac{3(U_{b1} - \frac{\Delta(1-\tau_{G1})}{4}) - (S_{b1} + \frac{5\Delta(1-\tau_{G1})}{12})}{4N_{Ub1}} = \tau_{m_{b2}} < \frac{3U_{b1} - N_{Sb1}}{4N_{Ub1}} = \tau_{m_{b1}}$. Now suppose the median voter in district b is skilled in periods 1 and 2, i.e. $N_{Ub1} < N_{Sb1}$ and $U_{b2} < S_{b2}$. Because the median voter is skilled, $\tau_{m_b} = \frac{N_{Ub1} + N_{Sb1}}{4N_{Sb1}}$. We therefore have $\tau_{m_{b1}} = \frac{U_{b1} + N_{Sb1}}{4N_{Sb1}}$ and $\tau_{m_{b2}} = \frac{U_{b2} + S_{b2}}{4S_{b2}}$. Substituting in again for the second period's population, we have $\frac{U_{b1} - \frac{\Delta(1-\tau_{G1})}{4} + S_{b1} + \frac{5\Delta(1-\tau_{G1})}{12}}{4(N_{Sb1} + \frac{5\Delta(1-\tau_{G1})}{12})} = \tau_{m_{b2}} < \tau_{m_{b1}} = \frac{U_{b1} + N_{Sb1}}{4N_{Sb1}}$.

Now let's consider the low-density district, district a . If the median voter switches from skilled to unskilled, it is clear that $\tau_{m_{a2}} = \tau_{r2} > \tau_{r1} = \tau_{m_{a1}}$.⁷³ Suppose the median voter in district

⁷²It is never the case that the median voter in district b switches from skilled to unskilled, as the high density district always (weakly) becomes relatively more skilled following the enactment of τ_{G1} .

⁷³It is never the case that the median voter in district a switches from unskilled to skilled, as the low density district always (weakly) becomes relatively less skilled following the enactment of τ_{G1} .

a is unskilled in periods 1 and 2, i.e. $N_{Ua1} > N_{Sa1}$ and $U_{a2} > S_{a2}$. Because the median voter in district a is unskilled, we have $\frac{3N_{Ua} - N_{Sa}}{4N_{Ua}} = \tau_{m_a}$. We therefore have $\frac{3U_{a1} - N_{Sa1}}{4N_{Ua1}} = \tau_{m_{a1}}$ and $\frac{3U_{a2} - S_{a2}}{4U_{a2}} = \tau_{m_{a2}}$. Following the enactment of τ_{G1} , there is population movement such that $S_{a2} - S_{a1} = -\frac{5\Delta(1-\tau_{G1})}{12}$ and $U_{a2} - U_{a1} = \frac{\Delta(1-\tau_{G1})}{4}$. Substituting in for the second period population values, we have $\frac{3U_{a2} - S_{a2}}{4U_{a2}} = \frac{3(U_{a1} + \frac{\Delta(1-\tau_{G1})}{4}) - (S_{a1} - \frac{5\Delta(1-\tau_{G1})}{12})}{4N_{Ua1}} = \tau_{m_{a2}} > \tau_{m_{a1}} = \frac{3U_{a1} - N_{Sa1}}{4N_{Ua1}}$. Now suppose the median voter in district a is skilled in periods 1 and 2, i.e. $N_{Ua1} < N_{Sa1}$ and $U_{a2} < S_{a2}$. Because the median voter is skilled, $\tau_{m_a} = \frac{N_{Ua} + N_{Sa}}{4N_{Sa}}$. We therefore have $\tau_{m_{a1}} = \frac{U_{a1} + N_{Sa1}}{4N_{Sa1}}$ and $\tau_{m_{a2}} = \frac{U_{a2} + S_{a2}}{4S_{a2}}$. We therefore have $\frac{U_{a1} + \frac{\Delta(1-\tau_{G1})}{4} + S_{a1} - \frac{5\Delta(1-\tau_{G1})}{12}}{4(N_{Sa1} - \frac{5\Delta(1-\tau_{G1})}{12})} = \tau_{m_{a2}} > \tau_{m_{a1}} = \frac{U_{a1} + N_{Sa1}}{4S_{a1}}$.