

## ORIGINAL ARTICLE

# The lasting impact of external shocks on political opinions and populist voting

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## Abstract

We use electoral survey data linked to disaggregated geographical data to examine the impact that two external shocks had on the initial development and long-term success of New Zealand First (NZF), one of the oldest populist parties in the Organisation for Economic Co-operation and Development, as well as their short and long-run impact on voting and political opinions. We find that people exposed to both structural and immigration reforms were more likely to initially vote for NZF and permanently changed their political attitudes and policy preferences. Exposure to these shocks plays an important role in explaining the rise and continued success of populism in New Zealand.

## KEYWORDS

immigration, political parties, populism, shocks, structural reforms, trade

## JEL CLASSIFICATION

D72, P16, H40

## 1 | INTRODUCTION

Based on a minimal definition, populism is “an ideology that considers society to be ultimately separated into two homogeneous and antagonistic groups, ‘the pure people’ versus ‘the corrupt elite’, and which argues that politics should be an expression of the *volonté générale* (general will) of the people” (Mudde, 2004, p. 543). While populism has been around since at least the end of the 19th century, its resurgence in Western countries is quite recent.<sup>1</sup> While there are

**Abbreviations:** AU, Area Unit; ED, Electoral District; FPP, First Past the Post; IV, Instrumental Variable; LMA, Labor Market Area; MMP, Mixed-Member Proportional; NZ, New Zealand; NZES, New Zealand Election Study; NZF, New Zealand First; OECD, Organisation for Economic Co-operation and Development; WTO, World Trade Organization.

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many explanations for this, such as increased immigration and trade competition from China (see Margalit, 2019; Guriev & Papaioannou, 2020, for recent reviews), there is little empirical evidence on how populism manages to persist and to affect politics even as conditions change and in the face of the mostly poor record of governance of populist political parties (Funke et al., 2020; Mudde, 2019; Rooduijn et al., 2014).

To fill this gap, we examine the impact that two large external shocks had on the initial development and long-term success of one of the oldest populist parties in the Organisation for Economic Co-operation and Development (OECD), as well the impact of these shocks on short- and long-run changes in political opinions and voting. Founded in 1993, New Zealand First (NZF), is a populist and nationalist anti-immigration party.<sup>2</sup> It exploded on to the scene, getting a remarkable 13% of the vote in the 1996 election and entering government as a coalition partner with the mainstream center-right party. Since then, NZF has remained a key player in NZ politics and has been in government two more times in coalition with the mainstream center-left party.

New Zealand First attracts very similar voters in terms of observable characteristics as current populist parties in Europe. Additionally, the electoral system in NZ, described in more detail below, is nearly identical to that in Germany and thus similar to that in other European countries with proportional representative parliaments. Hence, it presents an ideal case study for understanding the birth and development of a modern populist party, without confounding effects from the recent global emergence of populism, and to provide insights into the potential future development of populism, particularly in Europe. We are the first paper to our knowledge to simultaneously examine the origin and long-run development of a modern populist party as well as how changing political opinions have supported this development.

In the 1980s, NZ experienced two 'shocks' very similar to current ones affecting many OECD countries. First, it had a deep economic crisis that led to structural reforms which removed government support and increased competition within certain geographically concentrated industries. The impact of this shock was similar in many ways to that of China joining the World Trade Organization (WTO) and expanding automation on the rest of the developed world in the 2000/2010s. Then, it was at the forefront of developing a skilled migration system that had no restrictions on country of origin and led to large inflows of immigrants from culturally distant countries.

We use electoral survey data to examine the impact that these shocks had: (i) on voting for NZF in its first years of existence; (ii) on individual beliefs and political preferences; and (iii) on long-run persistence in voting for NZF, as well as long-run impacts on individual beliefs and political preferences. Our use of an electoral survey, as opposed to voting data, allows us to examine the pathways through which these shocks affect voting behaviors and heterogeneity in their impacts.<sup>3</sup> This is a second major contribution of our paper as most previous research on populism has relied on voting data and hence had not been able to examine the relative importance of different mechanisms at an individual level.<sup>4</sup>

Importantly, this survey data contains very localized geographic identifiers that allow us to combine it with five-yearly census data to measure the two shocks at the local labor market area (LMA), as well as to control for socioeconomic characteristics of local areas prior to the occurrence of the shocks. We also use this data to build instruments to account for any potential endogeneity of these shocks. In particular, we show that the local distribution of industries prior to structural reform process is strongly predictive of the local impact of reforms, but uncorrelated with both voting patterns and mistrust toward political parties prior to the reform. And we show that historical migrant networks are strongly predictive of the settlement pattern of new migrants even though the reform of the immigration system that started in 1987 led to a large change in immigrant source countries. Furthermore, these historical networks are uncorrelated with both voting patterns and mistrust toward political parties prior to the reform. In general, our instrumental variable estimates are qualitatively similar to our ordinary least squares (OLS) estimates suggesting that, in our context, both shocks were exogenous to local underlying conditions that were conducive to the development of populism.

We find that these shocks are positively related with votes for NZF already in 1993 at the electoral district (ED) level and that these effects become statistically significant in 1996 after NZ switched its electoral system from First Past the Post (FPP) to Mixed-Member Proportional (MMP) and NZF experienced a doubling in vote share.<sup>5</sup> When we focus on a more natural geography of local LMAs, which we can do only starting in 1996, we find an even stronger impacts of the shocks. In our preferred instrumental variable specification, we find that a 1 percentage-point increase in recent arrivals increases the NZF vote share by 5.7% points and the same size reduction in income caused by structural reforms increases it by 1.2% points relative to an actual vote share of 11% (of the eligible population). The impact of the immigration shock is found to be entirely driven by increased immigration from Asia and there is no impact of these shocks on turnout or voting for other political parties, indicating that there is a specific link between these shocks and populist voting and that our instrumental variable estimates are likely to be unbiased.

To better understand why these shocks led to an increase in populist voting, we next examine their short-run impact on people's political opinions, beliefs, and policy preferences. Consistent with our findings on voting, we find no impact

of these shocks on an individual's political position, but experiencing either shock leads to an increase in populist attitudes, such as mistrust of the mainstream political parties and preferences for a strong leader. We also find that increased immigration makes people more hostile to immigration and more likely to consider security issues as important. On the other hand, individuals who experience a larger structural reform shock have increased preferences for redistribution and feel that unemployment is a more relevant policy issue while economic growth is a less relevant issue. These changes in preferences and beliefs explain 24–33% of the overall impact of each shock on voting for NZF.

We then examine the long-run effects of the shocks on both voting and political opinions from 1999 to 2020. During the period from 1999 to 2008 when the economy was growing, we find that having experienced a larger immigration shock led to a rightward shift in both political attitudes and voting behaviors and persistent impacts on voting for NZF, while having experienced a larger structural reform shock had persistent impacts on voting for NZF. During the period from 2011 to 2020, when there was much more economic uncertainty, we find less persistence in the impact of these shocks. There is some evidence that having experienced a larger immigration shock led to a long-run hostility to immigration and a rightward shift in political attitudes, but the results are not strongly significant.

We speculate that we do not find an impact on voting for NZF in the long run because of an increasing shift of the mainstream political parties in NZ toward more populist policy positions (Vowles & Curtin, 2020). This type of contagion process also has been documented for Europe over a shorter period (Rooduijn et al., 2014). Our finding that this change persists after the initial populist development suggests that politics in Europe (and perhaps the US) will also continue to shift to the right in the coming years. This shift we observe toward right-wing political preferences is consistent with the idea that enduring economic and political shocks lead to more conservative ideologies (Jost et al., 2003; Nail & McGregor, 2009).

We also provide supporting evidence on whether these shocks led to increased support for populism by changing the attitudes and desires of the voters or by changing the 'supply' of populism via the creation of NZF (Guiso et al., 2017). Consistent with demand side being more important, we find a strong significant impact of having experienced an immigration shock on individual's voting to change the political system in the 1993 referendum that switched the electoral system from FPP to MMP. On the other hand, we do not find an impact of experiencing these shocks on whether NZF was more likely to field candidates in a particular electorate in 1993.

In additional analyses, we leverage our use of individual electoral survey data to show that the impact of both shocks is homogeneous across sociodemographic characteristics. Importantly, this suggests that it is not only individuals who are 'losing out' from the shocks that vote for NZF. On the other hand, we find heterogeneous impacts across geographies. In particular, both shocks only impact voting for NZF in the short-run in low density areas and in areas with low pre-1986 immigration levels. This suggests that rural and less international communities are particularly susceptible to populism when they suffer from outside shocks.

Our paper makes several important contributions. First, a unique aspect of our paper is the focus on the development of an 'old' populist party. This allows us to examine the persistence of the impact of economic and immigration shocks and understand whether these shocks have led to long-run impacts on political opinions and support for populism. This is particularly important for understanding what we should expect to happen in the future in European countries (and the US) where the political expression of populism is a more recent phenomenon. Our evidence suggests that, while support for populism fluctuates with both political and economic conditions, changes in political opinions persist far into the future and this has long-run consequences on political outcomes, among them and most notably a right-wing shift in political preferences.

Second, by using electoral survey data, as opposed to voting records, combined with spatially distributed shocks, we can examine the pathways through which shocks impact voting as well as heterogeneity in impacts. We find that exogenous shocks impacted voting in NZ mostly by changing political opinions with homogenous impacts on individuals from different socioeconomic backgrounds, but heterogeneous impacts across geographies. These results support previous arguments that labor market competition is not the main pathway through which immigration shocks lead to populist voting (e.g., Card et al., 2012; Hainmueller & Hopkins, 2014) and that cultural and political resentment may be more relevant (Akkerman et al., 2014; Cramer, 2016; Dustmann et al., 2019; Eribon, 2018; Levi et al., 2020). The same appears to be true of shocks driven by structural reforms, which has not been shown previously in the literature. Overall, we find evidence that economic, political, and cultural explanations for the new rise in populism are intertwined. Our shocks, beyond doubt economic in nature, trigger changes in political opinions and are amplified in their effects by cultural aspects - such as being part of a 'rural' community.

Third, we are the first paper to our knowledge to look jointly at both the importance of increased immigration and economic shocks (in the form of structural reforms) for the rise of populism. We bring together an expanding political

economy literature on populism that has examined the role of globalization, in particular trade with China (Alabrese et al., 2019; Becker et al., 2017; Colantone & Stanig, 2018a, 2018b, 2019; Dippel et al., 2022; Dorn et al., 2020; Rodrik, 2018), macroeconomic shocks (Algan et al., 2017; Dal Bó et al., 2022), and the recent rise in automation (Anelli et al., 2021; Im et al., 2019) with another strand that has focused on the impact of immigration on populist voting (Barone et al., 2016; Dustmann et al., 2019; Edo et al., 2019; Halla et al., 2017; Levi et al., 2020). Interestingly, we find that both shocks were important for the development of NZF and for explaining the long-run rightward shift in both political attitudes and voting behaviors.

We next provide background information on NZ First and other important aspects of the NZ economy and political system. We then describe our data and identification strategy. Following this, we discuss our main results, then our additional results and finally we conclude.

## 2 | BACKGROUND

### 2.1 | New Zealand First and the New Zealand parliament

New Zealand First is in many ways, consistent with its populist traits, the story of Winston Peters, its ongoing leader from its foundation in 1993. Peters was first elected to Parliament in 1978 as a member of the mainstream center-right National party. Like many recent populist leaders, such as Salvini, Farage, Le Pen, Mélenchon, Lafontaine, etc. he has a long-term involvement with politics. From the end of the '80s', he started criticizing National leadership in public on a variety of issues without any clear ideology. His focus on anti-corruption and political accountability rocketed his popularity with polls indicating that over a quarter of NZers were ready to vote for a Winston Peters party. In 1992, he was expelled from the Cabinet and told that he could not stand again as National candidate in his ED. In July 1993, only five months before the new general elections, he launched NZF.

As Boston and McLeay (1997) put it, “*the party quickly developed an image as being strongly nationalistic, anti-establishment, populist, and mildly protectionist. Its most publicized policy commitments emphasized the need to stop the sale of state assets, limit the sale of NZ land and resources to overseas investors, restrict immigration, protect local industry, and hold politicians more accountable.*” Because of an anti-elite stance fueled by disgruntlement toward traditional politics and of the identification of the party with its leader, NZF can clearly be categorized as a populist party. However, unlike most European populist parties that clearly belong to either the left or the right, NZF promotes a mixture of (far-) right and (far-) left policies. It is against big business, unions, and big government, critical of the '80s' pro-market reforms and wants NZ to go back to a “golden age” where the country was more isolated from the rest of the world. The organization of the party, as is typical of populist parties, is very loose and all decisions are left to the central direction of the party.

In 1993, NZF received 8.4% of the total votes cast and won two seats (out of 99) in NZ's unicameral parliament, which at that point used a First-Past-the-Post (FPP) electoral system as in the US and UK. In other words, there was a separate election for each of the 99 EDs in NZ, with the candidate with the most votes in each election winning a particular seat in parliament. Like in the UK, the party winning the most seats would then lead the government and appoint the prime minister. Also, like the UK, the executive branch of the government is led by the Queen of England (more formally, her representative called the Governor General) and has a limited political role.

In the same election, a binding referendum was held that somewhat surprisingly led to a change in the electoral system from FPP to a Mixed-Member Proportional system (MMP, see Riambau et al., 2021 for more details). NZF along with other small parties encourage people to vote for this change (Vowles, 1995). In this new system, political representation is based on the national percentage of the vote received by each party provided that the party reaches a 5% threshold or has at least one directly elected member. In practice, all individuals make two separate votes, one for a local FPP election and the other a party vote. In 1996, 65 MPs were chosen based on the local elections, while the other 55 were selected from a national list with the total elected (in the local elections and from the list) for each party reflecting only the proportion of party votes received.

This system is nearly identical to the one used in Germany and de-facto similar to the systems used in most other continental European countries where parliaments are elected using other types of proportional representation. The main exception is France where FPP is used to elected MPs (and the President) as in the US. Since this system has been in place in NZ, there has been between four and seven political parties represented in parliament each year and both coalitions and minority governments in power.

As the 1996 election approached, NZF increased its anti-immigration stance, with Peters blaming immigrants for ‘placing a significant strain on education and health services’ and ‘causing high home mortgage rates’. It ended up getting 13.5% of the party vote and a corresponding 17 MPs.<sup>6</sup> In a very controversial move, the party decided to use its pivotal role in Parliament to become part of a government with the National party with Peters taking for himself the role of Minister of Treasury.

In Table 1, we show for which parties the initial supporters of NZF previously voted in 1990 (using the electoral survey data described in detail below). The party built up a support base of its own rather than relying on exit flows from a specific mainstream party. While a slight majority of voters in 1996 previously voted for the National party (36%), many other supporters previously voted for the Labor Party (28%). If we instead look at the share of individuals who previously voted for other parties in 1990 who then voted for NZF, this picture becomes even clearer. More or less 10% of the voters of each party in 1990, from the right-wing National to the far-left Alliance switched to voting for NZF in 1996 election. Interestingly, this is true even though Peters was previously a leading member of the National party.

After 1996, NZF never reached the same percentage of votes, ranging from a high of 10.4% in 2002 to a low of 2.6% in the last election in 2020 (Figure 1). In 2008 and 2020, the party also failed to win a directly elected seat and hence fell out of Parliament entirely. However, thanks to its pivotal role in some years, it succeeded in becoming part of the government in 2005 and 2017, both times in coalition with the center-left Labor Party. Hence, even though it is in many ways a marginal party in NZ, it has played an important role in helping to set the policy agenda, in particular on immigration policy and on support for older individuals and rural interests.

We show in Appendix 1 Table that similar individuals in terms of observable characteristics voted for NZF in 1996 as for populist parties in Europe in the 2000s<sup>7</sup>. Both attract votes from older individuals, those with lower level of

TABLE 1 Who voted for New Zealand (NZ) first in 1993 and 1996?

	(A) Among those who voted for NZF in 1993/96, share who voted for party X in 1990		(B) Among those who voted for party X in 1990, share who voted for NZF in 1993/96	
	1993	1996	1993	1996
National party	0.544	0.358	0.092	0.121
Labor party	0.181	0.278	0.042	0.105
Alliance	0.094	0.041	0.097	0.119
Social credit	0.041	0.044	0.122	0.150
Other parties	0.006	0.015	0.025	0.216
Did not vote	0.041	0.050	0.038	0.107
Ineligible or missing	0.094	0.213	0.055	0.091

Note: Data comes from NZES. Results are weighted. Panel A shows voting in 1990 for people that voted for New Zealand First in either 1993 or 1996. Panel B shows the share that voted for New Zealand First in 1993 and 1996 among voters for different parties in 1990.

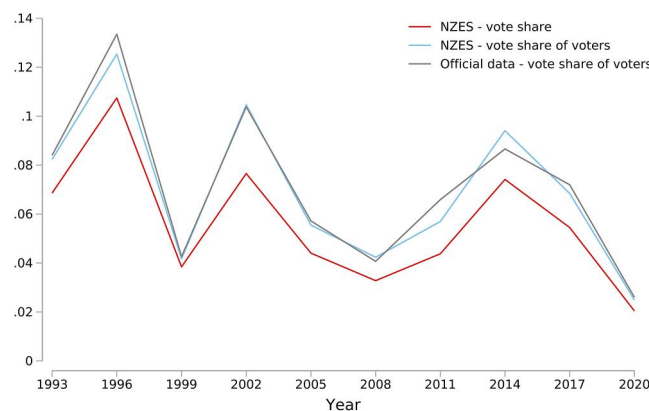


FIGURE 1 Evolution of voting for New Zealand (NZ) first.

education and lower incomes, and those living in rural areas. To sum up, NZF positioned itself not far from the political space that other European populist parties would later occupy. Not only this is consistent with well-established evidence on who votes for populist parties in Europe and in the US (Norris & Inglehart, 2019), but it also strengthens the argument that investigating NZF is particularly relevant for thinking about how populism has been extending its reach in the 2010s in other Western countries.

## 2.2 | Brief economic history of New Zealand

Until 1984, NZ had a highly regulated economy, with subsidies for agriculture, protection for industry and a closed capital account. By that time, the country was facing unsustainable fiscal and current account deficits, runaway inflation, and a foreign exchange crisis. This led to widespread recognition that macroeconomic reforms were needed to correct imbalances and reduce inflation, and microeconomic reforms were needed to improve productivity (McMillan, 1998). A vast program of reforms later labeled “Rogernomics”, after the Labor Finance Minister Roger Douglas who enacted most of them, was implemented.

From 1984 to 1987, the Labor government increasingly deregulated the economy, opened the capital account, and eliminated subsidies to agriculture. Under a re-elected Labor government, between 1987 and 1990 most major publicly owned companies were privatized. In the 1990 election, the National party won on the promise to slow down the pace of the reforms and to steer away from “Rogernomics”. However, the party's liberal wing took control after the election and pushed through large reforms to the welfare system and labor market policy. Welfare was scaled back from universal provision to a tightly targeted welfare system (Boston et al., 1999) while labor market regulations, among other things, decentralized the employer–employee bargaining process (Evans et al., 1996).

From 1986 to 1991, real per capita gross domestic product growth averaged  $-0.83\%$  and unemployment rose from 5% in 1984 to almost 11% in 1992. Mean real household income dropped by 4.7% between 1986 and 1991. The reform process had a particularly strong impact on the manufacturing sector with employment falling by 30% between 1987 and 1995 (Gibson & Harris, 1996). There were also strong negative impacts on employment in the agriculture sector. Stillman et al. (2010) show that the negative impact of these reforms was strongly spatially concentrated because of the geographical distribution of industries and that the reforms had long-run impacts on the labor market in particular communities. We take advantage of the spatial aspect of the impact of these reforms to examine their impact on voting for NZF.

## 2.3 | Immigration in New Zealand

New Zealand is historically a high immigration country with most migrants settling in the larger cities of Auckland, Wellington, and Christchurch (Maré et al., 2007). In 1986, 15% of the population was already foreign-born, but immigrants were mostly of European descent (49% of them were British compared with 6% Asian) as migration up to that point was mainly allowed from traditional source countries along with some low-skill migration from the Pacific Islands. Independent of the economic reforms discussed above, an Immigration Policy Review was held in 1986. This review aimed to develop new policy initiatives that would “enrich the multicultural fabric of NZ society through the selection of new settlers principally on the strength of their personal contribution to the future well-being of NZ” (Burke, 1986, p. 10).

The ensuing Immigration Act 1987 removed the traditional source country preference for European or Anglo-Saxon countries. The Immigration Amendment Act 1991 then replaced the previous ‘occupational priority list’ system with a point system. These changes “favored people of early to middle working age who had appropriate qualifications, work experience and business skills, the ability to be self-supporting on arrival, or the capital to invest in a business” (<https://teara.govt.nz/en/immigration-regulation/page-5>).

These Acts combined inverted a previous trend in net migration by increasing arrivals. While between 1980 and 1989, NZ lost a net 122,500 migrants out of a population of slightly more than 3 million, mainly because of unfavorable economic conditions, from 1990 net migration turned positive even though the economy was still struggling. In 1995, a peak net inflow of 28,500 was reached and by 1996 immigrants were 21% of the total population. More importantly, these policy changes led to a large change in the composition of the immigrant population in terms of skills and country of birth. For example, 33% of immigrants that arrived between 1986 and 1991 had university degrees versus 6% of the

NZ-born population and 10% of the immigrant stock in 1991. By 1996, 15% of the immigrant population was of Asian descent, with the number of Chinese-born in NZ increasing between 1986 and 1996 from 4900 to 19,500, Hong Kong-born from 1881 to 11,760, Korean-born from 390 to 12,183 and Taiwan-born from 165 to 10,930.

### 3 | DATA AND EMPIRICAL STRATEGY

#### 3.1 | Data

To assess the impact of economic and migration shocks on the emergence of populism, we use data from the NZ Election Study (NZES). New Zealand Election Study is a telephone survey that is designed to be representative of the voting population and has been fielded by the University of Auckland since 1990 immediately after each general election. It collects extensive data on opinions about political parties, own politics and voting behaviors, as well as individual and household characteristics. In particular, individuals are asked whether they voted in the election that just occurred, and if yes, for which candidate and party they voted. They are also asked who they voted for in the two previous elections. Whether an individual voted or not is later certified by the Electoral Committee and self-reported party votes closely match actual voting patterns in aggregate data (refer to Figure 1). In 1993, 2232 individuals were surveyed, increasing to 4113 individuals in 1996.

The main advantage of using the NZES as opposed to using official election data is that it collects a wide range of information on individual characteristics, political opinions, political behaviors, and policy concerns that allow us to examine the channels through which shocks influence voting behavior and examine the importance of other factors that lead individuals to vote for NZF. Importantly, starting in 1996, an individual's place of residence is geocoded to their census meshblock, which is the smallest geographic area defined by Statistics NZ and contains, on average, 150 individuals. We exploit this information to both measure the characteristics of the local area (at the area unit—AU—level which is equivalent to an urban suburb or rural town) and to link individuals to their local LMA (one of 120 LMA or commuting zone), which is the natural geography for assessing the political impact of the shocks borne by local communities. Unfortunately, in 1993, we can link individuals only to their ED (one of 99 ED), which reduces the precision of our estimates of the impact of localized shocks.<sup>8</sup>

#### 3.2 | Defining shocks

We define two shocks related to the economic history of NZ using the universe of individual-level observations from the 1986, 1991, and 1996 census. Beyond having access to data on the full population, we also know the meshblock of each household and hence can match individuals perfectly to AUs, LMAs, and EDs. This allows us to measure shocks and local area characteristics with minimal measurement error.

We define the 'structural reform shock' experienced by an individual living in a particular LMA or ED, as the change in average log real income between 1986 and 1991 in that location. We focus on the difference in this 5-year period because previous work has shown that this is when the largest industry-specific shocks were experienced (Stillman et al., 2010).<sup>9</sup> Similarly, we define the 'immigration shock' experienced by an individual living in a particular LMA or ED as the inflow of new migrants in the 5 years prior to the election being examined as a percentage of the local population at the start of the period (so the 1988–1993 period for the 1993 elections and the 1991–1996 period for the 1996 elections).<sup>10</sup> As discussed above, during this period the migration inflow was historically large and the ethnic composition of the inflow was a radical departure from previous migration waves (Statistics New Zealand, 2016).

As we assign individuals based on their current location, this will introduce measurement error bias leading toward finding smaller impacts of the economic shocks. The NZES asks individuals how long they have lived in their current community and, in 1996, 70.7% report living in the same community as 10 years earlier when the shocks occurred. Our main results are unaffected if we restrict our analysis to this selected subsample.

Figure 2 shows the spatial distribution of the shocks as well as vote shares for NZF across EDs. There appears to be a strong correlation between local areas experiencing a larger structural reform shock and a higher local vote share for NZF. There is less evidence of a relationship between immigrant inflows and voting for NZF. This is unsurprising as immigration is highest in the big cities where voting for NZF is less prevalent.

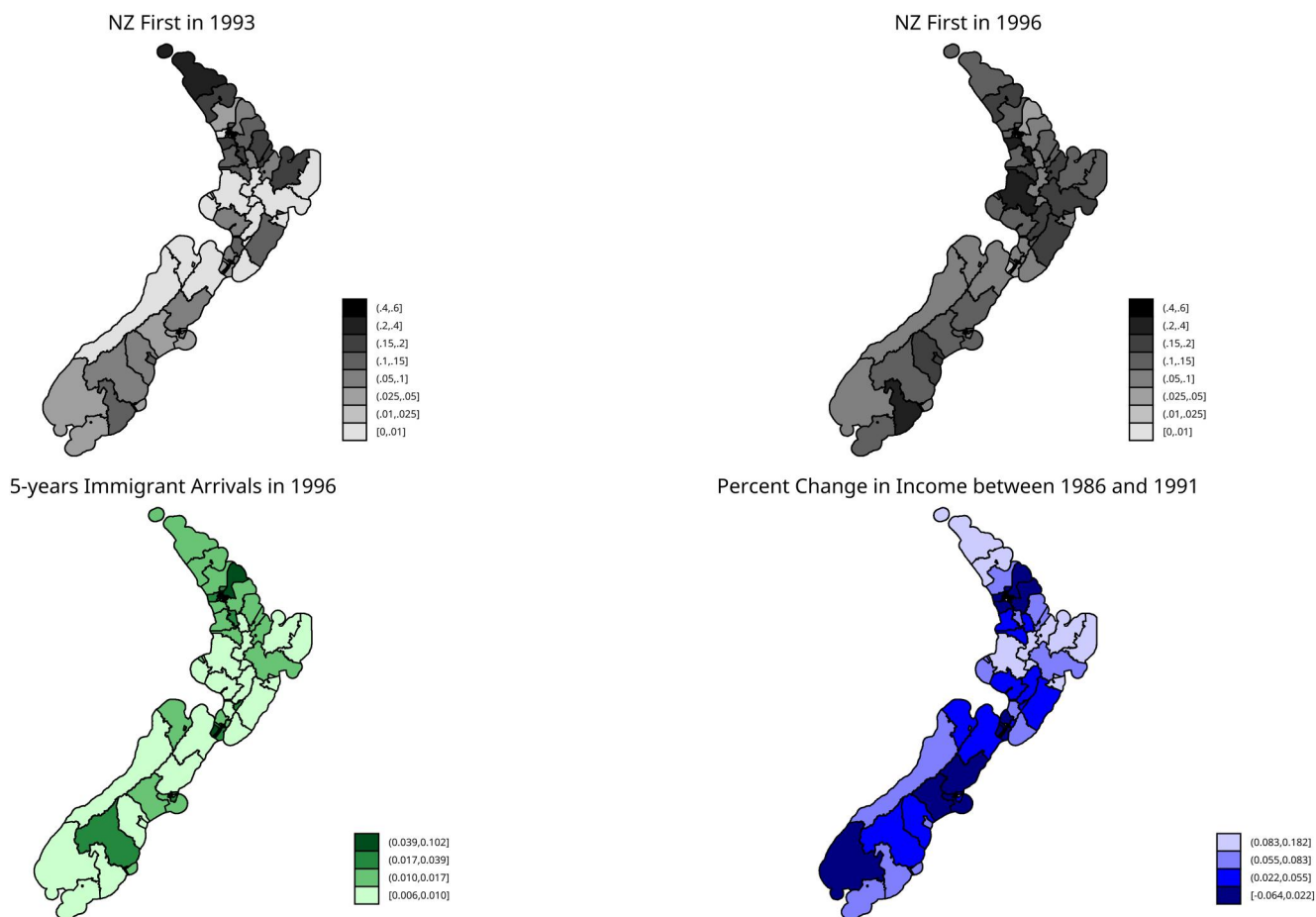


FIGURE 2 Spatial distribution of immigration and structural reform shocks and votes for New Zealand (NZ) first.

### 3.3 | Empirical strategy

We start by examining the relationship between the income and immigration shock experienced by an individual and whether they cast their party vote for NZF in the 1993 and 1996 elections. We focus on the party vote, because strategic voting is an important part of the individual vote and, in the end, the party vote determines the overall share of each political party in parliament. Specifically, we estimate the following regression model by OLS separately using the 1993 and 1996 waves of the NZES linked to the appropriate census data:

$$\text{VoteNZF}_{ij} = \alpha + \delta \text{ImmShock}_j + \lambda \text{IncShock}_j + X\mathbf{B} + e_{ij}$$

where  $\text{VoteNZF}_{ij}$  is an indicator for whether individual  $i$  living in community  $j$  voted for NZF,  $\text{ImmShock}_j$  is the change in the share of immigrants in that community over the previous five years,  $\text{IncShock}_j$  is the mean (log) decline in income experienced between 1986 and 1991 in that community and  $X$  is a vector of control variables that varies across specifications with all regressions including controls for gender, age-group, ethnicity, immigration status, education, and place of residence among big cities (Auckland, Wellington, Christchurch), cities, towns and rural areas.

We begin by focusing on EDs as our measure of community as this is the most disaggregated geographical information available in the 1993 data. However, most of our analysis focuses on the impact of shocks on local LMAs because, as discussed above, these are a more relevant geographical unit for thinking about how individuals living in an area experience the two shocks we measure. As shocks vary only at the ED or LMA level, standard errors in all models are clustered at the appropriate geographical level.<sup>11</sup>

Beyond LMAs being a more relevant geography, starting in 1996, when we focus on variation at the LMA level, we can also further control for contemporaneous characteristics of the local area (suburb or rural town) where an individual lives. Specifically, we control for the total population, the unemployment and employment rate, the average (log)



individual income, the Gini index, and the percentage of people with different qualifications, in different age groups, who are female, and who are in the Māori ethnic group.<sup>12</sup> Controlling for contemporaneous characteristics account for potential indirect impacts of the shocks we are examining, allowing us to focus on their direct impacts.

In these models, we further control for the following local area characteristics measured in 1981: immigrant share, unemployment rate, manufacturing, agriculture, retail, and public sector industry shares, (log) median income, the change in the immigration rate between 1986 and 1981, and the log change in income between 1986 and 1981. Controlling for local area characteristics prior to the shock occurring, including variables closely related to our shock measure, helps ensure that we are picking up purely exogenous variation in shock exposure at the local level. We also control for the ED in which a person resides. In urban areas, LMAs include many EDs, while in rural areas, EDs always overlap with multiple LMAs. Hence, we can always separately identify the impact of being in a particular ED. This is potentially important as it controls for any localized political responses to having experienced shocks.

Table 2 provides summary statistics for the 1993 and 1996 NZES, as well as our measures of shocks and local area characteristics. We present these for the full samples and for the samples we use in our analysis. In 1993, we drop from our analysis sample 7 people because they are missing gender and 24 because they did not provide information on their electorate. In 1996, we drop from our analysis sample 18 people because they are missing gender and 629 because they did not provide enough information for their address to be matched to a census meshblock. For all other independent variables in our regression, we include dummies for individuals missing the information so they can be included in the analysis. Fortunately, as can be seen in Table 2, the characteristics of the individuals missing locational information are quite similar in general to the overall sample, hence we do not expect this to impact the external validity of our findings even in 1996. Supporting this, we can include most of these individuals in our ED level analysis for 1996, and this has little qualitative impact on our results.

The average individual in the NZES in both 1993 and 1996 lives in an area where nearly 3% of the population are immigrants who have arrived in the previous five years. On average, almost half of these new arrivals are from Asia. The average individual also lives in a community which experienced around a 5% income decline between 1986 and 1991. Comparing individual to local characteristics in 1996 makes apparent that participants in the NZES are, on average, older and more educated than the general population.<sup>13</sup> This is typically found in electoral surveys. As discussed later in the paper, we find very little heterogeneity in the impact of shocks by sociodemographic characteristics, suggesting that this skewness is not important for interpreting our results.

A concern with the regression model outlined above is that shocks could be endogenously determined with voting behavior. For example, immigrants might avoid moving to areas with anti-immigrant sentiments and instead locate in more open-minded areas where populism tends to be less attractive. This endogenous sorting would lead us to underestimate the impact of immigration on populist voting. Similar issues exist when examining the impact of structural reforms. For example, if workers most affected by structural reforms are both more likely to leave a community and to vote for a populist party, this sorting would lead to a downward bias in estimated impact of the structural reform shock. It is also possible that biases could work in the other direction, for example, if factors influencing the severity of the impact of the structural reforms also directly influenced voting preferences a decade later.

To address these endogeneity concerns and produce consistent estimates of the impact of immigration and structural reform shocks on voting for NZF, we use an instrumental variable approach. As is well known, new migrants tend to settle in locations where co-nationals from earlier immigration waves already live (Bartel, 1989). Hence, we follow the approach originally proposed in Altonji and Card (1991), and used in many subsequent papers, and predict the number of migrants who would move to a local community only because of network effects. Specifically, we calculate

$$\widehat{ImmShock}_{jt} = \sum_k \frac{\lambda_{jk}^{86} ImmShock_{kt}}{Pop_j^t} \quad (2)$$

where  $\widehat{ImmShock}_{jt}$  is the predicted change in the share of immigrants over the previous 5 years in location  $j$  at time  $t$  and is equal to the number of new immigrants originating from country  $k$  in the 5 years prior to time  $t$  at the national level multiplied by the county of birth distribution in each location in 1986. As we have access to the full population census data, we can examine networks at an extremely disaggregated level aggregating over 124 countries of origin.

While this instrument has been used in thousands of past papers, recent work has argued that, if the spatial distribution of immigrant inflows is stable over time, the instrument is likely to be correlated with previous location decisions leading to mis-estimation of the causal impact of recent migration (Jaeger et al., 2018). In our context, the large reform of the immigration system that started in 1987 reduces concerns that new immigrants are drawn to the

TABLE 2 Summary statistics for 1993 and 1996.

	1993				1996			
	Full sample		Analysis sample		Full sample		Analysis sample	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Voted for:								
NZ first	0.068	0.252	0.067	0.251	0.110	0.313	0.108	0.310
Labor	0.282	0.450	0.281	0.450	0.248	0.432	0.255	0.436
National	0.285	0.452	0.287	0.452	0.279	0.448	0.274	0.446
Far left	0.148	0.356	0.148	0.355	0.094	0.292	0.096	0.295
No vote	0.168	0.374	0.168	0.374	0.127	0.333	0.122	0.328
Shocks:								
Immigration shock	0.027	0.023	0.027	0.023	0.026	0.017	0.026	0.017
Asian Immig. Shock					0.012	0.011	0.012	0.011
Non-Asian Immig. Shock					0.014	0.007	0.014	0.007
Structural reform shock	0.052	0.045	0.052	0.045	0.049	0.042	0.049	0.042
Individual characteristics:								
Female	0.505	0.500	0.506	0.500	0.524	0.500	0.526	0.499
Under 35	0.293	0.455	0.296	0.456	0.334	0.472	0.337	0.473
Over 65	0.190	0.392	0.191	0.393	0.172	0.377	0.169	0.375
Māori	0.062	0.241	0.062	0.242	0.081	0.273	0.086	0.280
European	0.847	0.361	0.849	0.358	0.869	0.338	0.869	0.337
Pacific	0.016	0.127	0.016	0.127	0.013	0.115	0.013	0.113
Other ethnicity	0.031	0.174	0.032	0.175	0.027	0.163	0.027	0.162
Immigrant	0.167	0.373	0.169	0.375	0.167	0.373	0.174	0.379
School qualifications	0.383	0.486	0.384	0.486	0.498	0.500	0.500	0.500
Post-school quals	0.188	0.391	0.190	0.392	0.303	0.459	0.309	0.462
University degree	0.100	0.300	0.101	0.301	0.108	0.310	0.109	0.312
Big cities	0.407	0.491	0.407	0.491	0.433	0.496	0.436	0.496
Other cities	0.268	0.443	0.270	0.444	0.239	0.427	0.243	0.429
Towns	0.105	0.307	0.105	0.307	0.182	0.386	0.183	0.387
Rural	0.205	0.404	0.207	0.405	0.122	0.327	0.115	0.319
Area unit characteristics:								
Female					0.518	0.038	0.519	0.027
Under 35					0.456	0.094	0.457	0.093
Over 65					0.169	0.072	0.169	0.072
Māori					0.060	0.074	0.060	0.074
School quals					0.252	0.046	0.252	0.045
Post-school quals					0.190	0.041	0.190	0.041
University degree					0.087	0.075	0.087	0.075
Employment rate					0.599	0.098	0.600	0.097

TABLE 2 (Continued)

	1993				1996			
	Full sample		Analysis sample		Full sample		Analysis sample	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Unemployment rate					0.072	0.040	0.071	0.040
Individual income					31,304	7971	31,347	7929
Gini index					0.403	0.041	0.403	0.040
Population					2302	998,911	2307	996,899
Observations	2251		2220		4119		3472	

Note: Means and standard deviations are presented. Results are weighted to reflect the average New Zealander age 18 and above. The immigration shock variables are defined as the number of recent arrivals relative to the total population in an area and the Asian and Non-Asian shock are additive. The income shocks is defined as the percent decline in income between 1986 and 1991 in an area.

same areas as past immigrants because of economic fundamentals.<sup>14</sup> Furthermore, prior to the reform, the political debate around immigration in NZ was drastically different, as outflows were larger than inflows and migration was mainly from European countries.

We deal with this concern empirically by controlling for the local immigrant share in 1981 as well as the change in the immigration rate between 1986 and 1981. As we are assuming that the 1986 country of birth shares are exogenous and hence follow the identification framework discussed in Goldsmith-Pinkham et al. (2020), we also use their suggested approach to investigate the validity of this instrument. More specifically, we use placebo tests and later we examine heterogeneity in our main results across each of the 124 countries of origin that aggregate up to form our shift-share instrument.<sup>15</sup>

We use a similar approach to derive an instrument for the size of the structural reform shock experienced by each community. As discussed earlier, the impact of the structural reform process varied a great deal across industries with manufacturing and agriculture strongly impacted by the opening of free trade and removal of subsidies. Hence, we use the industry distribution in different locations to predict the spatial distribution of the structural reforms.

Specifically, we calculate

$$\widehat{IncShock}_j = \sum_n \delta_{jn}^{86} IncShock_n \quad (3)$$

where  $\widehat{IncShock}_j$  is the predicted income change in location  $j$  between 1986 and 1991 and is equal to the distribution of employment in 265 4-digit industries in each location  $j$  in 1986 multiplied by the change in income at the national level among workers employed in each of these industries between 1986 and 1991. We also treat non-employment as an industry to capture the impact of the large changes in the welfare system that accompanied the reforms. The census collects each individual's total income, hence for the non-employed, this includes social benefits as well as any capital or other non-labor income.

The industry distribution in 1986 was primarily driven by long-term comparative advantage and the incentives of the pre-structural reform period, hence the distribution of shocks should be exogenous relative to prior economic and political outcomes. To reduce concerns that this instrument is picking up long-term trends in industry composition that are also correlated with political outcomes, we control for the following local characteristics in 1981: the unemployment rate, manufacturing, agriculture, retail, and public sector industry shares, (log) median income, and the log change in income between 1986 and 1981. Again, because we are assuming the distribution of industries in 1986 is exogenous, as suggested by Goldsmith-Pinkham et al. (2020), we examine heterogeneity in our main results across each of the 265 industries that aggregate up to form our shift-share instrument.

Our two shift-share instruments will give consistent estimates of the impact of the two shocks on political outcomes if at least one is correlated with each of the shock measures (a valid first-stage for each) and both are uncorrelated with unobserved political preferences from 1993 onwards. While there is no empirical way to test the validity of these instruments, we assess their likely validity using several approaches. In each case, we assume that the initial 'shares' of each instrument (i.e., the geographical distribution of immigrants by country of birth and the geographical distribution of industries) are uncorrelated with political preferences from 1993 onwards and that the exposure to the common

shocks brought about by the structural and immigration reform is exogenous to individual preferences. To examine the plausibility of this assumption, we first examine whether our instruments are unrelated to political preferences prior to 1993.

Table 3 presents results from regressions of the two instruments on three sets of pre-1993 political outcomes. First, using official polling data at the area unit level and also controlling for AU characteristics, we examine the relationship between the instruments measured at the LMA level and voting in the 1984 election, which was prior to the start of the structural reform process and change in the immigration system. We find no relationship between either predicted migration flows or structural reform shocks and whether individuals voted in 1984 for the traditional parties of Labor and National as opposed to a precursor protest party called Social Credit, which received 7.6% of the vote in that election. The effect sizes for both variables are small, and we fail to reject that they are jointly unrelated to voting patterns with a  $p$ -value greater than 0.50.

Second, we examine the relationship between the instruments measured at the ED level and individual mistrust toward political parties as measured in the 1981 NZ Voting Survey, which is a precursor survey to the NZES.<sup>16</sup> Again, the effect sizes for both variables are small, and we fail to reject that they are jointly unrelated to voting patterns with a  $p$ -value greater than 0.80. Finally, we examine the same relationship in the 1990 NZES as well as the relationship with individual feelings about Winston Peters. We find no significant relationship between our instruments and feeling toward Winston Peters but interestingly, people who were predicted to have larger losses in income because of the structural reforms have significantly *less* mistrust toward political parties in 1990 even though we will show below that, once NZF is formed, the relationship is reversed.

As suggested by Goldsmith-Pinkham et al. (2020), we next examine the correlation between our instruments and local characteristics measured prior to 1993. We present these results in Appendix Table S2. As expected, the immigration share in 1981, as well as the immigration change between 1981 and 1986, are both correlated with a higher immigration shock, but neither relationship is especially strong with a 10% increase in the immigration share (immigration change) associated with a 1.2 (0.5) percent increase in a predicted immigration shock. Beyond that, few local characteristics are strongly correlated with either shock. A positive and large correlation with the unemployment share, or with agriculture or manufacturing might have caused concern because these economic factors could well be predictive of populist preferences. Instead, we find that the correlation between the immigration shock and both the

TABLE 3 Placebo tests for the instruments.

	Voted for labor or national in 1984	Voted for social credit in 1984	Mistrust toward political parties in 1981	Mistrust toward political parties in 1990	Better feelings toward Winston Peters in 1990
Predicted immigration shock 1991–96	0.0530 (0.353)	−0.604 (0.531)	0.0252 (0.882)	−0.156 (0.568)	−1.225 (1.497)
Predicted structural reform shock 1986–91	−0.00183 (0.402)	−0.0762 (0.481)	−0.664 (1.676)	−3.443*** (0.916)	−1.045 (2.824)
$p$ -value for test of joint significance	0.989	0.511	0.829	0.000	0.681
Mean outcome	0.781	0.082	0.378	0.590	0.494
$R$ -squared	0.185	0.100	0.020	0.037	0.041
Observations	1397	1397	1509	2096	2096

Note: In the first two columns, we use official voting data at the area unit level. In the third column, we use survey data from the 1981 New Zealand Voting Survey. In the remaining columns, we use survey data from the 1990 NZ Election Survey. Robust standard errors are in parentheses which allow for clustering at the LMA (columns 1 and 2) or ED (remaining columns) level. The two instruments are described in the paper. In columns 1 and 2, we also include controls for the following area unit characteristics: (log) population, employment rate, unemployment rate, (log) mean income, gini index, and the proportion with school qualifications, vocational qualifications and university degrees, under 35 and over 65, female and Māori ethnicity. In column 3, we include controls for the following individual characteristics: age, gender, immigration status, education. In the remaining columns, we also include controls for: gender, age-group, ethnicity, immigration status, education, and urban/rural, and the following area unit characteristics in 1981: immigrant share, unemployment rate, manufacturing, agriculture, retail and public sector shares, (log) median income, the change in the immigration rate between 1986 and 1981, the log change in income between 1986 and 1981.

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

unemployment and agriculture share are negative, while the correlation between the structural reform shock and all variables is quite weak. To sum up, the correlations we do find are either small or go in the opposite direction than what would possibly confound our results. However, to control for possible omitted variable bias, we also include these measures of local characteristics in 1981 as controls in our main regressions.

Overall, these results suggest that our instruments are not picking up any pre-trends in our main outcome variables. We next examine the predictive power of our instruments. Figure 3 plots predicted versus actual shocks across the 140 LMAs in 1996 with the size of each point reflecting the population of the LMA. Each graph also shows the fitted linear relationship between predicted and actual shocks with LMAs weighted by their population. This is a graphical representation of the two first-stages of our regression model.<sup>17</sup> A one percentage-point change in the predicted migration (structural reform) shock is correlated with a 0.74 (1.99) percentage-point change in the actual migration (structural reform) shock, which is significant at the 0.01 (0.001) percent level. This shows that both of our instruments have good predictive power. We discuss the first-stage regressions in more detail below and provide further tests of the validity of our instruments after presenting our main results.

## 4 | MAIN RESULTS

### 4.1 | Impact on initial voting for New Zealand First

In Table 4, we report results from estimating various specifications of regression model (1). The first two columns present the OLS results from 1993 to 1996 elections at ED level. Shocks are positively correlated with voting for NZF in both years, although only the coefficient for the immigration shock in the 1996 elections is (weakly) significant. If we instead estimate the model for 1996 using LMA level variation, but otherwise keep the same control variables, we find similar point estimates for our shock variables, and the impact of the structural reform is now statistically significant at the 1% level. Here, a one percentage-point increase in recent arrivals is associated with a 0.83 percentage-point increase in the share of votes for NZF and a one percentage-point increase in income loss is associated with a 0.52 percentage-point increase. Including additional controls for local area characteristics and ED fixed effects has a small impact on the point estimates, although now the impact of the immigration shock is no longer significant.

As discussed above, one might be concerned about the endogeneity of shocks, particularly regarding the sorting of immigrants and natives across locations. The next four columns of Table 4 present the results for the same models but using the instrumental variables described above. Appendix Table S3 presents the two first-stage regressions corresponding to each of these specifications. As hinted at in Figure 3, the instruments are generally strong, particularly in our preferred specification that focuses on LMAs and controls for local area characteristics and ED fixed effects (here, the Sanderson-Windmeijer F-stat corrected for multiple endogenous variables is 50.3 for the immigration shock and 84

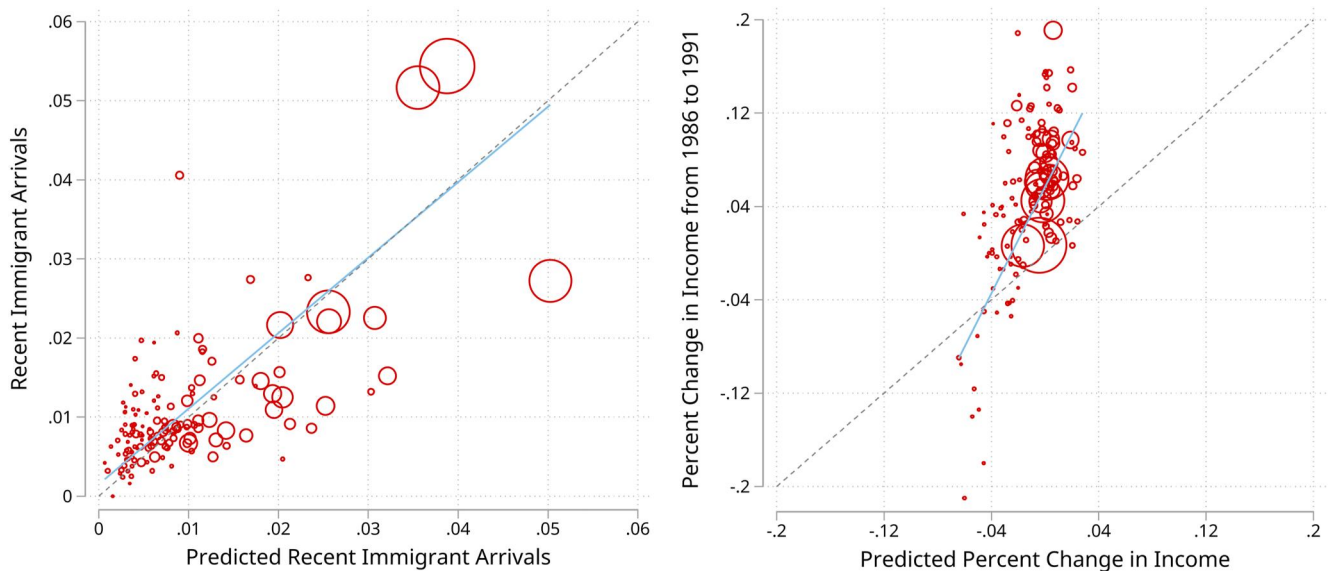


FIGURE 3 Scatter plots of predicted and actual shocks across labor market areas (LMAs) in 1996.

TABLE 4 Impact of shocks on voting for New Zealand (NZ) first in 1993 and 1996.

Year	OLS				IV for shocks using shift-share instruments					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Shocks measured at:	1993	1996	1996	1996	1993	1996	1996	1996	1996	1996
	ED	ED	LMA	LMA	ED	ED	LMA	LMA	LMA	LMA
Immigration shock (% recent arrivals)	0.871 (0.593)	0.559* (0.331)	0.833** (0.377)	1.485 (0.945)	0.498 (0.582)	0.979 (0.614)	1.713** (0.683)	5.657*** (2.092)		4.037*** (1.414)
Structural reform shock (% $\Delta$ 1986–1991)	0.157 (0.167)	0.124 (0.116)	0.516*** (0.123)	0.419** (0.181)	0.327 (0.363)	0.443* (0.252)	0.860*** (0.202)	1.193*** (0.363)	0.944* (0.504)	0.805*** (0.296)
Asian Imm. Shock (% recent arrivals)									13.53** (6.040)	
Non-Asian Imm. Shock (% recent arrivals)									−11.56 (9.644)	
Vote share for NZ first	0.067	0.108	0.108	0.108	0.067	0.108	0.108	0.108	0.108	0.108
Electoral district FE + AU controls	No	No	No	Yes	No	No	No	Yes	Yes	Yes
Controls for opinions and previous voting	No	No	No	No	No	No	No	No	No	Yes
R-squared	0.019	0.049	0.052	0.080	0.018	0.048	0.050	0.074	0.066	0.297
SW F-stat for immigration shock					36.85	22.67	14.63	50.26		49.92
SW F-stat for structural reform shock					14.90	15.33	60.20	83.97	47.80	84.69
SW F-stat Asian immigration shock									20.34	
SW F-stat non-Asian immigration shock									25.41	
Kleibergen-Paap robust F-stat					7.690	9.414	2.279	39.71	6.66	40.39
Observations	2220	3472	3472	3472	2220	3472	3472	3472	3472	3472

Note: Robust standard errors in parentheses which allow for clustering at electorate district (ED, 99 districts) or labor market area (LMA, 129 areas) level. Results are weighted with population and voting weights. In all IV regressions, the two shock variables are instrumented using shift-share instruments as described in the paper. Shocks are measured at either the ED or LMA level depending on the regression. All regressions also include controls for gender, age-group, ethnicity, immigration status, education, and urban/rural. Controls at AU level include the following area unit characteristics in 1981: immigrant share, unemployment rate, manufacturing, agriculture, retail and public sector industry shares, (log) median income, the change in the immigration rate between 1986 and 1981, the log change in income between 1986 and 1981; and the following area unit characteristics in 1996: (log) population, employment rate, unemployment rate, (log) average income, the gini index, and the proportion with school qualifications, vocational qualifications and university degrees, age under 35 and over 65, female and Māori ethnicity. Column 10 includes additional control variables for own ideological position, own opinion on the position of NZ First, trust in the different political parties, opinions about party leaders, opinions about the countries financial situation, immigration, taxes, redistribution, social conservatism and previous voting in 1990. Reported F-Stats for each instrument have the Sanderson-Windmeijer correction for multiple endogenous variables.

Abbreviation: OLS, ordinary least squares.

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

for the structural reform shock, and the joint significance Kleibergen-Paap robust F-stat is 39.7). In each specification, we can rule out that the model is underidentified. While the estimates looking at EDs are still imprecise, all the remaining specifications show a significant effect of the immigration and structural reform shocks on voting for NZF.

In our preferred specification with the most complete set of controls, we find that a one percentage-point increase in recent arrivals causes a 5.7 percentage-point increase in the NZF vote share while a one percentage-point greater income loss causes a 1.2 percentage-point increase in vote share relative to a mean vote share of 10.7% for NZF.<sup>18</sup> The increased size of the coefficients with respect to the OLS estimates likely indicates that immigrants do indeed avoid moving to locations that are receptive to populist voting and that individuals most negatively impacted by economic reforms and likely to vote for NZF are more likely to have moved away from impacted locations.<sup>19</sup>

In Figure 4, we illustrate the size of these impacts by predicting the vote share for NZF in 1996 across the quantile distribution of each shock variable, holding all other variables constant. This is done using the preferred IV specification with the most complete set of controls. In LMAs where recent arrivals are in the first quartile, NZF is predicted to get 2.4% of the votes, while if the arrivals are in the highest quartile, the votes share for NZF would instead be 28.5%. For

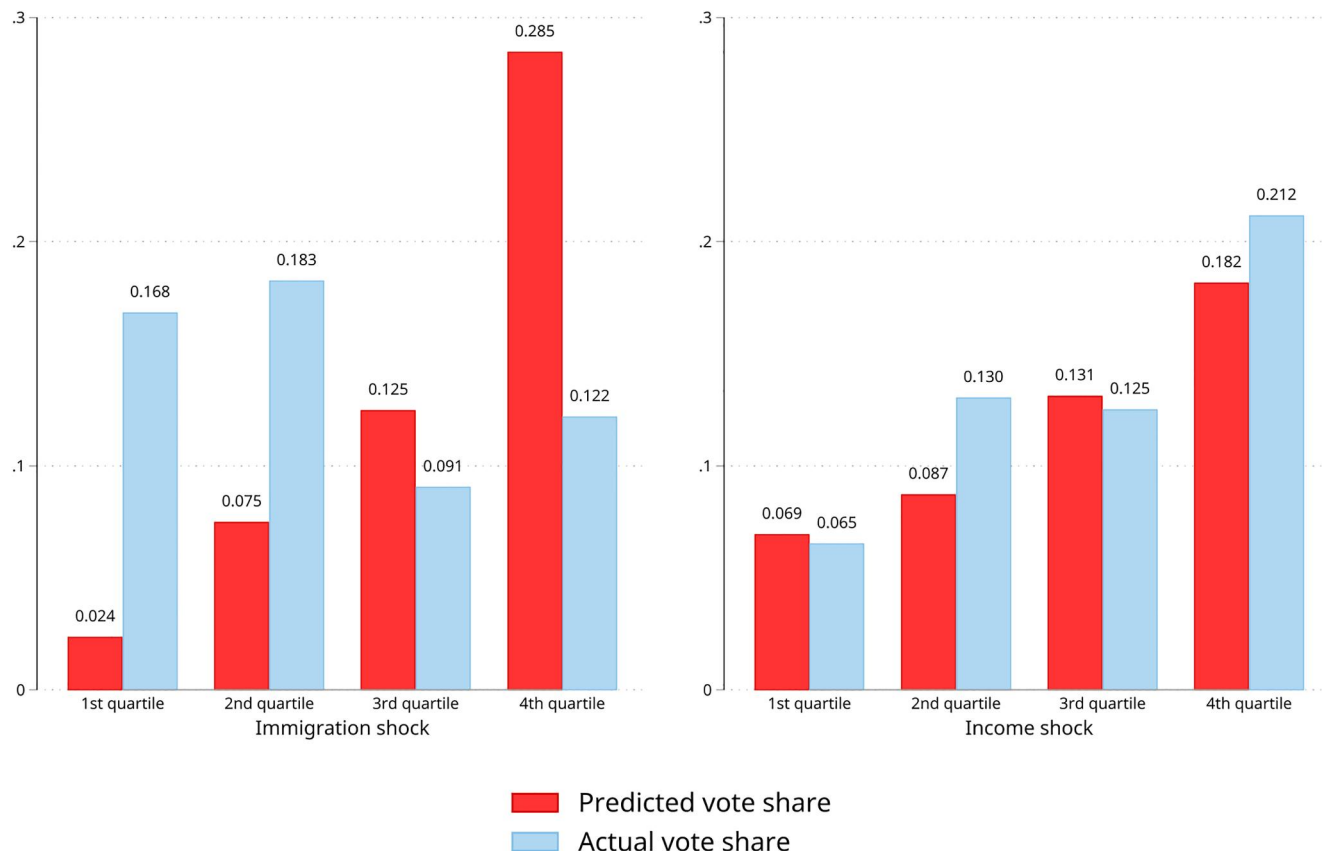


FIGURE 4 Predicted impact of shocks on voting for New Zealand (NZ) first in 1996.

the structural reform shock, the vote share for NZF increases from 6.9% in LMAs in the first quartile of the structural reform shock distribution to 18.2% in the highest quartile. It is clear from this figure that the size of the shocks experienced by an individual are important for explaining whether they voted for NZF in 1996.

We also show the actual vote share for NZF across the quantile distribution of each shock variable. In the case of the immigration shock, there is no clear relationship (consistent with Figure 2), indicating that other characteristics confound the relationship between immigration shocks and NZF voting. On the other hand, the actual vote share follows a very similar pattern as the predicted vote share across the income shock distribution indicating that there are few confounders for this relationship.

In column 9 of Table 4, we examine whether the source of recent immigration matters. We do this by splitting the immigration shock variable into additive “Asian” and “Non-Asian” components. Recalling that most Asian immigration is new to NZ since the change in the immigration system, our instrument for Asian immigration is unsurprisingly weaker than for non-Asian immigration. However, we find a large statistically significant impact of Asian immigration and a negative but very imprecisely estimated impact of non-Asian immigration. While we need more precision to say anything definitive here, there is strong suggestive evidence that the changing composition of migration to NZ was an important component leading to the development of NZF. We also examined whether there was an interaction between the immigration and structural reform shock and, perhaps surprisingly, found the impacts are essentially orthogonal.

In our final specification, we add controls for a wide range of political opinions, beliefs, and policy preferences. Specifically, we include variables for own ideological position, own opinion on the position of NZF, trust in the Labor and National parties, mistrust toward mainstream parties, opinions about main party leaders, opinions about the country’s financial situation, immigration, taxes, redistribution and social conservatism, and previous voting in 1990.<sup>20</sup> The variables are clearly along the causal chain when evaluating the impact of the shocks on voting for NZF; we also consider them as outcomes in later analysis. Including them here allows us to estimate how much of the effect of shocks on voting for NZF occurs via changes in these characteristics. The estimated coefficients on the immigration shock decreases by 24% and that on the structural reform shock by 33%, so between one-quarter and one-third of the impact of shocks on voting for NZF occurs because of the impact of these shocks on political opinions, beliefs, and policy preferences.

We next examine heterogeneity in our main results across each of the 124 countries of origin and 265 industries that aggregate up to form our shift-share instruments and perform diagnostic tests examining the quality of our shift-share instruments. Goldsmith-Pinkham et al. (2020) show that any IV model using shift-share instruments can be unpacked into two components,  $\hat{\alpha}^k$ , also known as the Rotemberg weight, which indicate the relative importance of each country of birth or industry in the overall estimate, and  $\hat{\beta}^k$ , which is the estimated impact of the particular shock using just the variation from one country of birth or industry (recall that if the shares of these shift-share instruments are uncorrelated with political preferences then each share is a potential valid instrument for the endogenous shock). The overall IV coefficient on each of the shocks is the linear sum of the product between  $\hat{\alpha}^k$  and  $\hat{\beta}^k$  for all  $k$  countries of birth or industries.<sup>21</sup> Goldsmith-Pinkham et al. (2020) argue that if the shift-share instruments are ‘good’ then there should be limited heterogeneity in  $\hat{\beta}^k$  and shares with high Rotemberg weights should not stand out as outliers. Also, the actual shares for each variable should be highly correlated with the Rotemberg weights while the estimated betas should be uncorrelated with the weights.

Panel A in Table 5 reports  $\hat{\alpha}^k$ ,  $\hat{\beta}^k$ ,  $g^k$ , the implied shock for each country of birth or industry, for the top 5 Rotemberg weight countries of origins and industries, Panel B shows the correlation between each of these components as well as the F-stat and share variance for each country of birth or industry [ $\text{Var}(z^k)$ ] and Figure 5 shows  $\hat{\beta}^k$  for all countries of origins and industries where the F-stat for that share is greater than 5.

The five most important countries of birth account for approximately 40% of the weights of the immigration instrument. The 0.99 correlation between  $\hat{\alpha}^k$  and  $g^k$  means that the weights are almost perfectly explained by the shocks. Most importantly,  $\hat{\beta}^k$  is very similar across all countries of births, not highly correlated with the weights and the weights are negatively correlated with the variance in the shares at local level.

For the structural reform instrument, the five most important industries account for 32.4% of the weights. As with the immigration instrument, the weights are highly correlated with the shocks. Again, the  $\hat{\beta}^k$  are very similar across all industries, not highly correlated with the weights and that the weights themselves are not highly correlated with the variance in the shares at local level.

Finally, as suggested by Goldsmith-Pinkham et al. (2020), we consider several alternative valid estimators which use the shares themselves as instruments, ignoring the role of the aggregate shocks. These estimators allow us to perform overidentification tests against the null hypothesis that using each share as an instrument gives a similar estimate of beta. These alternative approaches estimate smaller impacts of the shocks, but they are statistical indistinguishable from our preferred results. This occurs because, in our application, the size of the aggregate shocks is very important for explaining the overall impact of each shock. Unsurprisingly, given the results in Figure 5, we fail to reject the null hypothesis that the impact of each shock is homogenous across either countries of birth or industries.

In Table 6, we use our preferred IV specification to estimate the impact of shocks on voting for other political parties and whether people vote.<sup>22</sup> We do not find any significant impact of the shocks on the other political parties or turnout. Votes for Labor move in the same direction as those for NZF, while votes for National and Alliance move in the opposite direction, but all point estimates have very high standard errors compared with the size of the coefficients. Labor and National could well have been considered by the electorate as responsible for the effect of the reforms that followed the economic crisis and for opening up NZ to new migration in the same respect, but Alliance was never in government and was a left-wing party whose policy platform focused on mitigating the impact of the economic shocks caused by the structural reform process. Hence, the results here are consistent with shocks pushing people toward populism as opposed to toward parties with particular policy platforms and also suggest that our instruments are uncorrelated with underlying political differences in local areas.

## 4.2 | Impact on beliefs and political preferences

In this section, we examine the impact of shocks on beliefs and political preferences. We do this to better understand how the impact of the shocks translated into the emergence of populism. We estimate the same model as in the previous section focusing on the instrumental variable specification that includes controls for area characteristics as well as ED fixed effects, but now we examine the impact on a wide range of outcome variables that measure beliefs and political preferences in 1996.

Table 7 presents the results of this analysis: each line corresponds to a separate regression run for a different dependent variable with only the coefficients on the shock variables and their associated standard errors presented in the columns next to them. Shocks do not impact own left/right ideology or an index of self-reported social conservatism.



TABLE 5 Shift-share instrument heterogeneity and robustness testing.

Immigration shock					Structural reform shock					
<b>Panel A: Top 5 Rotemberg weight countries of origins and industries</b>										
	$\hat{\alpha}^k$	$\hat{\beta}^k$	$g^k$	Share		$\hat{\alpha}^k$	$\hat{\beta}^k$	$g^k$	Share	
England	0.125	4.366	19,464	0.086	Railway transport	0.089	2.111	0.115	0.004	
China	0.087	4.329	12,654	0.090	Data processing	0.068	2.164	0.115	0.003	
Hong Kong	0.066	4.349	8736	0.103	Cropping	0.062	2.396	0.203	0.001	
Taiwan	0.060	4.338	6822	0.111	Water transport	0.056	2.146	0.085	0.004	
Australia	0.053	4.371	8880	0.081	Rail equipment manu	0.049	2.129	0.179	0.002	
<b>Panel B: Correlations</b>										
	$\hat{\alpha}^k$	$g^k$	$\hat{\beta}^k$	$\hat{F}^k$	$\text{Var}(z^k)$	$\hat{\alpha}^k$	$g^k$	$\hat{\beta}^k$	$\hat{F}^k$	$\text{Var}(z^k)$
$\hat{\alpha}^k$	1					1				
$g^k$	0.99	1				0.43	1			
$\hat{\beta}^k$	0.00	0.01	1			-0.03	0.10	1		
$\hat{F}^k$	-0.07	-0.07	-0.01	1		0.03	0.00	0.12	1	
$\text{Var}(z^k)$	-0.32	-0.32	0.38	0.06	1	0.48	0.07	-0.09	0.08	1
<b>Panel C: Alternative estimators and under-identification tests</b>										
	Coeff		Over ID test			Coeff		Over ID test		
OLS	1.30	(0.94)			OLS	0.52	(0.18)			
2SLS (shift-share)	4.33	(3.61)			2SLS (shift-share)	1.22	(0.49)			
2SLS	1.26	(2.07)	64.58	[0.35]	2SLS	0.53	(0.23)	114.86	[0.64]	
MB2SLS	1.26	(2.07)			MB2SLS	0.53	(0.23)			
LIML	1.26	(0.94)	65.68	[0.32]	LIML	0.53	(0.18)	114.11	[0.66]	

Note: This table reports statistics about the Rotemberg weights and about alternative estimators. Panel A reports the top five countries of birth and industries according to the Rotemberg weights  $\alpha^k$ . The  $g^k$  is the national-level shock,  $\beta^k$  is the coefficient from the just-identified regression and Share is the share associated to each country of birth or industry. Panel B reports correlations between the weights ( $\alpha^k$ ), the national component of the shocks ( $g^k$ ), the just-identified coefficient estimates ( $\beta^k$ ), the first-stage F-statistic of the share ( $F^k$ ), and the variation in the shares across locations ( $\text{var}(z^k)$ ). Panel C reports a various estimates of our main coefficients. The regressions are based on the main analysis in Table 4 with the same controls. In each regression we instrument one shock at a time. The 2SLS (Shift-share) row uses the shift-share instrument. The 2SLS row uses each country of birth or industry share separately as instruments. The MB2SLS row uses the estimator of Anatolyev (2013) and Kolesár et al. (2015) with the same set of instruments. The LIML row shows estimates using the limited information maximum likelihood estimator with the same set of instruments. Standard errors are in parentheses and are constructed by bootstrap over LMAs.  $p$ -values in brackets are for the overidentification tests.

Abbreviation: OLS, ordinary least squares.

On the other hand, we find impacts on particular policy preferences with the two shocks working through quite distinct channels. Experiencing a larger immigration shock causes individuals to report themselves as favoring reduced immigration and that defense and law and order should be more important policy areas. Experiencing a larger income loss from structural reforms causes individuals to report themselves as being more in favor of redistribution, and that unemployment should be a larger and economic growth a smaller policy concern.<sup>23</sup> In both cases, the results are consistent with how one would imagine these shocks impacting individuals.

We next examine whether shocks impacted populist beliefs, in particular whether people believe that a strong leader is needed and if they mistrust both traditional political parties. Here, we assign the value one if the subject trusts neither

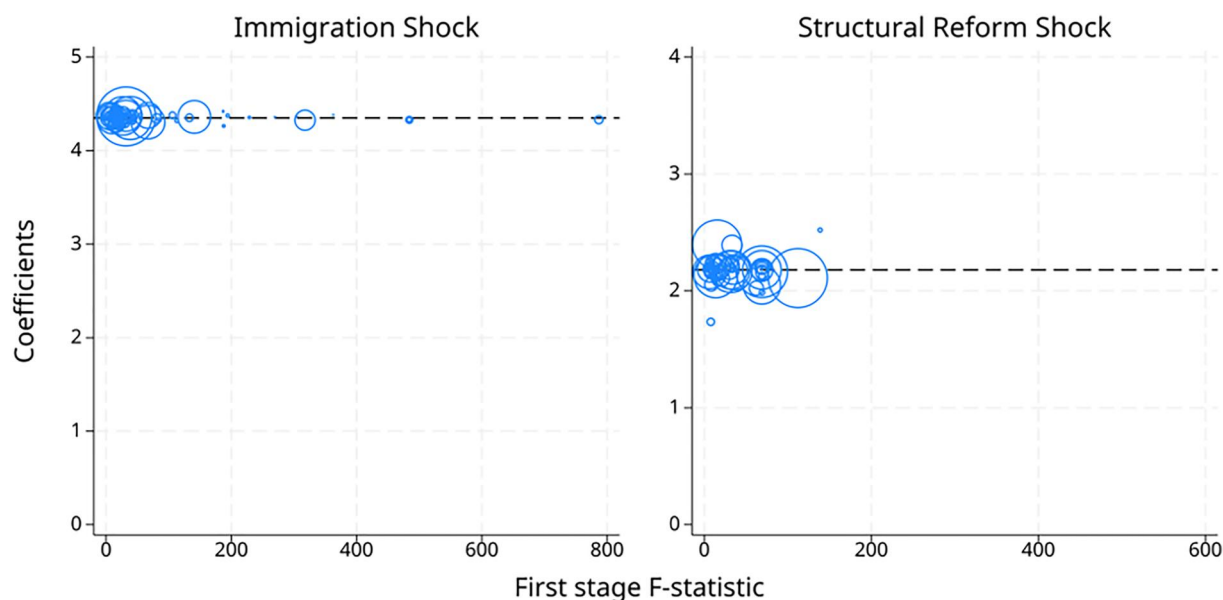


FIGURE 5 Heterogeneity of the impact of shocks across country of birth (immigration shock) and industries (structural reform shock).

TABLE 6 The impact of shocks on voting for other political parties in 1996.

	NZ first	Labor	National	Far left	Other parties	Did not vote
Immigration shock	5.657*** (2.092)	1.795 (1.958)	-0.499 (2.367)	-0.713 (1.877)	-2.725* (1.597)	-2.638 (1.873)
Structural reform shock	1.193*** (0.363)	0.385 (0.430)	-0.736 (0.544)	-0.244 (0.376)	-0.608 (0.463)	-0.0949 (0.378)
Vote share	0.108	0.255	0.274	0.0963	0.124	0.120
R-squared	0.074	0.089	0.100	0.055	0.066	0.134
Observations	3472	3472	3472	3472	3472	3472

Note: Robust standard errors in parentheses which allow for clustering at the LMA level. Results are weighted with population and voting weights. The two shock variables are measured at the LMA level and are instrumented using shift-share instruments as described in the paper. All regressions also include controls for gender, age-group, ethnicity, immigration status, education, and urban/rural, the following area unit characteristics in 1981: immigrant share, unemployment rate, manufacturing, agriculture, retail and public sector industry shares, (log) median income, the change in the immigration rate between 1986 and 1981, the log change in income between 1986 and 1981; the following area unit characteristics in 1996: (log) population, employment rate, unemployment rate, (log) average income, the gini index, and the proportion with school qualifications, vocational qualifications and university degrees, age under 35 and over 65, female and Māori ethnicity; and electoral district FEs.

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

the Labor nor the National party and 0 if they trust both parties. When they express a positive judgment only on one of them, the variable is coded as 0.5. Most individuals (50%) aspires for a strong leader, while only 27% are against a strong leader, and 15% of individuals mistrust both traditional parties in comparison to 10% who trust both. We find that experiencing a larger size of either shock causes people to think that a strong leader is needed and increases their mistrust of traditional parties. The magnitudes of the effects are similar in size to the impacts that the shocks have on voting for NZF.

A strand of the political science literature emphasizes the role of leaders in explaining the emergence of populism (Laclau, 2005; Weyland, 2001). For this reason, we also test whether experiencing shocks affects how individuals feel about the leaders of the main political parties, namely Winston Peters for NZF, Jim Bolger for National, and Helen Clark for Labor. These variables are coded as one if an individual says they trust the specific politician. We find some weak evidence that individuals who experienced larger shocks are more trusting of Peters, but more generally feelings for leaders appear to be a noisier mediator than the other opinions.

TABLE 7 Do economic shocks change People's opinions and ideology in 1996?

	Immigration shock		Structural reform shock		Mean DV	R-squared	Observations
Own ideology Left/Right scale	7.353	(5.926)	-1.065	(1.227)	3229	0.112	2.791
Socially conservative	-0.581	(1.719)	-0.363	(0.382)	0.240	0.099	3.472
In favor of reduced immigration	3.073*	(1.806)	0.296	(0.318)	0.729	0.110	3.472
In favor of reduced Taxes	3.472	(2.294)	-0.141	(0.549)	0.636	0.066	3.472
In favor of more redistribution	-3.194	(2.252)	1.065**	(0.509)	0.607	0.101	3.472
Recent policies bad for the country	0.794	(1.485)	-0.263	(0.373)	0.430	0.108	3.472
Importance of immigration	-0.0782	(1.779)	0.296	(0.246)	0.106	0.080	3.472
Importance of unemployment	0.700	(2.160)	1.050*	(0.586)	0.605	0.083	3.472
Importance of economic growth	-0.219	(2.581)	-1.180*	(0.683)	0.591	0.066	3.472
Importance of tax rates	2.363	(2.383)	-0.460	(0.606)	0.631	0.067	3.472
Importance of education	2.450	(2.026)	-0.664	(0.460)	0.821	0.049	3.472
Importance of social welfare	1.073	(2.004)	0.0365	(0.633)	0.575	0.085	3.472
Importance of defense	4.269**	(1.989)	0.657*	(0.382)	0.133	0.083	3.472
Importance of law and order	4.313*	(2.437)	-0.256	(0.587)	0.698	0.137	3.472
Strong leader is needed	3.942**	(1.980)	1.063*	(0.546)	0.613	0.097	3.472
Mistrust toward parties	2.642*	(1.439)	0.662**	(0.306)	0.521	0.084	3.472
Better feelings about peters	1.747	(2.809)	0.746	(0.526)	0.280	0.127	3.472
Better feelings about Clark	-0.382	(2.474)	-0.496	(0.536)	0.411	0.093	3.472
Better feelings about bolger	-0.185	(2.077)	-0.384	(0.548)	0.290	0.096	3.472

Note: Robust standard errors in parentheses which allow for clustering at the LMA level. Each row presents the results from a separate regression. Results are weighted with population and voting weights. The two shock variables are instrumented using shift-share instruments as described in the paper. All regressions also include controls for gender, age-group, ethnicity, immigration status, education, and urban/rural, the following area unit characteristics in 1981: immigrant share, unemployment rate, manufacturing, agriculture, retail and public sector industry shares, (log) median income, the change in the immigration rate between 1986 and 1981, the log change in income between 1986 and 1981; the following area unit characteristics in 1996: (log) population, employment rate, unemployment rate, (log) average income, the gini index, and the proportion with school qualifications, vocational qualifications and university degrees, age under 35 and over 65, female and Māori ethnicity; and electoral district FEs.

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

To sum up, shocks not only impact populist voting but also individual beliefs and political preferences, in particular the desire for a strong leader and mistrust toward both mainstream parties. As discussed above, the impact of shocks on these variables explains 24–33% of the overall impact of shocks on voting for NZF, hence changing beliefs and preferences are an important part of the story of how NZF initially developed.

### 4.3 | Persistence of the impact of the shocks

We next examine if the impact of the shocks on political opinions and voting persists over time. We continue to estimate our preferred specification from Table 4, but now examine the effects of the shocks on both voting and political opinions from 1999 to 2020. Whereas many other political and economic developments have occurred in the intervening years that have likely changed political views and voting behavior, as long as these additional forces are orthogonal to the location of migrants of different countries of birth and industries in 1986, we are able to estimate the persistence of the impact of these shocks. We split the sample into two periods, the medium run from 1999 to 2008, which was a period during which the economy was generally growing, and from 2011 to 2020 where there was much more economic uncertainty. These results are presented in Table 8.

During the period from 1999 to 2008, we find that having experienced a larger immigration shock led to a rightward shift in both political attitudes, specifically preferences for redistribution, and voting behaviors, specifically an increased

TABLE 8 Medium and long-run impact of economic shocks on voting and political opinions.

	Voted for NZ first	Voted for labor	Voted for national	Did not vote	Own ideology Left/Right (0–10 scale)	In favor of reduced immigration	Against redistribution (index)	Has populist attitudes (index)
1999–2008								
Immigration shock	1.421*** (0.537)	−2.263* (1.295)	2.826* (1.566)	1.192 (1.426)	1.150 (3.639)	0.212 (0.934)	1.233* (0.733)	−0.389 (0.749)
Structural reform shock	0.259* (0.146)	0.0220 (0.408)	−0.264 (0.355)	0.677 (0.433)	−0.622 (0.995)	−0.0416 (0.282)	−0.243 (0.212)	−0.290 (0.205)
Outcome mean	0.0514	0.318	0.252	0.192	3.125	0.627	0.574	0.572
Observations	15,782	15,782	15,782	15,782	12,722	15,782	15,782	15,782
2011–2020								
Immigration shock	0.677 (0.746)	0.351 (1.978)	−1.719 (1.638)	1.257 (2.185)	1.088 (4.295)	2.203* (1.290)	1.849 (1.166)	0.562 (0.821)
Structural reform shock	0.0107 (0.224)	0.844* (0.457)	−0.0278 (0.620)	−0.519 (0.547)	−0.442 (1.396)	0.127 (0.434)	−0.246 (0.351)	−0.468 (0.289)
Outcome mean	0.0451	0.276	0.301	0.210	3.191	0.538	0.343	0.532
Observations	12,767	12,767	12,767	12,767	10,000	12,767	12,767	12,767

Note: Robust standard errors in parentheses which allow for clustering at the LMA level. Results are weighted with population and voting weights. The two shock variables are measured at the LMA level and are instrumented using shift-share instruments as described in the paper. The “Against redistribution” index come from answers to questions on reducing taxes and increasing redistribution, the “Has populist taxes” index comes from answers to questions on trusting National and Labor party on one hand, and strong leader needed on the other. All regressions also include controls for gender, age-group, ethnicity, immigration status, education, urban/rural; the following area unit characteristics in 1981: (log) population, immigrant share, employment rate, unemployment rate, 1-digit level occupations, 2-digits level industries, (log) median income, and the proportion with school qualifications, vocational qualifications and university degrees, age under 35 and over 65, female and Māori ethnicity; the following area unit characteristics: (log) population, employment rate, unemployment rate, (log) average income, gini index, and the proportion with school qualifications, vocational qualifications and university degrees, age under 35 and over 65, female and Māori ethnicity; and electoral district and survey year FE.

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

likelihood to vote for NZF and National and a decreased likelihood to vote for Labor. On the other hand, having experienced a larger structural reform shock led to a persistent increase in voting for NZF. Interestingly, the short-run impact of having experienced a larger structural reform shock on increased preferences for redistribution disappears in the medium-run. We also find no medium run effect of having experienced shocks on populist attitudes or voting turnout.

Turning to the period from 2011 to 2020, where there was much more economic uncertainty due to the 2008 global economic crisis, we find less persistence in the impact of these shocks. There is some evidence that having experienced a larger immigration shock led to a long-run hostility to immigration and a rightward shift in political attitudes, but the results are not strongly significant. We do not find an impact of either shock on voting for NZF or on populist attitudes in the long run. We believe this is the case because of an increasing shift of the mainstream political parties in NZ toward more populist policy positions (Vowles & Curtin, 2020).

## 5 | ADDITIONAL RESULTS

### 5.1 | Demand for and supply of political change

One important but difficult question to answer is whether the shocks experienced in NZ led to increased support for populism via the ‘demand’ pathway highlighted above and/or by changing the ‘supply’ of populism via the creation of NZF (Guiso et al., 2017). We have already shown that shocks led to increased populist attitudes, in particular the desire

for a strong leader and mistrust toward both mainstream parties hinting toward the importance of a demand channel. In Table 9, we examine whether there is a relationship between experiencing either shock and voting for changing the political system to MMP in the binding referendum that was held in 1993, as reported by individuals in the 1993 NZES. As discussed in Rimbau et al. (2021), individuals who desired political change and supported minority parties strongly supported the change to MMP. Consistent with experiencing shocks leading to increased demand for political change, we find a strong significant impact of having experienced an immigration shock on individual's voting for changing the political system.

Examining the impact of shocks on the supply of 'populism' is more difficult. One thing we can examine is whether NZF was more likely to field candidates in electorates in 1993 that experienced larger shocks (they fielded a candidate in 84 out of 99 electorates). We also show these results in Table 9 using the same regression framework as in the previous analyses so that the results reflect outcomes for the average NZer, not the average ED. We do not find a significant relationship between either shock and the supply of populism measured in this dimension. While the standard errors are large, the point estimates suggest that NZF was actually less likely to field candidates in EDs that experienced larger shocks.

## 5.2 | Heterogeneity analysis

We next examine heterogeneity in impact of shocks to better understand the potential channels behind our findings. Populism is a complex phenomenon characterized over a wide range of economic, sociological, and psychological angles, so we investigate several transmission mechanisms without a definite theoretical structure. Specifically, we examine how the impact of the shocks varies by individual and community characteristics. Given that these characteristics are exogenous to the shocks, we can identify how the causal impact of each shock varies across individuals and communities with different characteristics.

Table 10 presents the results from our individual heterogeneity analysis. In each column, we consider a different dimension of potential variation. In each case, we interact a dummy variable for the noted category with each of the shock variables and also include it as a control if it is not already included.<sup>24</sup> These models are again estimated using instrumental variables, with instruments for the interactions as well, and include controls for local characteristics and ED fixed effects. For example, in the first column we report results where a dummy variable for being under age 35 is interacted with the shock variables.

In general, we find little evidence of heterogenous impacts of shocks across individual characteristics. The only exceptions are that we find that structural reform shocks have larger effects on voting for NZF for older individuals and individuals who are not employed. New Zealand First has a strong focus on improving policies for older individuals, such as free use of health services and public transit, and keeping the retirement age from increasing, which may explain these results. The overall lack of heterogenous impacts in relationship to individual, as opposed to community

TABLE 9 Impact of shocks on demand for and supply of political change.

	Voted for MMP in 1993 referendum		NZF fielded electorate candidate in 1993	
	OLS	IV	OLS	IV
Immigration shock (% recent arrivals)	1.017 (0.635)	2.840** (1.324)	-1.284 (1.848)	-3.268 (2.767)
Structural reform shock (% Δ 1986–1991)	0.323 (0.303)	0.352 (0.831)	-0.671 (0.763)	-1.452 (2.264)
Outcome mean	0.467		0.867	
R-squared	0.039	0.035	0.057	0.040
Observations	2220	2220	2220	2220

Note: Robust standard errors in parentheses which allow for clustering at electorate district (ED). Results are weighted with population and voting weights. In the IV regression, the two shock variables are instrumented using shift-share instruments as described in the paper. All regressions also include controls for gender, age-group, ethnicity, immigration status, education, employment status, and urban/rural.

Abbreviation: OLS, ordinary least squares.

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

TABLE 10 Heterogeneity in the impact of shocks on voting for New Zealand (NZ) first in 1996.

	Age <35	Age >65	Female	Low skilled	High income	University degree	Non-employed	Receiving benefits	High density areas	1986 high Immig. Areas
Immigration shock	5.461** (2.213)	5.692*** (2.100)	5.808*** (2.109)	4.987** (2.130)	5.515*** (2.100)	5.558*** (2.086)	5.976*** (2.213)	5.483*** (2.100)	4.305* (2.568)	10.61** (4.424)
Structural reform shock	1.297*** (0.362)	1.071*** (0.354)	1.233*** (0.389)	1.033** (0.507)	1.182*** (0.365)	1.246*** (0.369)	0.874** (0.360)	1.119*** (0.366)	1.422*** (0.428)	1.146*** (0.405)
Imm shock * interaction	0.380 (1.190)	1.529 (1.411)	-0.263 (0.657)	0.848 (1.089)	0.517 (0.977)	-0.681 (1.034)	0.815 (0.799)	0.972 (1.262)	-5.620** (2.465)	-11.56** (5.267)
SR shock * interaction	-0.448 (0.537)	1.344** (0.630)	-0.0842 (0.362)	0.848 (1.089)	-0.0803 (0.471)	-0.532 (0.530)	1.100*** (0.406)	0.440 (0.570)	-2.291** (1.046)	-1.104 (0.966)
R-squared	0.074	0.071	0.074	0.075	0.077	0.074	0.075	0.074	0.076	0.077
Observations	3472	3472	3472	3472	3472	3472	3472	3472	3472	3472

Note: Robust standard errors in parentheses which allow for clustering at the LMA level. Results are weighted with population and voting weights. The two shock variables are measured at the LMA level and are instrumented using shift-share instruments as described in the paper. Each regression also includes an interaction between each of the two shocks and the variable listed in the header of the column, as well as the main effect for the interaction variable if it is not already included in the regression as a control variable. All regressions also include controls for gender, age-group, ethnicity, immigration status, education, and urban/rural, the following area unit characteristics in 1981: immigrant share, unemployment rate, manufacturing, agriculture, mining and construction industry shares, (log) median income, the change in the immigration rate between 1986 and 1981, the log change in income between 1986 and 1981; the following area unit characteristics in 1996: (log) population, employment rate, unemployment rate, (log) average income, the gini index, and the proportion with school qualifications, vocational qualifications and university degrees, age under 35 and over 65, female and Māori; and electoral district FEs.

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

characteristics as discussed next, occurs even though the economic shock clearly had large negative impacts on low skill, poor, and less educated individuals, and high-skilled migrants are most likely to compete in the labor market with more educated higher-skilled workers. Taken together, this evidence suggests that standard economic explanations for populism are not what drove the emergence of NZF.

In our final two specifications, we examine the role of community characteristics. Specifically, we examine whether the shocks have differential impacts in areas with a long-run history of immigration and in urban versus rural areas.<sup>25</sup> Consistent with previous research (Dustmann et al., 2019; Levi et al., 2020), we find that in high density areas neither immigration nor structural reform shocks impact voting for NZF. The impact of shocks is fully concentrated in lower density LMAs. This may occur because the distinction between rural areas and urban areas carries forward long-lasting political preferences and different ways of organizing political life (Cramer, 2016) or because people in more densely populated regions are exposed to cosmopolitan beliefs. We also find that the impact of the immigration shocks on voting for NZF is much higher in areas that historically had less immigration and that there is no impact in areas that already had high levels of immigration in 1986. This is consistent with the cultural channel being particularly important for understanding how immigration shocks lead to populist voting.

## 6 | CONCLUSIONS

In this paper, we use electoral survey data to examine the impact that two large external shocks had on the development of NZ First, one of the oldest populist parties in the OECD. We examine the impact of structural reforms that led to large negative impacts on particular industries and immigration reforms that led to large increases in skilled migration: (i) on voting for NZ First in its first years of existence; (ii) on individual beliefs and political preferences and; (iii) on the long-run persistence in political opinions and voting decisions.

We find that these shocks had large impacts on voting for NZ First in its initial years, that they also impacted preferences and beliefs, that they continue to influence political opinions and voting even 30 years later. Overall, the occurrence of these shocks appears to be an important driver of demand for political change and the emergence of a strong populist party in NZ.

New Zealand is in many ways a forerunner to many of the current trends affecting OECD countries. The structural reform process that occurred in the 1980s increased competition for certain industries in a similar way that China joining the WTO impacted industries in the rest of the developed world in the 2000s. Similarly, NZ was one of the first countries to develop a skilled migration system that had no restrictions on country of origin. In this sense, it is unsurprising that populist parties are emerging in European countries that in recent years have featured increased competition in many economic sectors and a large inflow of ethnically diverse migrants.

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## DATA AVAILABILITY STATEMENT

The data that support the findings of this study are openly available in the Western Economic Association International Data and Code Repository at <https://doi.org/10.3886/E192842V3> reference number openicpsr-192842 (Levi et al., 2023).

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## ENDNOTES

- <sup>1</sup> Most political scientists agree that the American's People Party and the Russian's Narodniki were the first populist parties appearing in the late 1900s.
- <sup>2</sup> As discussed in more detail below, NZF has more in common with right-wing populist parties in Europe than left-wing parties but espouses a relatively soft authoritarian populism (Vowles & Curtin, 2020).
- <sup>3</sup> As shown in Figure 1, responses in the survey closely mirror actual voting behavior and we find similar results when we use official data to measure voting outcomes (available from the authors on request).
- <sup>4</sup> Exceptions include Burgoon et al. (2019) and Guiso et al. (2017), which both use European Social Survey data to investigate the relation between economic insecurity and votes for populist parties at an individual level, and Moriconi et al. (2022) who use the same data to study the impact of immigration on nationalistic voting.
- <sup>5</sup> As discussed in Riambau et al. (2021), the electoral system was switched because of the results from a binding referendum. When it was FPP, it was more like the UK and US where voters directly elected their representatives. With the new MMP system, as we will describe more in detail below, the electoral system became similar to that in most European countries. We show below that experiencing shocks, in particular the immigration shock, also led to a significant increase in individuals voting to change the electoral system.
- <sup>6</sup> Throughout the paper, we focus on party votes for NZF. NZF has never won more than one directly elected seat.
- <sup>7</sup> We use the European Social Survey data for this comparison and define a political party as populist if it scored higher than seven on the average between the two questions on populism in the 2014 and 2019 waves of the Chapel Hill Expert Survey (see the footnote of the Appendix 1 Table for more details).
- <sup>8</sup> Papps and Newell (2002) use travel-to-work data from the 1991 census data to define 140 LMAs that are self-contained commuting zones. In urban areas, LMAs generally encompass the main urban area and an extensive catchment area. In rural areas, LMAs tend to consist of numerous small areas, each centered on a minor service center. Electoral districts (ED) are updated after each census by a special commission and designed to contain the same number of individuals with only a 5% permitted variation. Hence, in urban areas they tend to be quite small, while they can be very large in sparsely populated rural areas.
- <sup>9</sup> Stillman et al. (2010) shows that the persistence of the shock is similar when 1981 census data is used to measure the baseline situation, but there are several comparability issues when using this older data, in particular, a completely different industry classification is used.
- <sup>10</sup> New migrants include all foreign-born individuals who arrived in NZ in the previous 5 years. As 1993 is not a census year, we use the self-reported number of years spent in NZ for immigrants in the 1996 census to calculate the inflow between 1988 and 1993.

- <sup>11</sup> There are 99 EDs and 120 LMAs represented in the NZES hence there are sufficient clusters for calculating unbiased standard errors.
- <sup>12</sup> Māori are the native inhabitants of New Zealand and can choose to vote in their own special districts. When we examine the impact on voting in later elections, we interpolate these socio-economic characteristics from the closest censuses: given that in New Zealand there are elections every 3 years and censuses collection every 5 years, there is no election that is more than 2 years away from the census.
- <sup>13</sup> This is the case even after using the provided weights that are designed to increase the representativeness of the survey. We use these weights throughout our analyses. The NZES collects household income and the census individual income so these cannot be directly compared.
- <sup>14</sup> Appendix Figure S1 shows the distribution of immigrants in 1981. While new arrivals in 1996 (as seen in Figure 2) go to some similar areas as previous migrants (especially, the three big cities), one can see that migration has become much less geographically concentrated over time.
- <sup>15</sup> As discussed in Goldsmith-Pinkham et al. (2020), each country of origin serves as a valid instrument for our immigrant shock variable and hence one can look at heterogeneity in the main results across each country.
- <sup>16</sup> See <https://ada.edu.au/new-zealand-voting-survey-post-election-1981/> for more information.
- <sup>17</sup> This is only true in a simplified sense because in the actual instrumental variables model both instruments are included as regressors in each first-stage along with all the other included control variables.
- <sup>18</sup> In Appendix Table S4, we show additional intermediate specifications of the IV models. Our results are robust to excluding either or both 1981 and 1996 local area characteristics as controls. Perhaps surprisingly, we find that the immigration shock has larger impacts when we control for 1996 characteristics which are potentially impacted by the shocks. This table also reports results where we excluded immigrants from our sample and where we include an additional control for local trade exposure on top of our measure of the structural reform shock. In both cases, the results are qualitative similar. Appendix Table S5 reports the full results, besides ED fixed effect, from our preferred specification as well as our final specification that included endogenous political opinions. All significant coefficients have the expected signs.
- <sup>19</sup> Self-selection is generally unobservable since we cannot see the proper counterfactuals. However, we can examine whether new immigrants avoided moving to areas that were receptive to populism prior to the immigration and structural reforms and similarly to whether New Zealanders in general were likely to move away from areas suffering economically. In Appendix Table S6, we look at whether new immigrant arrivals and general population movements at the area unit level prior to 1993 are correlated with prior political preferences and economic outcomes. Consistent with our main results, we find that new immigrants in 1990 and 1993 were less likely to settled in areas with a higher previous local protest vote (for social credit) and that the general population moved away from areas where incomes were declining prior to 1993. In unreported results, we also find that individuals in the NZES are less likely to have recently moved to areas that had larger structural reform shocks.
- <sup>20</sup> Appendix Table S7 describes how each of these variables are defined. It also describes the variables that are used in additional analyses in the rest of the paper.
- <sup>21</sup> Note that this is true in the case of one shift-share instrument, but not necessarily with two at the same time as there is potential correlation between the components of the instruments. For this reason, we examine the shift-share diagnostics one instrument at a time, treating the other as an exogenous variable. When we do this, we estimate a smaller impact of the immigration shock and a larger impact of the structural reform shock, however the main results are qualitatively similar.
- <sup>22</sup> Guiso et al. (2017) finds that populist parties impact turnout in Europe and that this is an important component of how they gain votes.
- <sup>23</sup> These variables are generally yes/no questions where individuals can also choose “indifferent or undecided”. We code these variables as 0 for no, 1 for yes and 0.5 for neither yes nor no. The results are generally insensitive to instead dropping undecided people. We have included here the full set of policy areas that individuals were asked about in the survey.
- <sup>24</sup> Low skilled workers are those not in groups 1 (managers), 2 (high-level professionals), or 3 (low-level professionals) based on self-reported occupation. High income is defined as being above the median. Benefits include unemployment benefits, support for sickness and domestic purposes benefits to single parent families. Eligibility for these benefits was greatly reduced between 1991 and 1993, for example, in our sample the number of people receiving benefits declined from 41% in 1990 to 16% in 1996. We use the 1990 NZES to examine the relationship between benefit receipt and individual characteristics and then predict who receives benefits in 1996 holding all else constant. We do not find an impact of losing benefit eligibility on voting for NZF.
- <sup>25</sup> High density areas have a population density greater than 50 people per square km. This splits the sample in a balanced way, while only 26 LMAs out of 141 are classified as high density they have an average 56 thousand inhabitants compared with 11 thousand in the low density LMAs. High immigration areas are defined as areas where the immigration share was above the mean level.

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