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Topics in Modern Political Economy

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Foreword

This thesis contains two essays covering themes in political economy. The first of these addresses the timeless theme of corruption. In it I investigate the relationship between requests from public agencies for firms to pay bribes and firms' input decisions. Specifically I look at the effect that corruption has through the uncertainty that it brings to the process of procuring public goods (such as permits and licenses) and the role it plays in undermining property rights. The second chapter is much more contemporary. The second chapter addresses the current surge in support for populist parties in Europe and aims to evaluate the role of labour market shocks in driving current trends of populist successes.

The two papers are connected by the general theme of political economy. Both papers highlight the relationships between political and economic forces, demonstrating that effective political institutions and efficient markets are mutually dependent. Previous work has demonstrated that in order for markets to work efficiently, there need to be consistent and predictable rule governing society (Rothstein, 2011). Other authors have distinguished between "extractive" institutions - in which a small group in power exploits society at large - and "inclusive" institutions - in which a wider portion of society is included in governing and the government provides public services such as justice and education (Acemoglu and Robinson, 2012). It is noted that this latter type of institution is needed for prosperity, as it provides the conditions for innovation and investment to occur.

The first chapter investigates how uncertainty caused by corruption affects the input choices of firms. This is motivated by literature which finds corruption to have a damaging impact on

firms' productivity and returns to investment (O'Toole and Tarp, 2012; Gamberoni et al, 2016).

Chapter two considers the corollary of this relationship and examines how labour market shocks affect the workings of modern democracy. Specifically, the chapter aims to contribute to the literature looking at the rise of populism in Europe - see Algan et al (2017) and Inglehardt & Norris (2016) for reviews. The rise of populism represents a challenge to the liberal democratic politics that has characterised European politics in the last half century, as populist parties typically commit themselves to an unadulterated policy platform that reflects the preferences of a particular social group, even if it is a very broadly defined one (Mudde and Rovira-Kaltwasser, 2017). Such parties once in government are also documented to engage in corruption and cronyism - often changing the constitution to entrench these practices in the political system - see Muller(2017) for a full account of the actions taken by populists once in government.

Therefore we ask whether shocks to employment have an effect on increasing the support for parties that reflect the interests of their broad group at the expense of others. The setting used also allows me to distinguish between the effect of employment conditions on an incumbent and opposition populist parties. This allows me to investigate whether current political trends are due to broad cultural shifts or economic shocks. The setting of populist forming governments in European democracies is becoming more common as more countries elect populists into majority or coalition governments. Therefore by looking at the case of Hungary, we may be able to unearth relationships that help us to understand events in these countries too.

In the first chapter I find that more frequent bribery is associated with lower investment and a reliance on temporary labour. By deterring investment, bribe frequency is likely to reduce firm productivity. I also find that a higher frequency of bribes reduces the amount of permanent labour hired by firms. This suggests that when bribery is more frequent, there will be fewer opportunities for secure and gainful employment. As a result, the gains to effective anti-corruption drives will be two-fold as firms will be more willing to invest and to create permanent jobs. It also highlights the effectiveness of anti-corruption policies that focus on procedural aspects

- for example by allowing people to pay extra for faster processing when applying for public goods, as the predictability of the process is important. These types of polices are likely to be more effective than economy wide measures such as India's recent demonetisation drive, which has if anything exacerbated uncertainty.

In chapter 2 I find that employment shocks do affect political outcomes. However, the extent to which it makes political institutions more effective is debatable. I find evidence that in the case of Hungary, improving economic conditions reduces support for the incumbent populist party and for the established liberal opposition. I argue that as economic conditions improve, economic considerations become less important in how citizens evaluate political parties and how they would perform in government. As a result, cultural considerations will play a larger role in citizens' evaluations when economic conditions are better, as income and subsistence consumption considerations are less important and the opportunity costs of supporting a populist party is lower. This does not have to be a good thing however. As noted, populist parties have potential to be extremely divisive and their success typically marks a move towards a majoritarian form of democracy. This typically results in the interests of party supporters being prioritised, which is likely to be detrimental in the long run.

References

Acemoglu, D. and Robinson, J. (2012) "Why Nations Fail- The Origins of Power, Prosperity and Poverty", Profile Books

Gamberoni, E., Gartner, C., Giordano, C. and Lopez-Garcia, P. (2016), Is corruption efficiency-enhancing? A case study of nine Central and Eastern European countries, ECB Working Paper 1950

Muller, J. (2017) "What is Populism?", Penguin Books

O'Toole, C. and Tarp, F. (2012) "Corruption and the Efficiency of Capital Investment in Developing Countries", UNU- WIDER Working Paper, No. 2012/27.

Rothstein, B (2011) "The Quality of Government", University of Chicago Press

Chapter 1

Labour, Investment and Firms' Experience of Bribery

Abstract

Corruption is widely acknowledged as being a hindrance to many indicators of economic performance at the micro and macro level. This paper builds on previous literature by considering whether the frequency with which firms form corrupt agreements affects their choice of inputs. We believe that the frequency of bribe payments has a distinct effect on firm behaviour due to the uncertainty it creates and the its weakening of property rights. We look at the effect of bribe frequency on investment and hiring decisions to draw conclusions about the effect on productivity and labour markets. By drawing on firm level performance surveys from Argentina, this paper is able to find evidence to show that as bribes are demanded more frequently from firms, firms will invest less and use more temporary labour as a share of their work force.

1.1 Introduction

Corruption is a social ill that affects people all around the globe. Its effects are systematic and diverse. This can be clearly seen in the developing world, where corruption has lead to $1tr being stolen from the world's poorest economies each year (Al Jazeera, 2018). In extreme cases

this has lead to governments being unable to tackle major disease outbreaks and left corrupt governments unable to win the support of their citizens in the war on terrorism. Corruption is a perennial development issue and something to which the poorest citizens of the developing world are the most vulnerable. However, corruption whether at home or abroad has significant effects for the developed world too. Perceptions of corruption and of undue influence by financiers undermines trust in political institutions and reduces electoral participation. Corruption in the developing world can also exacerbate inequalities in the developed world. For example, the use of major cities such as London as a safe haven for dirty money from overseas has been shown to push up house prices and rents (Al Jazeera, 2018; Badarinza & Ramadorai, 2016). This can lead to widening housing inequalities and can contribute to increasing political polarisation.

In the last two decades research has highlighted the economic damage done by bureaucratic corruption, with numerous contributions looking at the effects of corruption on firm behaviour and performance - See Fisman & Svennson (2007) and Djankov & Sequiera (2014) for examples. If firms have to engage in bureaucratic processes in order to get things done, we would expect that a corrupt bureaucracy should affect how firms operate. Here we aim to evaluate the effect of corruption on firms' decisions to use capital and labour. In order to do this we will be using micro-level data on bribery, taken from World Bank enterprise performance surveys conducted in Argentina.

Corruption has been a pervasive issue in Argentina. In 2006 - the first year covered by our data - Argentina ranked 93rd out of 163 countries on Transparency International's Corruption Perceptions Index (Transparency International, 2018a). By 2010 - when the second wave of our data was collected - the country had fallen down the 105th place (Transparency International, 2018b). Corruption in Argentina was recently highlighted by the trial of Argentina's former president - Christina Fernandez de Kirchner - on charges of corruption (Al Jazeera, 2019). Kirchner is accused of awarding over 50 public works projects at inflated prices to businessmen close to her.

The BEEPS data set contains information about the frequency with which firms are actually asked to pay bribes, allowing us to avoid the problems associated with perceptions indices. With this data it was possible to construct a measure of how often firm's interactions with the state end in bribes being demanded. We then use this measure in a series of OLS and 2SLS regressions to estimate its effect on the investment and employment decisions of firms.

Previous work has largely focused on the impact of corruption on macro-level economic indicators, such as investment, trade and GDP growth (see Mauro, 1995; Hodge et al, 2011, Mendez & Sepulveda, 2006). Whilst there has been some work looking into the impact of corruption on firms, this has focused on the size of bribes, largely treating a bribe as analogous to a tax (see Fisman & Svensson, 2007 and Djankov & Sequiera, 2014). We consider the possibility that the actual process of dealing with bribe taking public agents will in itself affect the behaviour of firms, regardless of the size of the bribe paid. Negotiating corrupt arrangements takes time and is not guaranteed to result in firms getting what they want from the process. Furthermore, corrupt arrangements are not legally enforceable, meaning that firms engaging in corrupt activities risk termination of the corrupt agreements as well as relevant penalties if they are caught by the authorities (Bardhan, 1997). As a result we believe that corruption introduces uncertainty that needs to be considered when making operating decisions. The choice of inputs used by the firms is an important one. Looking at these decisions can give us an insight into firm productivity and potential for growth, as well as the impact of corruption on employment opportunities.

Our main contribution here is to examine how the frequency with which firms are asked for bribes - and the resulting uncertainty associated with the process - affect the behaviour of firms. The aim is to deepen our understanding of how corruption affects economic outcomes at the level of the firm. We aim to move away from other parts of the literature that focus on the size of bribes, treating bribery as similar to a tax. Instead we aim to look at the effect of the actual process of making corrupt deals with the public agents.

Further to this we aim to expand the literature on firms' decision making by looking at the choice of inputs. Our theoretical model predicts that when bribes are extorted more frequently, firms will aim to make their inputs as flexible as possible. As a result firms should invest less and use more temporary labour. This raises the prospect of potential employment considerations that should be taken into account when devising anti-corruption policy.

In the following section we review the previous literature, giving an overview of how corruption affects both the behaviour of firms and the overall economic climate in which these firms operate. Section 3 then describes the data used in the empirical part of this study. Section 4 offers a theoretical model. In section 5 we consider our empirical strategy, as well as our identification strategy before presenting our results in section 6. Finally, section 7 concludes.

1.2 Literature Review

The term "corruption" is a very intuitive yet vague one. A useful definition for our purposes is provided by Khan, who describes corruption as "behaviour that deviates from the formal rules of conduct governing the actions of someone in a position of public authority because of private - regarding motives such as wealth, power, or status" (Khan, 1996, p12). It is important to distinguish between grand corruption - which occurs at the highest level of political decision making - and bureaucratic corruption which occurs in the bodies tasked with implementing policies. It is this latter form of corruption that is commonly encountered in daily life for many citizens of the developing world. While "corruption" can be considered an umbrella term for several practices including extortion, nepotism and embezzlement, this paper shall focus on corruption manifesting as bribery. This involves payments either in money or in kind being made to public officials to induce them to put their own interests (along with those of the bribe payer) before those of the agency employing them (Amundsen, 1999; Rose-Ackerman, 1975). The empirical literature surrounding corruption can generally be divided into a macro strand - largely focusing on the effect of corruption on economic growth and determinants such as

investment and political stability - and a micro strand which mainly looks at how corruption affects the performance of firms and the quality of the business environment in which they operate.

1.2.1 Macro

Early empirical work on corruption looked at the direct effects of corruption on GDP growth at the country level and channels through which this impact might occur indirectly. These channels include investment, human capital accumulation, political instability, trade openness and the size of government (Mauro, 1995; Mo, 2001; Pellegrini and Gerlagh, 2004). This early work is unanimous in finding a negative relationship between corruption and economic growth - thus dispelling the theory that corruption can aid growth by allowing firms to circumvent unnecessary regulation (Cooray and Schneider, 2018).

The channels mentioned above are generally found to be significant ways through which corruption affects growth. These channels are means through which corruption affects growth indirectly. For example, corruption is shown to reduce the level of investment in a country, which in turn limits its growth prospects (Delgado et al, 2014; Zakharov, 2018).

However, the evidence around the relative importance of each channel is slightly more mixed. While the investment channel is consistently found to be positive, the human capital channel is not always found to be significant (Pellegrini and Gerlagh; Swalaheen, 2011). Moreover, there is also some evidence that corruption may in fact foster growth through some channels. Hodge et al (2011) find that although corruption reduces growth by adversely affecting investment, human capital and political stability, by reducing government size and fostering trade openness, corruption could indirectly increase economic growth. However, the positive effects found for these channels are generally rather small. On the other hand, other work finds the effect of trade openness to be negligible (Swalaheen, 2011).

The relative importance of each channel is also sensitive to the choice of methodology. Swalaheen (2011) uses fixed effects models and GMM to estimate the effects of all of the aforementioned channels and corruption on growth. In fixed effects regression models Swalaheen finds strong evidence of investment and trade openness being significant and positive determinants of growth, with both effect being large. However when GMM models are used, investment, corruption and government expenditure as a share of GDP turn out to be the most important determinants of growth, while the role of trade openness is much smaller

A potential problem with earlier work was that it looked at data on large pools of countries, thus obtaining results that reflected average effects in countries with different political and institutional dynamics.

Several papers have subsequently looked at the effects of corruption by running models fordifferent groups of countries. The exact groups differ, with distinctions made between 'free' or 'not free' (Mendez and Sepulveda, 2006), stable and unstable (Gamberoni et al, 2016), and countries with low and high quality institutions (Aidt et al, 2008; De Rosa et al, 2010). The conclusions drawn from these studies do not provide much in the way of consensus. While some work finds that corruption is more detrimental in environments with lower quality institutions (Gamberoni et al, 2016), other work finds the opposite and uses this evidence to suggest that corruption can indeed 'grease the wheels' of growth by allowing firms to by-pass dysfunctional bureaucracies (Aidt et al, 2008; De Rosa et al, 2010). None the less, these studies are valuable in so far as they highlight the importance of wider institutional factors in determining the effects of corruption on economic outcomes.

However, these previous studies lead us to somewhat superficial conclusions as one would generally expect the institutional environment to affect economic relationships within a polity. Ideally one would want to establish a better understanding of what drives these differences, that is, which institutional features matter most in determining the effects of corruption on economic performance.

One hypothesis is presented in a theoretical form by Blackburn and Forgues-Puccio (2009). They present a model, in which research and development is carried out exclusively by firms. In order to carry out research activities, firms have to obtain licenses and permits from government officials. Naturally, officials can require bribes to prevent an application either being blocked or held up for a long period, which may result in another firm patenting the innovation first. The model allows agencies to coordinate their corrupt activity, affecting aggregate outcomes in the process.

The effects of corruption are found to differ depending on whether firms coordinate their bribe extraction (Blackburn and Forgues-Puccio, 2009). The intuition is that if a public agent demands a large bribe from a firm, then there will be externalities for other public agencies. Firms will effectively face higher fixed costs as a result of the bribe payment meaning that they are less likely to make profits. This will lead to them being either less able or less willing to pay bribes to other public agencies in the future. However, coordination between public agencies makes it possible for agencies to internalise these externalities and extract bribes at a rate that is less detrimental to businesses. Thus a centralised bribe-taking regime imposes a lesser burden on firms.

This hypothesis draws on one of the seminal theoretical papers on corruption from Shleifer and Vishny (1993). This work distinguishes between centralised and decentralised bribe taking and offer some interesting historical examples. One such example given is the Soviet Union, in which corruption was managed by local branches of the Communist Party. Under this system, bureaucrats were tacitly allowed to extort bribes, but only for certain services and with values limited to a proportion of the value of the service in question. They contrast this with corruption where there is no central organisation and bribes are extracted at the whim of the bureaucrat. This distinction goes some way to explaining why the effects of corruption differ between countries, as the degree of certainty and predictability around bribe payments may make firms more willing to invest. The element of uncertainty is a key distinction between corruption and tax. Even if bribery occurs with predictable frequency and size, corrupt agree-

ments are effectively unenforceable if the bureaucrat should fail to provide the service agreed upon and the firms can face penalties if the corrupt agreement comes to light. As such it can be seen that bribery inherently involves some degree of uncertainty for firms.

1.2.2 Micro

The current focus of the corruption literature is on the ways in which corruption can affect the behaviour and performance of firms.

An early contribution to the empirical micro literature comes from Fisman and Svensson (2007) who examine the effects of corruption and taxation on the growth of firms in Uganda. They find corruption to have a strong and negative effect on the growth of firms. Meanwhile, the effect of taxation is negative but to a much smaller extent. A shortcoming of this paper is that the authors do not attempt to explain why the effects of taxation are weaker than those of corruption. The framework provided by Shleifer and Vishny (1993) indicates that the different effects of corruption and taxation may stem from the uncertainty surrounding corrupt agreements.

Uncertainty created by corruption is shown to be an important determinant of firms' behaviour. A survey of firms in Brazil highlights that corruption is the most commonly perceived barrier to entry (Campos et al, 2010). Firms reported uncertainty around what bribes to pay and who to bribe. For established firms, corruption can also create uncertainty by undermining property rights. Paunov (2016) looks at the effect of corruption on the probability of obtaining a patent or an ISO 9000 quality certificate, which certifies that the firm meets a certain organisational standard. Corruption is shown to reduce the chances of a firm holding a quality certificate - though not a patent, which is awarded on the basis of internationally recognised standards. This should help illustrate the barrier to investment presented by corruption. Furthermore, it is found that small and medium sized firms feel the effects of corruption more than large and foreign owned firms do.

This last result fits neatly with the findings of O'Toole and Tarp (2012) who investigated the effect of corruption on the efficiency of investment in a sample of developing and transition countries. While corruption reduces both the level of investment and marginal per unit returns to investment, the effect is most pronounced for Small and Medium sized Enterprises (SME's), with large and foreign owned firms experiencing no effect of corruption on investment. This may be due to corruption increasing the costs of innovation and development, as well as reducing the certainty of making returns on investments.

Misallocation of resources is another means through which corruption can affect the output and productivity of firms. Gameroni et al (2016) look at the impact of corruption on input misallocation by examining the relationship between bribe frequency and the dispersion of the marginal revenue productivities of labour and capital across firms. More frequent corruption is found to lead to greater resource misallocation, with the effect being stronger in smaller and less stable countries. Evidence from Spain shows that sectors with the highest levels of resource misallocation are also those in which corruption occurs most frequently (Garcia-Santana et al, 2016).

Reduced productivity of firms may stem from corruption diverting managerial resources away from the supervision and coordination of productive processes (Dal Bo and Rossi, 2007). This leads to firms employing more factors to compensate for their less coordinated use. Firms may also undertake costly actions in order to avoid the uncertainties associated with corruption. Evidence from South Africa shows that when when choosing between shipping goods from the ports of Durban or Maputo, the higher levels of corruption at Maputo (with a mean bribe three times that that of Durban) caused firms to disproportionately use the port of Durban, even if the firm is closer to Maputo, thus increasing transport costs Djankov and Sequeira (2014). In extreme cases firms would incur transport costs three time higher than the mean bribe of Maputo in order to avoid this port.

The organisation of this paper is as follows: section 3 provides a description of the data set and an explanation of the empirical strategy used. Section 4 then presents the results of the regression analysis, before section 5 offers a discussion of the results and concluding remarks.

1.3 Data Description

Following the previous discussion of the literature to date, this paper aims to test the effects of bribe frequency on firms' investment and employment decisions. Whilst research has looked at the effect of the size of bribes on various outcomes, there is less research looking at the frequency of bribe payments, even though there is good reason to think that this may have an effect- independent of that of bribe size (see Gamberoni et al, 2016). For example higher frequency may constitute time lost by managers who have to deal with bureaucrats, and a higher level of uncertainty when applying for permits to operate capital (Shleifer and Vishny, 1993).

In order to examine this hypothesis we shall be using data taken from Business Environment and Enterprise Performance Surveys (BEEPS) conducted by the World Bank. In particular, we use data from Argentina. The data covers two survey waves, conducted in 2006 and 2010 in 5 regions of Argentina. The data covers firms from 18 industries. These are primarily manufacturing firms, but firms in the hospitality and retail sectors are also included.

The surveys ask business managers a wide range of questions about the nature of their business, how conducive conditions in their country are to carrying out business and how well their business performs. Of particular interest were several questions that asked firms about experiences of bribery when dealing with specific public offices. Specifically, firms are asked if they were visited by tax authorities or applied for any of the following; a water connection, an electricity connection, an import license, an operations licence or a construction license. If the firm did interact with any of these authorities, they were then asked whether 'an informal gift or payment (was) expected or requested'. These are followed up by questions asking managers

to estimate either the average size of bribes paid or the total amount spent each year on bribe payments.

It is worth noting that the surveys are designed to try and elicit truthful answers from respondents, therefore questions are phrased in such a way as to allow respondents to avoid incriminating themselves. For example, instead of asking managers how much their firm pays in bribes each year they are asked 'On average, what percentage of total annual sales, or estimated total annual value, do establishments like this one pay in informal payments or gifts to public officials?'. Similarly, rather than asking if the firm paid a bribe to obtain a licence, firms are asked if "a gift or informal payment (was) expected", thus putting the emphasis on the actions of the public official and avoiding the issue of whether the bribe was actually paid. For those interested, the full questionnaire (along with the datasets) are available at http://www.enterprisesurveys.org/data. The surveys also contain a lot of useful control variables and data on firm growth - our main dependant variable. Density plots showing the distribution of the dependant variables and the bribe frequency data are presented in appendix A. Summary statistics for the variables used in our models are presented in appendix B.

An advantage of this data is that it allows us to avoid using the perceptions indices that were common to many of the macro studies discussed earlier. These studies would typically use Transparency Internationals Corruption Perception Indices or data from the International Country Risk Guide produced by the PRS group. These measures tried to gauge the level of corruption in a polity by interviewing local business managers about the damage they feel corruption does to their business. Whilst perceptions can be an important determinant of economic decision making, we feel that our data on specific instances of bribery is more appropriate here. Not only could perceptions be influenced by irrelevant information, but asking people about the harm done by corruption does not allow one to distinguish the effects of bribe incidence and bribe size.

1.4 Theory

In this section we aim to present a theoretical model to explain the effect of bribe frequency on firms' investment decisions. We use the model to demonstrate that higher levels of bribe frequency lead to a higher level of uncertainty about the level of effective demand. Our model follows that of Bond et al (2007), who use adjustment costs and demand uncertainty to explain why firms invest episodically, rather than continuously over time. In our model, corrupt public agents can extort bribes from firms. We consider this as an exogenous shock to effective demand which we allow to take values between 0 and 1. We treat bribe payments as shocks to effective demand, as bribes can be seen as negative revenue shocks. The intuition of the model is that shocks to effective demand require firms to adjust their capital stocks. However this incurs costs, as we shall see shortly. Therefore in an environment with uncertain effective demand, firms will aim to minimise these adjustment costs by substituting capital with more flexible inputs such as labour.

We characterise the firm as follows. First we assume an isoelastic, stochastic demand function of the form

$$Q_t = X_t P_t^{-\eta} \tag{1.1}$$

Where Q_t is output in period t, P_t is price in time t, η is the price elasticity of demand, whilst X_t is the level of effective demand in time t. The frequency of bribery, σ, is the only source of uncertainty in the model, and affects revenue through Q. The log of $X_t$is assumed to follow a random walk with drift. On the production side, firms produce an output good using capital and labour and have the production function

$$Q_t = (K_t + I_t)^{\beta} L_t^{1-\beta} \tag{1.2}$$

Labour L_t is hired at the wage rate w and can be either augmented or diminished without any adjustment costs. This is an importance difference to the capital stock K_t, which is costly to adjust. Capital is inherited from the previous period and the firm can chose to invest in or sell off capital in response to demand shocks. Thus the level of capital in time t - $K_t$is equal to $K_{t-1}+I_{t-1}$, where $I-t$ is the amount of investment. While capital is assumed not to depreciate, it is costly to adjust. Adjustment costs originate from the fact that firms are often unable to sell capital for the price that it was purchased at. Bond et al (2007) note that this may be due to issues of asymmetric information in second-hand goods markets. Here the difference between the price at which capital is purchased and the price at which it is sold is denoted as b. As an example, if an item of capital can be sold at 90% of the original purchase price, then b is 0.1.

There are multiple forms of adjustment cost that the firm could be subject to. For brevity and clarity of intuition we focus on the case of quadratic adjustment costs, as these demonstrate our point without the caveats associated with the case of fixed adjustment costs. The adjustment cost function takes the form

$$G(I_t, K_t) = \frac{b}{2}\left(\frac{I_t}{K_t}\right)^2 K_t \tag{1.3}$$

Here the size of adjustment costs varies with the size of the firm and leads to the net revenue function:

$$P_t Q_t - G(I_t, K_t) - I_t - wL_t \tag{1.4}$$

Our adjustment cost function shows that larger adjustments to capital are penalised more than smaller ones. Crucially, the preceding description of adjustment costs shows that there are costs associated with reducing capital holdings as well as investing. This means that any adjustment of capital holdings in response to changes in effective demand will incur costs and reduce the firm's net revenue, as shown above. While this specification does not allow an op-

timal level of I_t to be found, Bond et al (2007) use stochastic dynamic programming methods with simulated investment data to estimate the relationship between demand uncertainty and optimal investment rates. Their simulations show a strong and negative relationship between investment rates and uncertainty and that the difference between optimal investment in the case with adjustment costs and the benchmark case without adjustments costs also increases with demand uncertainty.

This forms the theoretical reasoning for our expected empirical relationship. To summarise, we expect that when uncertainty about the level of corruption is higher, the level of investment undertaken by firms will be lower, as forward-looking firms aim to minimise the costs associated with adjusting to variations in bribery. We expect that a higher frequency of bribes will lead to greater uncertainty as the firm is entering into more illegal contracts with public agents. A feature of these contracts is that they are not enforceable. This means that even if a bribe is paid, the firm cannot be certain that it will actually receive the desired good or service, as the agreement does not offer any means of recourse if the public agent does not honour their end of the arrangement (Bardhan, 1997). Even if the agreement is honoured by the public agent, the firm can later be penalised for entering into it. Therefore if the agreement comes to light then the firm may have corruptly obtained permits revoked and incur other penalties. This means as that as the firm enters into more corrupt agreements, the degree of uncertainty surrounding the operation of the firm increases as ever more opportunities emerge for the firm to incur costs, for example - from penalties or the loss of corruptly obtained permits. In our model firms can manage this uncertainty by substituting away from capital inputs to labour. In the following section we use firm level data from Argentina to look for empirical evidence of this relationship.

1.5 Empirical Strategy

We can measure the frequency of bribery using data on bribes requested when dealing with individual public agencies. The questions in the BEEPS asking about applications and bribes

produce dummy variables, making it possible to obtain the proportion of the interactions with public agencies that resulted in a bribe being requested, as shown:

$$\Sigma Bribe_{ij}/\Sigma App_{ij} \tag{1.5}$$

Where App_{ij} is binary between 1 if firm i applied for good j and 0 otherwise, and $Bribe_{ij}$ is equal to 1 if firms 1 had to pay a bribe in order to obtain good j and 0 otherwise. This gives us the proportion of licence and permit applications that result in a bribe being requested. We multiply this by 100 to obtain a percentage. This is likely to be an underestimate of how often the firm is asked to pay bribes as our data only includes questions about applications for certain licences and permits. However this does not include information on bribes demanded on a day to day basis, say from the local police force (see Transparency International, 2017). In order to estimate the effect of bribe frequency we put this measure into a regression model as shown below.

$$LogInv_i = \beta_0 + \beta_1 Frequency_i + \beta_2 \lambda_r + \beta_3 \psi_i + \varepsilon_i \tag{1.6}$$

Where $LogInv_i$ is the log of investment. In our regression we shall estimate the effect of bribe frequency on three dependant variables. The first of these being log investment, which is the log of expenditures on capital and machinery in the current period. The following two dependant variables are the logs of the firm's permanent staff and the temporary staff numbers.

The term $Frequency_i$ refers to our independent variable of interest described above, which -in order to approximate the level of uncertainty caused by bribery - measures how often the firm is asked to pay bribes.

Λ_r is a vector of environmental controls, which includes region dummies and a measure of the quality of courts. This variable is based on the BEEPS respondents' evaluations of the quality of the court system. Firms were asked to rate the extent to which dealings with the courts represent an obstacle to running their business. The responses are coded on a scale of 0 to 4, with 0 representing no obstacle and 4 representing a major obstacle. Previous literature (see Gamberoni et al, 2016; Aidt et al, 2008) has highlighted the importance of political and legal institutions in determining the effects of corruption on firms' behaviour by affecting the legal protections available to them when dealing with public agents. In this case we would expect higher court quality to be associated with higher investment for any level of bribery. Therefore this has been included as a measure of quality of the institutional environment.

Ψ_i is a vector containing two firm-specific controls - foreign ownership and the value of firm sales prior to the survey. Previous work has shown that foreign owned firms are typically less affected by corruption than smaller firms (Zakharov, 2019). This may be due to such firms being larger than local competitors and having more financial resources with which to resist demands for bribes. Due to their connections overseas (and potentially their size) such firms are also able to credibly threaten to leave the country if they are required to pay bribes (Bai et al, 2017). As a result we include a measure of foreign ownership in our model, which measures the percentage of the firm owned by foreign shareholders. The size of the firm is likely to affect the level of investment and employment undertaken by the firms. Sales in the period three years before the firm was interviewed are used to control for the initial size of the firm. There is also mixed evidence on the relationship between corruption and firm size, with some evidence that larger firms experience less bribery for the reasons described above and other work arguing that smaller firms are less subject to bribery as they do not have to comply with as many regulations as larger firms (Hanousek and Kochanova 2015). As a result, we control for firm size in the model.

The instrument that we use as part of our identification strategy is the average value of bribe frequency for the firms industry-region. Previous literature has noted that a firm's experience of

corruption may be related to firm characteristics (Fisman and Svennson, 2007; Bai et al, 2017), while reporting error may affect the quality of the data. To avoid this source of endogeneity we follow a similar approach to Fisman and Svennson (2007) and instrument for the frequency with which each firm pays bribes with the average rate for the firm's industry and location. This allows the data to reflect variations in bribe frequency resulting from industry traits and the varying abilities of bureaucrats in different regions to extract bribes, whilst removing noise caused by firms' unobserved idiosyncrasies.

After having looked at the effects of bribe frequency on investment, we shall turn to the question of labour input. More specifically we shall run the regression model above with labour outcomes as our dependant variables. Firstly we shall look at the effect on the log of full-time staff employed. For reasons that will be outlined in more detail in the result section, we shall also look at the effect of bribe frequency on the log of temporary labour employed. This effect will be interesting to estimate as it is possible that if the firm aims to reduce costs or risk by substituting capital for labour then it is also plausible that the firm may substitute permanent labour for temporary labour.

We decided to omit certain variables from the empirical model. Among these are the age of firms - which may have indicated the probability of bribe takers being aware of the firm - productivity and the size of bribes. This final variable was very problematic as respondents could choose to give their answers in one of two ways; either they could give bribe values as a share of their average sales, or they could give the absolute value of bribes paid each year. It should have been possible to combine these - by dividing bribe figures given in absolute terms by the total value by sales in the previous period to obtain the value of bribes as a share of sales.This could then be merged with the answers initially given as a share. However there appeared to be systematic difference between the two variables, which raised questions about the quality of the answers given.

This phenomenon has been documented in other work. In a sample of West African firms,

bribe size was found to be between 4 and 15 times higher when reported as a percentage of sales than in monetary terms (Clarke, 2011). A similar issue is found when firms are asked to estimate security costs and losses due to power outages. This suggests that the cause of this is not related to the sensitivity of corruption as a topic. It is possible that managers struggle to accurately calculate percentages when amounts are small or may not do explicit calculations at all - instead giving answers that sound small in percentage terms despite being large in monetary terms (Clarke, 2011).

The fact that firms struggle to estimate amounts such as security costs accurately in percentage terms suggests that issues with bribe size estimates are not due to the nature of questions about corruption. As noted in section 1.3, the BEEPS surveys are designed in such a way as to encourage truthful answers. Therefore, we can use data on bribe frequency as the quality of the data should not be be affected the sensitive nature of the topic. Furthermore, by its nature, data on bribe frequency is not subject to the estimation issues that affect data on the size of bribes. While there may be reporting error, our identification strategy aims to control for this.

1.5.1 Identification strategy

As noted previously, it is possible that the results of the investment regression may have reflected bias resulting from reverse causality. It is also very hard to rule out endogeneity occurring from measurement error or omitted variables. The BEEPS surveys go to great lengths to frame questions in such a way that respondents can talk about their experiences of corruption without incriminating themselves. This is why the questions often ask about "businesses like yours" or ask what the respondent considers to be normal. In some countries the surveys have even used a system where the respondent is asked two questions simultaneously; one of these asks the respondent to corroborate a basic fact, whilst the other is a question about the firm's exposure to bribery. The respondent then flips a coin to determine which question they answer. The result of the coin flip is not disclosed to the interviewer. This means that the respondent can talk more freely about corruption as it cannot be demonstrated that they were in fact talking

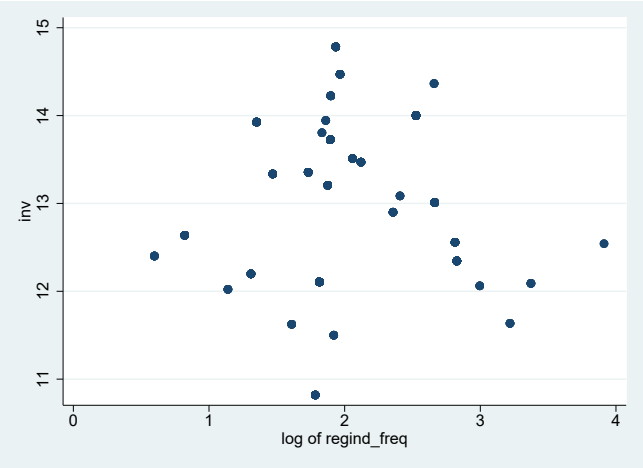


Figure 1.1: Scatter Plot of Industry-Region bribery against Investment

about corruption, let alone suggesting their own involvement in illegal activity. None the less, there is still potential for there to be inaccuracies in our firm-level data. As a result we devise an identification strategy based on that of Fisman and Svensson (2007). The instrument we shall be using for bribe frequency is the region-industry average of bribe frequency. This means that we have an observation per industry in each region and a total of 31 unique observations. This is fewer than we may wish and is in part due to some industries not operating in certain regions.

Clearly the industry-region average bribe frequency will be related to that experienced by the majority of firms in the industry-region and so should be a strong instrument. There is little reason to suspect that there should be any correlation between the industry-region average and the error in reporting as we should expect to be idiosyncratic to the firm or the staff member completing the survey. To be useful as an instrument it is vital that there is no relationship between our instrument and log investment beyond the extent that the instrument is correlated with the actual frequency of bribes, say due to a particular region having a bad reputation. Our OLS results showed that there was little evidence for this as most of our region dummies were insignificant. Furthermore, figure 1.1 suggests that there is no relationship, as we have the industry-region average bribe frequency on the x axis and the level of investment on the y axis. As can be seen there is no clear pattern.

Table 1.1: OLS, Y: Log Investment

	(1)	(2)	(3)	(4)
Bribe Frequency	-0.00540	-0.00579	-0.00390	-0.00609
	(0.00430)	(0.00429)	(0.00407)	(0.00418)
Court Quality		-0.0509	-0.0408	-0.0427
		(0.0685)	(0.0629)	(0.0699)
Foreign Ownership			0.0234***	0.0202***
			(0.00257)	(0.00255)
Previous Sales				7.86e-10***
				(1.84e-10)
Buenos Aires	1.243***	1.248***	0.709**	0.441
	(0.304)	(0.302)	(0.299)	(0.271)
Rosario	0.439	0.468	0.351	0.0842
	(0.378)	(0.379)	(0.370)	(0.394)
Mendoza	0.611	0.606	0.454	0.298
	(0.376)	(0.375)	(0.372)	(0.380)
Cordoba	0.870**	0.860**	0.729**	0.702**
	(0.357)	(0.354)	(0.352)	(0.355)
Constant	12.50***	12.60***	12.57***	12.82***
	(0.279)	(0.295)	(0.289)	(0.262)
N	567	567	566	479

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

1.6 Results

Initially we use OLS regressions to estimate the effects of bribe frequency on the rate of investment among firms in our sample of Argentinian firms. In table 1 we can see the results of this regression. Note that robust standard errors appear in parentheses throughout. The OLS specifications without robust standard errors can be found in appendix C.

In table 1.1 we have five environment variables, namely the region dummies and the variable measuring the quality of courts. We then have three firm specific variables showing the degree of foreign ownership, the volume of sales in the previous period and our corruption variable

- the proportion of licence and infrastructure applications ending in a bribe being requested. Our results show that the log of investment is largely independent of environmental factors, with the dummy for Cordoba being the only significant regional dummy, the coefficient showing that the log of investment is 70% higher than in the omitted region - Chaco. We can see that the size of the firm as measured in previous period sales is by far the most significant variable, with a positive relationship that is significant at the 1% level. Similarly the degree of foreign ownership is highly significant, although the coefficient is notably smaller than that of firm size. Our main variable of interest the frequency of bribe taking- is not significant here as almost all the variation is either random or explained by firm size and foreign ownership. A potential reason for this could be reverse causality, as the very process of investing may create opportunities for bribe payments to be demanded. For example, with reference to our data set we may conceive of an application for a water connection as a part of the process of a firm investing in its estates. This may create an upward bias that counteracts the negative relationship we may expect between bribe frequency and investment. We shall return to this shortly in the next section.As the effect on labour is more ambiguous, we estimate the effect of bribe frequency on employment using the same OLS framework as above.

Table 1.2 shows us that - much as in the investment regression - most of the variation in the log of full time employment is explained by the level of foreign ownership and by the size of the firm. However there is a little bit more regional variation than last time as firms use more labour in both Buenos Aires and Cordoba, in contrast to Rosario, Mendoza and Chaco, the omitted dummy variable. In this instance bribe frequency is actually significant, albeit at the 10% level only. The effect is negative, thus reflecting the complementary relationship between labour and capital. However, in table 1.3 we can see that this effect disappears when, rather than looking at the effect on permanent labour, we look at the effect on temporary labour- workers who do not have a permanent contract with the firm. This type of labour may be more appealing when bribery is more frequent as it is more flexible, making it easier for the firm to adjust when necessary.

Table 1.2: OLS, Y:Permanent Labour

	(1)	(2)	(3)	(4)
Bribe Frequency	-0.00410**	-0.00401**	-0.00231	-0.00338*
	(0.00202)	(0.00203)	(0.00186)	(0.00192)
Court Quality		0.0171	0.0149	-0.0129
		(0.0374)	(0.0351)	(0.0387)
Foreign Ownership			0.0176***	0.0139***
			(0.00141)	(0.00140)
Previous Sales				7.03e-10***
				(2.72e-10)
Buenos Aires	1.292***	1.291***	0.964***	0.685***
	(0.178)	(0.178)	(0.184)	(0.205)
Rosario	0.735***	0.729***	0.680***	0.359
	(0.213)	(0.213)	(0.214)	(0.247)
Mendoza	0.297	0.297	0.233	0.0693
	(0.208)	(0.208)	(0.208)	(0.242)
Cordoba	0.851***	0.853***	0.792***	0.620**
	(0.220)	(0.220)	(0.222)	(0.256)
Constant	3.080***	3.048***	3.015***	3.374***
	(0.163)	(0.178)	(0.182)	(0.204)
N	867	867	866	700

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Argentinian labour law demonstrates the flexibility of the Argentinian labour market. The Law on Contract of Employment (Ley de Contrato de Trabajo, LCT) is the main source of labour law in Argentina, according to the International Labour Organisation (ILO). This piece of legislation outlines the rights and responsibilities of employers and employees, including the terms under which employment can be terminated. According to the ILO the employer; "may unilaterally terminate the contract of employment with a valid reason for such termination, connected with the conduct of the worker, or on economic grounds owing to lack or shortage of work, or force majeure. In fact, he/she may terminate the contract of employment on any grounds, or with no grounds whatsoever provided he/she gives notice and makes a severance payment" (ILO, 2017). These severance payments vary from half a months pay to a whole months pay for each year of service. These provisions largely confirm the assumption about the ease with which workers can be dismissed, although the requirement of a notice period and severance payment can be seen as a small adjustment cost. However, as these costs are linked the period of service, it is plausible that temporary labour is cheaper to dispose of and thus preferable to firms, especially for those that use low-skilled labour that requires little training.

In this set of results we can see that the frequency of bribe demands has no impact on the log of temporary labour used. This makes it difficult to draw any real conclusions about the employment of temporary workers of the share or temporary workers in overall employment.

As noted in the previous section, our OLS estimates are likely to suffer from endogeneity and we will not be able to interpret the coefficients as showing us a causal relationship between the dependant variables and bribe frequency. Therefore we use an identification strategy that follows that of Fisman and Svensson (2007). The instrument we shall be using for bribe frequency is the region-industry average of bribe frequency. As the instrument is an average based of the bribe experiences of an industry-region's firms, it should not be influenced by the characteristics of individual firms. It should also be unrelated to reporting error as this should idiosyncratic to the firm or the staff member completing the survey.

In tables 1.4 - 1.6 we present coefficients obtained when estimating this relationship using the

Table 1.3: OLS, Y: Log Temporary Workers

	(1)	(2)	(3)	(4)
Bribe Frequency	0.00152	0.00167	0.00296	0.000157
	(0.00364)	(0.00367)	(0.00336)	(0.00314)
Court Quality		0.0361	0.0381	0.0301
		(0.0703)	(0.0687)	(0.0786)
Foreign Ownership			0.0121***	0.0100***
			(0.00212)	(0.00215)
Previous Sales				4.06e-10**
				(2.05e-10)
Buenos Aires	0.597	0.591	0.264	0.0418
	(0.379)	(0.378)	(0.405)	(0.401)
Rosario	-0.168	-0.182	-0.206	-0.339
	(0.432)	(0.431)	(0.446)	(0.479)
Mendoza	0.648	0.642	0.592	0.547
	(0.433)	(0.433)	(0.447)	(0.467)
Cordoba	0.553	0.554	0.548	0.399
	(0.482)	(0.482)	(0.495)	(0.621)
Constant	2.028***	1.965***	1.900***	2.139***
	(0.360)	(0.374)	(0.395)	(0.405)
Observations	358	358	357	297

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 1.4: 2SLS First Stages

	(1) LogInv	(2) LogLab	(3) LogTemp
Average Bribe Freq	9.935***	9.39***	6.8**
	(2)	(1.765)	(3.01)
Court Quality	-1.77**	1.6**	-2.44*
	(0.9)	(0.7)	(1.3)
Foreign Ownership	-0.02	-0.04	-0.04
	(0.029)	(0.04)	(0.001)
Previous Sales	4.03e-10	2.02e-10	4.05e-10
	(1.42e-09)	(1.46e-09)	(1.50e-09)
Constant	-8.74	-6.9	-6.93
	(6.15)	(5.2)	(8.73)
F-Statistic	24.58	28.33	5.02
Observations	420	597	257

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

industry-region level of bribe frequency in a Two Stage Least Squares (2SLS) model. The first stage uses the instrument to generate predicted values of bribe frequency. These predicted values are then used in the second stage to obtain exogenous estimates of the relationship between bribe frequency and the dependant variables. We require two conditions to hold in order for 2SLS to give us causal estimates of the relationships in question. Firstly our instrument must be strong, meaning it must be strongly and significantly related to the endogenous regressor of interest, namely bribe frequency. We can be sure that the instrument is strong if the first stage F-statistic is above 10. Whilst the exclusion restriction cannot be tested, we argued in section 1.5 that measurement errors should be idiosyncratic in nature and without an regional or industrial pattern.

The first stage regression results are shown in table 1.4. In column 1 of table 1.4 we can see that our instrument is strongly and positively correlated with bribe frequency when running the log investment model. We also have a first stage F-statistic of 24.58, showing that the instrument is indeed a strong one. However, the sample size of different in each of the 2SLS models. While we

Table 1.5: 2SLS, Y: Log Investment

	(1)	(2)	(3)	(4)
Bribe Frequency	-0.0376**	-0.0407**	-0.0228	-0.0286
	(0.0174)	(0.0184)	(0.0164)	(0.0174)
Buenos Aires	1.042**	1.089**	0.533	0.310
	(0.441)	(0.445)	(0.393)	(0.450)
Rosario	0.0635	0.181	0.00515	-0.112
	(0.548)	(0.557)	(0.487)	(0.565)
Mendoza	0.462	0.484	0.249	0.282
	(0.553)	(0.557)	(0.490)	(0.581)
Cordoba	0.497	0.468	0.389	0.465
	(0.565)	(0.570)	(0.497)	(0.563)
Court Quality		-0.161*	-0.108	-0.125
		(0.0939)	(0.0829)	(0.0863)
Foreign Ownership			0.0236***	0.0201***
			(0.00251)	(0.00262)
Previous Sales				7.56e-10***
				(1.23e-10)
Constant	12.99***	13.28***	13.04***	13.34***
	(0.451)	(0.507)	(0.446)	(0.462)
First Stage F	33.76	31.18	29.71	24.58
Observations	492	492	491	420

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

obtain adequate first stage F-statistics for the models looking at log investment and permanent labour, the temporary labour model has an F-statistic below 10 and hence the instrument is not strong in this case.

Table 1.5 shows the results obtained when using a Two Stage Least Squares (2SLS) specification with the aforementioned instrument. As in the case of the OLS regressions the foreign ownership and previous period sales variables have highly significant and positive effects on the log of investment. In contrast to the OLS regressions however, we can see that the frequency of bribe demands has a significant and negative impact on the log of investment. A few notes are worth making. Firstly, we have a very small coefficient on bribe frequency. Therefore even if a firm were to go from never being asked to bribes to always being asked (i.e moving from a bribe frequency of 0% to 100%), this would only reduce the log of investment by 2.9%. Thus we would need a fairly dramatic change in bribe behaviour to induce a rather modest change. Secondly, this result is only significant at the 10% significance level and is greatly dwarfed by the effects of foreign ownership and firm size. Thus we may say that we have some weak evidence for our theory that bribery increases the costs of running capital, hence more frequent bribe demands cause firms to invest less in capital. In addition to this it will be interesting to see if our labour input results as shown in tables 1.2 and 1.3 still apply when using a similar identification strategy to that used in table 1.5.

In table 1.6 we see that our results are qualitatively rather similar to those obtained in the OLS specification of the same model, with previous period sales being by far the strongest determinant of full-time labour usage, foreign ownership being significant but weak and the frequency of bribes having a negative and significant effect at the 5% level in the full specification. The first stage regression for this model is also displayed in table 1.4. Looking at column 2 we can see that again we have a strong instrument, with an F-statistic of 28.33. In principle the two first stage regressions should be the same, however the sample sizes are different. This is the most likely cause of the first stage results varying with the choice of dependent variable in the second stage.

Table 1.6: 2SLS, Y: Log Permanent Labour

	(1)	(2)	(3)	(4)
Bribe Frequency	-0.0327***	-0.0336***	-0.0204*	-0.0244**
	(0.0118)	(0.0121)	(0.0109)	(0.0111)
Court Quality		-0.0592	-0.0379	-0.0817
		(0.0532)	(0.0466)	(0.0511)
Foreign Ownership			0.0174***	0.0133***
			(0.00168)	(0.00177)
Previous Sales				6.75e-10***
				(8.63e-11)
Buenos Aires	1.244***	1.258***	0.918***	0.659**
	(0.254)	(0.256)	(0.226)	(0.271)
Rosario	0.496	0.524	0.446	0.199
	(0.323)	(0.326)	(0.283)	(0.333)
Mendoza	0.116	0.129	0.0160	-0.148
	(0.327)	(0.329)	(0.287)	(0.337)
Cordoba	0.543*	0.536*	0.517*	0.455
	(0.322)	(0.324)	(0.281)	(0.334)
Constant	3.388***	3.496***	3.329***	3.757***
	(0.256)	(0.284)	(0.249)	(0.274)
First Stage F	36.71	35.11	32.9	28.33
Observations	725	725	724	597

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 1.7: 2SLS, Y: Log Temporary Labour

	(1)	(2)	(3)	(4)
Bribe Frequency	-0.0373	-0.0371	-0.0284	-0.0378
	(0.0359)	(0.0355)	(0.0335)	(0.0328)
Court Quality		-0.0172	-0.00301	-0.0504
		(0.106)	(0.100)	(0.125)
Foreign Ownership			0.0117***	0.00907***
			(0.00264)	(0.00303)
Previous Sales				3.93e-10***
				(1.11e-10)
Buenos Aires	0.613	0.619	0.263	0.0896
	(0.576)	(0.587)	(0.562)	(0.722)
Rosario	-0.255	-0.247	-0.311	-0.478
	(0.649)	(0.650)	(0.596)	(0.723)
Mendoza	0.756	0.766	0.663	0.644
	(0.619)	(0.634)	(0.597)	(0.727)
Cordoba	0.243	0.244	0.248	0.273
	(0.611)	(0.611)	(0.560)	(0.768)
Constant	2.377***	2.402***	2.289***	2.653***
	(0.476)	(0.510)	(0.473)	(0.563)
First Stage F	5.06	5.17	4.87	5.02
Observations	301	301	300	257

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

As with the previous regression, the results shown in table 1.7 largely reflect those obtained using an OLS specification. We can see that the frequency of bribes does not affect the amount of temporary labour used. This fits with the hypothesis that whilst reducing their investment in capital, firms facing a high chance of paying bribes will also try to make their labour usage more flexible. However, in this case we are not able to accurately identify the relationship using our identification strategy. Looking at column 3 of table 1.4 we can see that although our instrument is significantly related to the frequency of bribes at the 5% level, our first stage F-statistic is only 5.02, showing that the instrument is weak.

In conclusion we find that the frequency with which bribes are demanded from firms has a negative effect on investment, as predicted in our model. However the effect is not particularly strong. These costs are likely to reflect the additional cost to operating capital that is represented by bribe payment for licenses and permits. However it is also possible that our results may show weak effects as some firms may be using bribe payments to obtain licenses and permits that they would not be eligible for if applying legitimately. A final note should be made that sadly the amount of the data has limited the research possibilities to a considerable extent. Not only were we short of choices when trying to find suitable instruments for our 2SLS regressions, but the limited time dimension made it very hard to track the behaviour of firms over time.

1.7 Conclusion

This chapter aimed to examine the dynamics of firms' input choices when faced with public bodies that create uncertainty with their demands for bribes. In this paper we have looked at how the frequency of demands for bribes affects the choice of inputs used by firms.

We argue that when firms have to secure permits and licences by corrupt means, they face a deal of uncertainty as they have no means of recourse if the corrupt arrangement is reneged on, or if further bribes are demanded for the same purpose. As capital adjustment incurs costs, the firm will aim to reduce capital holdings when it faces uncertainty arising from bribe demands.

We find weak evidence to show that firms will opt for more flexible inputs when faced with uncertainty, reducing both investment and the number of full-time employees. However the use of workers on short-term contracts is unaffected, suggesting that where possible firms will aim to use more flexible inputs. We have argued that this fits with the implications of the theoretical model and demonstrate firms using more flexible inputs that allow them to minimise capital adjustment costs.

The findings in this paper suggest that lower corruption - and thus lower uncertainty - will enable firms to invest more. This fits with conclusions drawn elsewhere in the literature (O'Toole and Tarp, 2012; Gamberoni et al, 2016). Our findings also suggest that policy measures to reduce corruption can also encourage firms to create more permanent jobs and rely less on temporary labour. It is possible that this could improve the stability and remuneration from employment, if the certainty afforded by lower corruption allows firms to invest in the skills of their workforce and create pay incentives to retain talented staff.

1.8 Bibliography

Al Jazeera (2018) "Four Reasons Why Corruption Matters", Available at: https://www.aljazeera.com/indepth/opinion/reasons-corruption-matters-171220083147134.html

Al Jazeera (2019) "Argentina's ex-President Kirchner faces first corruption trial", Available at: $https://www.aljazeera.com/news/2019/05/argentina-president-christina-kirchner-faces-corruption-trial-190521131408914.html$

Aidt, T., Dutta, J., and Sena, V. (2008) "Governance Regimes, Corruption and Growth: Theory and Evidence", Journal of Comparative Economics, Vol. 36, pp 195-220.

Amundsen, I. (1999): "Political corruption: An introduction to the issues", Working Paper 99:7, Bergen: Chr. Michelsen Institute.

Andvig, J. C., and Fjeldstad, O. (2001). "Corruption: a review of contemporary research", CMI Report R 2001:7. http://www.cmi.no/publications/file/?861=corruption-a-review-of-contemporary-research Accessed on 10.3.2014.

Bai, J., Jayachandran, S., Malesky,E. and Olken, B. (2017) Firm Growth and Corruption: Empirical Evidence from Vietnam Northwestern Working Paper.

Badarinza, C. and Ramadorai, T. (2016) "Home Away from Home? Foreign Demand and London House Prices", Available at SSRN: https://ssrn.com/abstract=2353124

Bardhan, P. (1997) "Corruption and Development: A Review of Issues", Journal of Economic Literature, Vol. 35, pp 1320-1346.

Bond, S., Sderbom, M. and Wu, G. Pursuing the Wrong Options? Adjustment Costs and the Relationship between Uncertainty and Capital Accumulation University of Gothenburg Working Paper.

Blackburn, K. and Forgues-Puccio, G. (2009) "Why is Corruption Less Harmful in Some Countries than in Others?" Journal of Economic Behaviour & Organisation, Vol. 72, pp 797-810.

Campos, N., Estrin, S. and Proto, E. (2010), Corruption as a Barrier to Entry: Theory and Evidence, CEPR Discussion Paper 8061

Clarke, G. (2011) "How Petty is Petty Corruption? Evidence from Firm Surveys in Africa" World Development, Vol 39 (7)

Cooray, A and Schneider, F. (2018) "Does Corruption Throw Sand or Grease into the Wheels of Financial Sector Development?", Public Choice, Vol 177

Dal Bo, E. and Rossi, A. (2007) "Corruption and Inefficiency: Theory and Evidence from Electrical Utilities", Journal of Public Economics, Vol. 91

Delgado, M., McCloud, N. and Kumbhakar, S. (2014)"A Generalized Empirical Model of Corruption, Foreign Direct Investment and Growth" Journal of Macroeconomics, Vol 42

De Rosa, D., Gooroochurn, N. and Gorg, H. (2010) "Corruption and Productivty: Firm-level Evidence from the BEEPS Survey", World Bank Policy Research Paper 5348

Djankov, S. and Sequiera, S. (2014) "Corruption and Firm Behaviour: Evidence from African Ports" Journal of International Economics, Vol. 94, pp277-294.

Fisman, R. and Svennson, J. (2007) "Are Corruption and Taxation Really Harmful to Growth?

Firm Level Evidence" Journal of Development Economics, Vol. 83, pp63-75.

Gamberoni, E., Gartner, C., Giordano, C. and Lopez-Garcia, P. (2016), Is corruption efficiency-enhancing? A case study of nine Central and Eastern European countries, ECB Working Paper 1950

Garca-Santana, M., Pijoan-Mas, J., Moral-Benito, E. and Ramos, R. (2016) Growing like Spain: 1995-2007, CEPR Discussion Paper Series 11144

Hanousek, J. and Kochanova, A. (2015) Bribery environment and firm performance: Evidence from Central and Eastern European Countries, CEPR Discussion Paper 10499

Hodge, A., Shankar, S., Prasada Rao,D. and Duhs, A. (2011) "Exploring the Links Between Corruption and Growth" Review of Development Economics, Vol. 15 (3), pp 474-490.

International Labour Organisation (2017), National Labour Law Profile: Republic of Argentina Available at:
$http://www.ilo.org/ifpdial/information-resources/national-labour-law-profiles/WCMS_158890/-en/index.htm$

Mauro, P. (1995) "Corruption and Growth", The Quarterly Journal of Economics, Vol 110 (3), pp 681-712

Mauro, P. (1998) "Corruption and the Composition of Government Expenditure" Journal of Public Economics, Vol. 69, pp 263-279.

Mendez, F., and Sepulveda, F. (2006) "Corruption, Growth and Political Regimes: Cross Country Evidence" European Journal of Political Economy, Vol. 22, pp 82-98.

Mo, P., H. (2001) “Corruption and Economic Growth”, Journal of Comparative Economics, Vol.29, pp 66-79.

Olson, M. (1993) “Dictatorship, Democracy and Development”, The American Political Science Review, Vol. 87 (3), pp567-576.

O’Toole, C. and Tarp, F. (2012) “Corruption and the Efficiency of Capital Investment in Developing Countries”, UNU- WIDER Working Paper, No. 2012/27.

Paunov, C. (2016) “Corruption’s Asymmetric Impacts on Firm Innovation”, Journal of Development Economics, Volume 118, pp216-231.
Pellegrini, L. and Gerlagh, R. (2004) “Corruption’s Effect on Growth and its Transmission Channels” Kyklos, Vol. 57, pp 429-456.

Rose-Ackerman, S. (1975) “The Economics of Corruption”, Journal of Public Economics, Vol 4, pp 187-203.

Shleifer, A. and Vishny, R. (1993) “Corruption” The Quarterly Journal of Economics, Vol 108 (3), pp 599-617

Swaleheen, M. (2011) ”Economic growth with endogenous corruption: an empirical study”, Public Choice, Vol 146, pp 23-41.

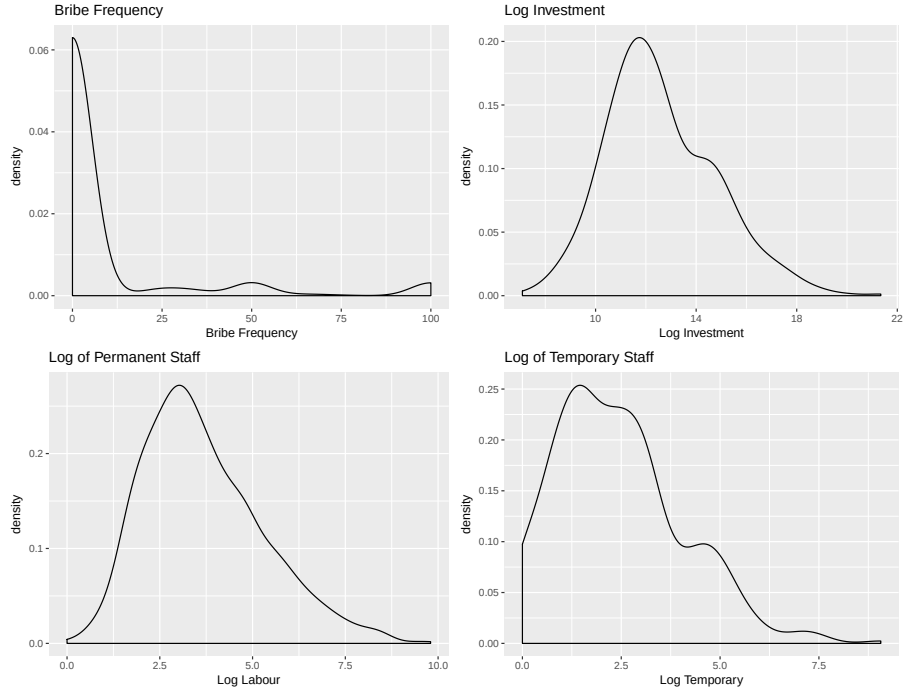
Transparency International (2017) ”Corruption on the Rise in Lain America and the Caribbean”, Available at:
$https://www.transparency.org/news/feature/corruption_on_the_rise_in_latin_america_and_the_caribbean$

Transparency International (2018a) ”Corruption Perceptions Index 2006”, Available at:
$https://www.transparency.org/research/cpi/cpi_2006$

$Transparency International (2018b)" Corruption Perceptions Index 2010", Available at :$
https://www.transparency.org/cpi2010

Zakharov, N. (2019) "Does corruption hinder investment? Evidence from Russian regions" European Journal of Political Economy, Vol 56

Figure 1.2: Density plots of dependent variables and bribe frequency



1.9 Appendix Items

Appendix A- Distributions

Appendix B- Summary Statistics

Table 1.8: Summary statistics

Variable	Mean	Std. Dev.	N
Log Investment	12.683	2.167	1275
Log Lab	3.706	1.548	2106
Log Temp	2.36	1.565	843
Court Quality	2.33	1.346	2117
Foreign	11.624	30.87	2113
Previous Sales	71777341.169	479131613.639	1602
Bribe Frequency	6.988	21.662	1683

Appendix C- OLS regressions, non-robust Standard Errors (Tables 1.9 - 1.11

Table 1.9: Y: Log Investment

	(1)	(2)	(3)	(4)
Bribe Frequency	-0.00540	-0.00579	-0.00390	-0.00609
	(0.00430)	(0.00429)	(0.00407)	(0.00418)
Court Quality		-0.0509	-0.0408	-0.0427
		(0.0685)	(0.0629)	(0.0699)
Foreign Ownership			0.0234***	0.0202***
			(0.00257)	(0.00255)
Previous Sales				7.86e-10***
				(1.84e-10)
Buenos Aires	1.243***	1.248***	0.709**	0.441
	(0.304)	(0.302)	(0.299)	(0.271)
Rosario	0.439	0.468	0.351	0.0842
	(0.378)	(0.379)	(0.370)	(0.394)
Mendoza	0.611	0.606	0.454	0.298
	(0.376)	(0.375)	(0.372)	(0.380)
Cordoba	0.870**	0.860**	0.729**	0.702**
	(0.357)	(0.354)	(0.352)	(0.355)
Constant	12.50***	12.60***	12.57***	12.82***
	(0.279)	(0.295)	(0.289)	(0.262)
Observations	567	567	566	479

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 1.10: Y: Log of Permanent Labour

	(1)	(2)	(3)	(4)
Bribe Frequency	-0.00410**	-0.00401**	-0.00231	-0.00338*
	(0.00202)	(0.00203)	(0.00186)	(0.00192)
Court Quality		0.0171	0.0149	-0.0129
		(0.0374)	(0.0351)	(0.0387)
Foreign Ownership			0.0176***	0.0139***
			(0.00141)	(0.00140)
Previous Sales				7.03e-10***
				(2.72e-10)
Buenos Aires	1.292***	1.291***	0.964***	0.685***
	(0.178)	(0.178)	(0.184)	(0.205)
Rosario	0.735***	0.729***	0.680***	0.359
	(0.213)	(0.213)	(0.214)	(0.247)
Mendoza	0.297	0.297	0.233	0.0693
	(0.208)	(0.208)	(0.208)	(0.242)
Cordoba	0.851***	0.853***	0.792***	0.620**
	(0.220)	(0.220)	(0.222)	(0.256)
Constant	3.080***	3.048***	3.015***	3.374***
	(0.163)	(0.178)	(0.182)	(0.204)
Observations	867	867	866	700

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 1.11: Y: Log of Temporary Labour

	(1)	(2)	(3)	(4)
Bribe Frequency	0.00152	0.00167	0.00296	0.000157
	(0.00405)	(0.00407)	(0.00391)	(0.00409)
Court Quality		0.0361	0.0381	0.0301
		(0.0718)	(0.0691)	(0.0778)
Foreign Ownership			0.0121***	0.0100***
			(0.00211)	(0.00223)
Previous Sales				4.06e-10***
				(9.77e-11)
Buenos Aires	0.597	0.591	0.264	0.0418
	(0.376)	(0.377)	(0.365)	(0.432)
Rosario	-0.168	-0.182	-0.206	-0.339
	(0.447)	(0.448)	(0.430)	(0.506)
Mendoza	0.648	0.642	0.592	0.547
	(0.431)	(0.432)	(0.416)	(0.485)
Cordoba	0.553	0.554	0.548	0.399
	(0.445)	(0.446)	(0.427)	(0.534)
Constant	2.028***	1.965***	1.900***	2.139***
	(0.359)	(0.380)	(0.365)	(0.432)
Observations	358	358	357	297

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Chapter 2

Employment and Support for Populists in an Illiberal State: Evidence from Hungary

Abstract

The recent rise of populist parties across the western world has become a defining feature of modern politics. However, research into the forces driving this phenomenon focuses n western democracies, populist parties have always been in opposition. This potentially conflates the effects of populist rhetoric and evaluations of government. In this paper we aim to overcome this using data from Hungary - where populists have been governing since 2010. This can help shed light on whether voters are drawn to populist ideology of whether the recent success of populists is a reaction to the economic shocks from the Great Recession. We find that higher regional employment shares lead to lower support for the governing populist party, as well as Hungary's main liberal opposition party. This suggests that political calculations also factor in risks associated with each party, which help determine the basis on which decisions are made.

2.1 Introduction

Recent years have been characterised by a turbulent period in European politics. In this time parties representing the liberal democratic consensus have suffered continual electoral losses, often losing out to parties that espouse populist rhetoric and challenge ideas as fundamental as pluralism, free markets and universal human rights (Muller, 2017.

These populist parties overwhelmingly promote right-wing ideologies and strongly oppose key features of globalisation. In particular the nativist ideologies of these parties lead to vocal opposition to immigration, foreign business and international governance. Far from Fukuyama's "end of history, the parties currently gaining traction in the western world are actively fomenting a rift in western democracies, centered around the legitimacy of the liberal-democratic consensus based on pluralistic political institutions and global economic integration (Mudde and Kaltwasser, 2017).

How do we account for the recent electoral success of populist parties? A major line of reasoning is that the movement of voters away from mainstream parties can be attributed to economic hardships, which are blamed on globalisation and the policies of political "elites" (Inglehardt and Norris, 2016). These economic difficulties causes voters to turn to alternative parties, who offer to ensure real wage growth by fighting exploitative international rules and limiting competition from foreign workers.

In this paper we take the case of Hungary to test the idea that adverse employment shocks automatically lead to support for populist parties. Not only does Hungary only have an established populist party currently in power, but it is rivaled by an equally radical opposition populist party along side some liberal democratic parties. This allows us to distinguish between the effect on support for populists from support for opposition parties

This setting allows us to test several ideas. Firstly, the recent literature has generally ex-

trapolated from the western setting (see Algan et al, 2017) to conclude that economic hardship will always cause voters to support populist parties. Our setting allows us to gain a deeper understanding of the forces driving support for populist parties by examining a setting where a populist party has been in power and presided over the country's recovery from the 2008 global financial crisis. This setting also offers some insight into the mechanic s behind the recent rise of populism, as - unlike previous papers - we are able to distinguish between the effects of employment levels on support for incumbent populists and an ideologically similar opposition party. This allows us to distinguish between voters adopting populists ideals (see Inglehart and Norris, 2016) and voting in protest at poor economic management (see Duch and Stevenson, 2008). As such, we can comment on whether the recent success of populists parties is driven by a cultural shift towards to populist ideals or by economic factors.

To answer these questions we build several Two Stage Least Squares (2SLS) models using data from the European Social Survey and Eurostat. In our 2SLS models we control for endogeneity by using a Bartik instrument to obtain estimates of exogenous shifts in labour demand. Our results suggest that improvements in region level employment actually reduce support for the incumbent populist party. We also find a negative relationship between employment and support for the MSZP. We interpret this in terms of improved economic circumstances reducing the risks associated with supporting younger parties without governing experience. This allows voters to prioritise ideological concerns over economic ones. This results fits with De Vries (2018), who finds that euroscepticism is higher in more developed European countries. The rationale behind this is that better economic conditions allow citizens to hold more optimistic ideas of the future outside of the European Union.

In section 2 we review the relevant literature and present the key arguments explaining the rise of populism. Section 3 then presents the context of our study, offering an overview of the Hungarian political parties and a brief political history of Hungary since the end of Communism. We present our regression model in section 4, before discussing our identification strategy. Section 5 gives a description if the data used in this study. Lastly, in section 6 we present our

results and discuss what their implications, before section 7 concludes.

2.2 Literature Review

Before discussing the literature, it is worth briefly establishing what is meant by the term "populism". Mudde and Kaltwasser (2017) describe populism as 'a thin-centred ideology that considers society to be ultimately separated into two homogeneous and antagonistic camps, "the pure people" versus the "corrupt elite" and which argues that politics should be an expression of the "volonte generale" (general will) of the people,'. The core of this is the antagonism between two rival camps, with the people seen as being a majority group in society and the elite painted as a disproportionately powerful group exhibiting economic and cultural privilege.

This is highly significant as it is almost the mirror image of the view espoused by liberal democracy, which highlights the differences between groups in society and the ability of individuals to belong to multiple groups and change identity. 'The people' is a rather flexible term that can refer to national or racial groups, but can also have a class dimension, reflecting a type of common person who is excluded from the political system and from respectable culture. 'The elite' is commonly associated with privileged economic, cultural and media groups. Typically the elite are considered to wield power illegitimately and are either uninterested in the people or acting directly against them. This explains the tendency of populist groups to oppose most mediating legal and political bodies, such as courts and representative parliaments, as these are seen as impediments to the general will, which is best represented by the party or its leaders.

The 'thin centred' aspect of this definition allows us to explain why populist parties may often look quite different to each other. As populist ideology mainly focuses on the homogeneity and sovereignty of those whom government represents, it is perfectly compatible with other ideologies and is often an aspect of a 'host' ideology. Hence populism does not inherently lend itself to any other type of ideology and fits just as well with a socialist policy platform as with

a nationalist or neo-liberal one (Mudde and Kaltwasser, 2016).

Attempts to explain the recent surge in support for populists parties in the western world have come to revolve around a distinction between economic arguments and cultural arguments. The economic argument states that voters are drawn towards populist parties as a result of economic hardship. This theory rests on the idea that when economic resources are scarce, voters are prone to see themselves as part of a group that are in competition for resources with other groups (Golder, 2016). Intergroup competition is a crucial element of populist rhetoric, and thus we should expect that voters should move towards populist parties if economic conditions lead their daily experiences to match the narratives being offered by their parties. Another way in which economic deprivation can drive support for populist parties is by fueling dissatisfaction with incumbent parties, especially if they are seen as responsible for managing the state of the economy (Golder, 2016; Inglehart and Norris, 2016). Thus votes for populists can be a statement against incumbents as much as a statement of support for populists.

Older studies in the field of political science have provided mixed evidence of the relationship between unemployment and support for populist parties, with some finding no effect (Lubbers and Sheepers, 2002), some finding a negative effect (Arzheimer and Carter, 2006; Knigge, 1998) and some showing a positive effect (Golder, 2003). However, Golders' findings come with the important caveat that unemployment will only lead to greater support for nativist populist groups if the level of immigration is high. Two features stand out with these papers. Firstly they rely on estimation methods that do not have clear identification strategies and secondly these papers cover periods before the global financial crisis of 2008. Even over relatively short time frames, there is a lot of potential for fringe political movements to form, disband, merge or rebrand. We can see this in the Hungarian case, where Jobbik went from being a junior member of a small coalition to a large and independent opposition party in less than 10 years. As a result, it is not clear how much older studies can tell us about the modern dynamics of populist politics. Papers written since the global financial crisis have consistently found that unemployment increases support for populist parties, both left-wing and right-wing (Algan,

2017; Guiso et al, 2017; Inglehart and Norris, 2016). These papers are informative as they show a strong relationship across Europe that applies in both the advanced democracies of Western Europe and the newer democracies of Eastern Europe.

A trend that is picked up on in these studies is the north-south divide within Europe, with left-wing populists being prominent in the southern periphery countries and right-wing populists in the central and northern regions. Rodrik (2017) argues that whilst the rise of populism is tied to globalisation shocks, the type of populist parties that thrive depend on the types of shocks felt most sharply. Specifically he argues that when the effects of globalisation are seen in the form of high levels of immigration and influxes of refugees, it is easy for populists to exploit national or ethnic divisions and cultural concerns. Likewise, when globalisation shocks primarily affect income inequality through trade or investment flows, parties may construct a narrative of conflict between social classes.

Some country-level studies help to confirm these trends. Dehdari (2017) shows that support for the right-wing Sweden Democrats party in an electoral precinct is bolstered by higher numbers of lay-off notifications (provisional declarations by firms of intent to reduce staff numbers). Similarly in the case of Spain, Ramiro and Gomez (2017) find that voters facing economic insecurity in the form of unemployment or precarious employment were more likely to support the far-left populists Podemos. These cases highlight the broad trend of unemployment increasing support for populist parties and help to illustrate the north-south divide.

Algan et al (2017) make a valuable contribution to the literature by delving deeper into the mechanisms through which changes in economic circumstances impact support for populist parties. In EU countries, unemployment is shown to reduce trust in national and European parliaments, whilst having little impact on attitudes towards migrants. As well as being a mechanism through which unemployment affects support for populists, this finding also suggests that support for populists may primarily be a reaction against incumbents rather than a generalised ideological shift.

Other literature shows a broader relationship between globalisation pressures and disturbances to conventional political dynamics. In the USA, Autor et al (2016) show increased exposure to imports from China lead to greater polarisation of congressional representatives. Areas initially in Republican hands were shown to return more conservative candidates following an increase in exposure to imports, whilst those initially held by the Democratic Party returned more liberal candidates. Similarly, Voorheis et al (2015) find that political polarisation increases with income disparities. Whilst they find Republican states become more conservative and Democrat states become more liberal, the effect is stronger for republican states, resulting in an overall rightward shift. This is consistent with some of the theoretical work on the topic (Feddersen and Gul, 2015). In the case of the European Referendum in the UK, both actual unemployment and feelings of economic marginalisation have been shown to have increased the vote to leave the EU (Becker et al, 2016; Clarke et al, 2017). These studies highlight a general tendency for economic distress to push voters away from the political mainstream.

Trends in globalisation are also important, as highlighted by Autor (2016) and Rodrik (2017). The tendency of globalisation to result in increased migration and more flexible labour markets can lead to native workers facing tougher competition for jobs, as well as lower wages (Dehdari, 2017). This is the basis of the modernisation losers hypothesis (Golder, 2016). Although there is mixed evidence regarding the effect of immigration on local labour market conditions (see Borjas and Monras, 2017; Bodvarson et al, 2008; Clemens and Hunt, 2017; Peri and Yasanev, 2017), it may be enough for native workers to believe that immigration is worsening local labour market conditions to generate support for populists. Given that native low skilled workers are more likely to be in competition with low-skilled migrant labour, whilst high-skilled immigrants are more likely to be to complements to high-skilled natives, the modernisation losers hypothesis may help to explain why it is predominantly older and less educated citizens who are drawn to populist parties, especially right-wing nativist parties (Clark et at, 2017; DeVries, 2017; Ramiro and Gomez, 2017).

The second main explanation for the recent rise of populism characterises it as a backlash against the ideological development of the last few decades. According to this view the relative economic security of the post war period lead to "post-materialst" values dominating western politics (Inglehart, 1971). As basic economic needs were met with increasing certainty, voters started to prioritise more abstract concerns such gender equality, human rights and environmental protection thus giving rise to the various post-war progressive movements (Inglehgart and Norris, 2016). This is supposed to have prompted a backlash as older and less educated citizens are less able to cope with the erosion of traditional norms and social hierarchies that primarily benefited them (Minkenberg, 2000; Rydgren andTyrberg, 2016). As a result, populist groups who promised to undo the progressive trends of the previous decades were able to draw support from this section of society (Minkenberg, 2000). This argument is supported by DeVries (2017), who draws on data from the Netherlands to show that the traditional left-right divide in Dutch politics is being replaced by a cultural divide between liberal and parochial worldviews. As intuitive as the cultural explanation is, it does little to explain the short-run time variation in the support of populist parties. Specifically, it does little to help us understand why the current resurgence of populist parties is occurring now.

The two explanations do not have to be mutually exclusive, however. It is possible that economic and cultural insecurity are related. Golder (2003) finds that unemployment has a great effect on support for the far-right when migration is highest. Likewise the effect of migration is negligible unless unemployment happens to be high. This suggests that in order for either factor to affect political views there must be a convincing narrative that links economic and cultural factors in such a way that nativist policies appear to offer convincing solutions. De Vries and Hoffman (2016) highlight survey evidence from across Europe that voters do indeed make this link, opposing immigration and supporting far-right parties as a way of safeguarding their jobs and income from foreign competition.

2.2.1 Mechanisms

What economic mechanisms might link employment shocks and other adverse events to political preferences? In the previous literature we saw that inter-group competition can play a role in fostering support for populist parties. Ee consider the possibility of economic circumstances increasing the gains to be made by supporting a party that will represent them in intergroup contests. Here we treat an election as a potential conflict between groups, in which each group aims to increase its utility through voting in a party that will legislate in the group's interests. For our purposes we will assume that voters are playing a zero-sum game and that economic gains can only be secured at the cost of the other group. This reflects the nativist and exclusionary nature of populist rhetoric, in which the welfare of a native group is prioritised over some outside group. We can see this in references to tougher migration policy, giving native workers priority in hiring decisions and the portrayal of outside groups as taking from the native group (Mudde and Kaltwasser, 2017).

As such we see native citizens as having a choice; either to support a non-populist with no aim of intervening in intergroup conflict or to support a populist party. As the populist parties aim to reduce the welfare of the outside group, we can see the decision to support a populist party as an attack on the group that the party proposes to exclude. However, supporting a populist potentially incurs costs. These costs may stem from the inexperience that a populist party has in governing or potentially for radical isolationist policies prolonging economic problems in the long run. The Fidesz party offers an example of such policies. Since coming to power the party has imposed numerous price controls on utility companies in a bid to reduce household energy bills, particularly in the run-up to elections. The result of this has been that utility companies have either cut costs by reducing maintenance and imposing harsher working conditions on workers or have simply left the market (Kiss, 2014; Reuters, 2014). These measures are likely to result in higher prices or lower quality of service provision in the long run as operating costs increase and the market becomes less competitive.

Mitra and Ray (2014) develop a model to study the dynamics of intergroup violence. Be-

low we adapt their idea of an 'attack function' which explains when one group will attack another. Let us imagine there are two distinct groups, a native group and an outside group. Whether a native group will 'attack' the outside group is determined by:

$$(1\text{-}\rho)[1\text{-}t]z + \rho([1\text{-}t]z + \lambda y > z$$

Where ρ is the probability of an attack being successful, t represents the opportunity cost of attacking the outside group, λ represents a share of the outside group's income that can be appropriated by a successful attack, whilst z and y denote native group and outside group incomes respectively. This equation simply shows that the native group will attack the outside group if the gains from attacking the other group are greater than native group income. In our context this 'attack' takes the form of supporting a party that will legislate against the outside group's interests. The gains denoted by λ do not need to be objective, they can be expected gains. For example, a native group member may vote for a populist party not in order to obtain a specific job for him or herself, but rather with the prospect of the native group as a whole taking jobs previously held by the outside group. As we are dealing with a zero-sum setting, we can consider λ to be a fixed share of outside-group income, y. As outside group income increases, the potential gains from attacking also increase. From the above we can derive the threshold income at which the native group will attack the outside group:

$$z < (\lambda\rho/t)y$$

From the above we can see that as native group income decreases, attacking becomes more appealing. Meanwhile, as the opportunity cost of attacking increases the chances of the native group attacking will fall. It is possible that native group income and risk are related however. We assume that native group members are interested in the long-run health of the economy. For example, if income falls below a certain point, it may be imperative to use savings to keep consumption above a subsistence level. This will only be feasible for a certain amount of time, meaning that long-term damage done by the policies of a populist government will

affect native-group members adversely. As a result the effect of a fall in z will depend on the perceived sizes of λ and t. That is, there will be counter-acting effects of income redistribution and risk.

2.3 Setting

Hungary is a new democracy in Eastern Europe, with a parliamentary system in place since the end of Communist rule in 1989. What makes Hungary of interest to our purposes here is the success of populists since the Global Financial Crisis. The country currently has a populist incumbent and the largest opposition party is also a populist one. This gives Hungary an unusual dynamic, in which a vote for populists does not have to be a form of protest against incumbents.

In this section I shall introduce the three main parties in Hungarian politics and the issues defining current political debate. I shall then offer a brief history of Hungarian democracy since the fall of the Communist regime in 1989. This will offer some context to the current debates and help explain the changes undergone by each of the parties.

The history of democracy in Hungary has taken many more twists and turns than its short duration may lead us to expect. When Communist rule came to an end in Hungary, many of the current political groups operating today existed as dissident groups. The most prominent of these was the Alliance of Young Democrats (Fiatal Demokratak Szovetsege) - known as Fidesz, who rose to prominence through their anti-communist and anti-establishment youth group (Palonen, 2009). Upon forming as a party they initially adopted a liberal democratic stance, promoting values that looked very familiar in the West. However, despite their prominence as an anti-communist movement, they secured a meager 9% in the 1990 election - the first free election since 1945.

Of the newly formed political parties, one was notable for not having started out as a dissident movement during communism. Despite being a new political party, The Hungarian Socialist Party (Magyar Szocialista Part, or MSZP) was the legal successor to the Communist regime (DEmocratic Society, 2014). However the party no longer advocated the policies or institutions of the Communist regime, running instead on a social democratic platform embracing market economic and cooperation with the West. None the less, the party performed poorly in the 1990 elections, coming in fourth with just under 11% of the vote.

Following their electoral defeat Fidesz moved to fill the political space on the right, with party leader Viktor Orban stating that the party would remain a 'kind of spare part' if it continued to operate on the centre left, but noting that on the right 'there are many small players and we can be the co-ordinators of the divided right wing' (Financial Times, 2018). Following this the party adopted a more traditional centre right position, promoting the interests of the propertied middle class and stressing the importance of religion and national identity. This was the start of the path, along which the party has continued until now.

In the following election, the MSZP were able to win a parliamentary majority and form a government. This marked the beginning of an effective two-party system that lasted until 2010, in which government alternated between MSZP and Fidesz led coalitions. This system was clearly polarised along several lines. Firstly the parties fashioned themselves as being distinguished by a left - right divide. The terms did not follow the conventional western usage however, the labels being used to distinguish between the liberal (left) and conservative (right) parties. This was despite the liberal parties advocating neoliberal policies more frequently associated with centre right parties, and the conservatives being in favour of state intervention in many sectors of the economy (Palonen, 2009). In their time in government the MSZP pushed to reduce the size of the state, carried out several privatisation initiatives and aimed to limit benefits to those on low incomes (Democratic Society, 2014).

Over the years the party became more vocal in its advocacy of traditional moral values, based

on a pre-communist image of Hungarian life, with religion at the fore front (Fehervary, 2011; Palonen, 2009). Since the party's first period in government (1998 - 2002), the party has also started to use populist rhetoric to justify policies and to characterise itself as the natural party of the the people (Enyedi, 2016).

Since 2010 the government of Hungary has been formed by Fidesz, with Viktor Orban as Prime Minister. The party now defines itself as a patriotic party that defends Christian Hungary against mass immigration and the influence of international NGOs (Enyedi, 2016). What this often means in practice is rhetoric that demonises ethnic minorities, international cooperation and political dissent. Following this rhetorical line, Fidesz have erected statues of far-right wartime leaders as well as monuments whitewashing Hungary's fascist history, given the State more scope to control the actions of the Roma community and imposed arbitrary taxes on liberal NGOs (Enyedi, 2016, Spiegel, 2013). This has culminated in attempts to close the Central European University (CEU) by means of imposing unrealistic bureaucratic regulations, as well as a Stop Soros bill which aims to make it illegal for Human Rights NGOs to assist prospective asylum seekers (Reuters, 2018). The name of the bill comes from the Hungarian-born entrepreneur George Soros, who has been presented as a master conspirator plotting to undermine Europe through the work of the liberal organisations he supports. Fidesz demonstrate many of the traits of a typical populist party in their rhetoric. Fidesz make a clear distinction between the good citizens they represent and those who are to be excluded from political debate (Muller, 2017). This manifests as a distinction between the ideas of a Christian Hungarian who behaves in a socially conscious manner and any variety of foreign or excessively profane actor.

The single largest opposition party currently in the Hungarian Parliament is the Movement for a Better Hungary (Jobbik Magyaroszagert Mozgalom), commonly known as Jobbik. Similarly to Fidesz, Jobbik are a far-right populist party. They define the people in similar terms to Fidesz, claiming to represent the Christian values of a pre-communist Hungary. Whilst critical of international organisations such as the European Union, Jobbik are less aggressive in their opposition and are open to reforms of certain EU policies and relations with outside organisa-

tions. However, Jobbik go to greater lengths to stress the threats to 'the people' from Hungary's minority Roma population (Karacsony and Rona,2011). Jobbik evoke historical greatness and betrayal in their rhetoric (Enyedi, 2016). Jobbik rhetoric contains many references to 'Greater Hungary' (the territory held by the Kingdom of Hungary at the height of its power) and the Treaty of Triannon in 1920, which saw the Kingdom of Hungary lose 72% of its land-area and 64% of its population. By referring to Greater Hungary, Jobbik are seen as aiming to create a sense of nostalgia around a past golden age, which it aims to restore as well as persecuting those accused undermining the nation's previous status.

Jobbik has been very influential in opposition. Since coming to power in 2010, Fidesz have adopted several policies originally advocated by Jobbik, such as introducing references to God and the Holy Crown into the constitution, including the work of far-right writers into the national curriculum and extending Hungarian citizenship to Hungarian in the formerly Hungarian held territories of neighbouring countries (Enyedi, 2016). This fits with a broad trend in Eastern European countries of far-right parties being ineffective as electoral forces, but being able to influence the agenda of mainstream parties in their favour (Mudde, 2005). However, in the 2018 election the party failed to make the electoral gains that it hoped for, while internal divisions over the future direction of the party have reduced its prominence in recent policy debates.

What Fidesz and Jobbik have in common is a vision of society consisting of two parts, with a ethnically and morally homogeneous people being undermined by foreign people and values. Both parties have a majoritarian view of democracy. By this I mean that both parties see the role of the State as being solely to protect the integrity of the majority group. As such their polices and rhetoric are illiberal, with universal Human Rights and protections of minority ways of life being dismissed as being part of the Western attempt to undermine the Hungarian nation (Freedom House, 2018).

Today the MSZP are the third largest political party and have formed the largest part of various left-liberal coalitions in previous elections. The party has been internally divided since

the 2010 election and formers leaders Ferenc Gyurcsany and Gordon Bajnai have split from the party to form the DK and Together parties respectively. The MSZP still maintains a policy platform of advocating economic and social liberalism, supporting Hungary's membership of the European Union and protecting minority rights. However, the MSZP has taken to focusing its rhetoric heavily on opposing Fidesz.

2.3.1 Previous work on Hungary

What factors have shaped the electoral fortunes of these parties? Krsnyi (1999) identified three main cleavages in the start of the post-communist period. These highlighted the distinction between secular and religious values, political classes and urban / rural voters. Looking at these dimensions, the liberal and socialist parties such as the MSZP tend to have urban bases, with less religious supporters who identify with the political left. On the other hand, conservative voters are more prevalent in rural areas and are typically more religious. Knutsen (2013) finds that these cleavages were still relevant in 2009, although Knutsen also raises the role of class and education, with support for conservatives being stronger among less educated working-class voters and support for liberals being higher among the service class. Similarly, Enyedi (2015) identifies anti-communism, nationalism and religion as the key issues in Hungarian politics, with conservative parties taking a strong line on each of these and parties such as the MSZP taking more moderate views. These issues became the basis of party identities due to the consensus surrounding the broad economic route that Hungary needed to take after the end of communism, i.e moving to a capitalist system.

However, it is worth noting that these distinctions are not mutually exclusive and that parties typically appeal to broad coalitions of voters. This may help explain Palonen's (2009) assertion that the conservatives typically appealed to an educated middle-class. Similarly Fehervary (2011) provides a detailed account of class in post-communist Hungary, in which she stresses the support for Fidesz among the professional middle class. Although this class may not support

the statist economic policies of Fidesz, they often support the nationalist and anti-communist aspects of Fidesz rhetoric- this group having once been the class enemies of the Communist regime.

Karacsony and Rona (2011) look at the reasons for the growth of the Jobbik party. They find the growth in support for Jobbik from 2006 to 2010 to be largely determined by media reports of clashes between Hungarian and Roma communities. This highlights two things. Firstly it highlights the salience of tension between native majority and native minority groups, whereas Western European populists focus almost exclusively on tension between natives and immigrant communities (Kitschelt and Bustikova, 2009). It also shows the potential for the political support to be driven in part by exogenous events and the dissemination of ideas.

Although previous points have stressed the role of broad political factors shaping the identities of the parties and their followers, empirical work still shows that economic conditions play a key role in shaping the success or otherwise of political parties in Hungary. Lippenyi et al (2013) look at public opinion data from 1998 to 2008 and find that incumbent parties are generally rewarded for good economic performance with higher popularity. This supports the economic voting hypothesis of Duch and Stevenson (2008). They also found that the relationship between economic performance and voting intention became stronger over time, suggesting that Hungary is still developing as a democracy and that political relationships may not hold for long. However, there educational heterogeneities, with less educated citizens being less likely to evaluate the incumbent party in terms of economic performance. Stegmaier and Lewis-Beck (2011) conduct a similar analysis, looking specifically at support for the MSZP between 2002 and 2009 during which time they were the incumbent party. Support for the MSZP is found to be strongly related to economic events, for example the IMF bailout in 2006 increased support for the party whilst the level of unemployment was negatively related to support for the MSZP. It is worth noting that with the Global Financial Crisis unemployment had reached 11.8% by the time of the 2010 election, at which the party's share of seats in parliament fell to 15% from 48% in 2006.

This work highlights how cultural, political and economic factors all play an important part in determining political identities in Hungary and the success of political parties. We can also see that Hungary has evolved as a democracy since the first election in 1990, with economic performance playing an increasingly important. However it is worth noting that our study focuses on a period following the Global Financial Crisis. This was a monumental global shock that has had profound effects on established democracies. As a result it is reasonable to expect the Great Recession to have impacted the political dynamics of a developing democracy such as Hungary. Due to this, the literature discussed here will be used to inform our hypotheses and to help select control variables, although it should be noted that these are guides and our results may reflect changing political dynamics.

2.4 Empirical Strategy

The aim of this study is to estimate the effect of employment on support for populist political parties in Hungary. We also consider the effect on the largest liberal party in Hungary as they are the largest party presenting a rival ideology to the populist incumbents. Below is the basic OLS specification that we use to estimate this effect:

$$\begin{aligned}\%Party_{jrt} = \beta_0 + \beta_1 \%Employment_{rt} + \beta_2 GDP_{rt} + \beta_3 \%Religious_{rt} + \beta_4 Immigration_{rt} \\ + \beta_5 Secondary_{rt} + \beta_6 Tertiary_{rt} + \beta_7 EU funds_{rt} + \beta_8 \lambda_t + \beta_9 \psi_r + e_{rt}\end{aligned} \tag{2.1}$$

In the model above Party is the percentage share of respondents who claimed to feel closest to party j in each region and time period. This is something of a short-hand as we also consider the effect of employment on support for populists overall. The model above is estimated separately for each of the parties under consideration, with Party j referring to one party in each regression. Employment gives the share of employed people in region r and time t. GDP gives

the level of per capita income for each region in millions of 2015 Euros. Religious shows the share of respondents who claimed to be strongly religious (rating themselves as 8 or above on an 11 point scale). Immigration shows the level of net migration into each region as a share of the region's native population. It is worth noting that this specifically refers to migration from abroad. Secondary and Tertiary refer to the shares of respondents who have secondary or tertiary education as their highest level of education. EU funds gives the log of the amount of money spent by the EU in each region under the Cohesion and Regional Development funds. Here λ is a set of time dummies and ψ is a set of region dummies. e is the error term. Note that variables vary at the level of regions and wave of the survey. Alongside the time and region dummies, the main exception to this is the measure of EU funds. Due to the programming periods running from 2007-2013 and 2013-2019, there is no variation across the first two waves of the survey. Whilst variables are introduced gradually into the regressions presented in the results tables, the time and region dummies are included in all regressions but in the interests of clarity are not presented.

The choice of control variables reflects the factors most likely to affect the estimates of employment's effect on populist sympathies. In controlling for the log of region GDP we aim to control for the general economic climate in the region. We anticipate this will also help to control for the quality of public services as well. Clarke et al (2017) demonstrate that concerns over public services played a significant role in shaping public disaffection with mainstream politics in the run up to the EU referendum in the UK. Public services are arguably the main way in which the state affects citizens lives and so their effectiveness is likely to play a strong role in citizens evaluations of the government. The log of population should reflect the degree of urbanisation in the region, which we expect will reflect the diversity of employment opportunities (Dehdari, 2017).

The other variables aim to capture some of the other factors that may determine support for far-right populist parties. As the populist parties are vocally eurosceptic and anti-immigration, we have included both the log of funds received from the EU and immigrants entering the

region as a share of the region's population. We have included these on the premise that they should affect voters attitudes towards Europe and immigration, with larger receipts from the EU encouraging more pro-EU sentiments and a larger number of immigrants giving credibility to populists prioritising of border control issues.

The degree of religious sentiment in a region is significant as religion is one of the main social cleavages in Hungarian society (Knutsen, 2013). Fidesz and Jobbik have also made Hungary's 'Christian heritage' a central part of their rhetoric and have made frequent efforts to win the support of the Christian denominations in Hungary (Enyedi, 2016). Hence here we have constructed a measure of strong religious sentiment, defined by a respondent giving a value of 8 or more on a scale of religiosity, where 10 is strongly devout.

Lastly, we have included two measures of educational attainment. Here we take the share of people giving primary, secondary and tertiary education as their highest level of of education. These follow from the common finding that educational background plays a role in shaping support for populists (Guiso et al, 2017; Inglehart and Norris, 2016). In the context of Hungary, we expect that more educated citizens are less likely to support Fidesz or Jobbik (Knutsen, 2013).

2.4.1 Identification Strategy

Unfortunately, our OLS regression will not give us estimates of a causal relationship between employment and support for populists. One problem with the OLS model is that employment data is often noisy and struggles to properly incorporate part-time work and activities in the shadow economy. Another potential problem is that there may be some reverse causality between employment and support for political parties. This may occur if parties allocate resources to regional strongholds. This may occur if a party is responsible for the national or

local allocation of state funds, for example through awarding of contract or commissioning of projects. This issue is relevant to Hungary, where the governing party Fidesz is reputed for allocating state resources as a means of consolidating support (Kiss, 2014).The OLS model also fails to account for omitted time-variant regional factors that could drive the correlation or lack thereof. As we saw in the previous section, some time varying regional factors may bias estimates of the relationship between employment and support for populists. We already saw the example how relationships between local Hungarian and Roma communities can influence support for Jobbik in particular. Local party organisation may be another such factor.

To resolve the problem of endogeneity, we use a Bartik (or 'shift-share') instrument to obtain exogenous estimates of labour demand.The Bartik instrument is simple in principle, as it combines changes at the aggregate level with lagged geographic distributions.

The Bartik instrument (also known as the shift-share instrument) has found a wide range of applications in economics, with Jaeger et al (2018) citing over 60 instances of its use. While being common in studies on trade and immigration, it has also found use in studies covering fields as diverse as crime, fertility, residential segregation and health outcomes. This diverse range of applications highlights the simple and versatile nature of the Bartik instrument.

How do we construct the Bartik instrument? In general the Bartik instrument weights local economic compositions with aggregate level shifts to give predictions of exogenous variation. Here we aim to estimate exogenous changes in labour demand. To do this we take use industry shares in each of our regions and the national level changes in employment for each industry. We have data on 10 industries (see appendix B for a list). For each region and time period we calculate employment in each industry as a share of total employment. This is the part of the instrument from which we obtain exogeneity. Each industry share is then multiplied by the growth rate of employment at the national level between the current and previous periods. The national level growth rate effectively acts as a weight applied to the shares, which ensures that industries with higher growth rates play a greater role in determining the final Bartik value. In

doing this, the national level growth rates serve the purpose of making the instrument relevant, whilst the exogeneity of the instrument comes from the industry shares. The products of the industry shares and growth rates are then summed for each region-time period, giving the final value of the instrument. Formally the instrument can be written as:

$$Bartik_{rt} = \sum_{i=1}^{n} \frac{emp_{rit}}{emp_{rt}} * \Delta emp_{it} \tag{2.2}$$

Where $\frac{emp_{rit}}{emp_{rt}}$ gives the share of employment in region r that is associated with industry i- know as the industry shares. These employment shares gives us the sectoral composition of employment in each region. U_{it} gives the national level of growth in employment for industry i between period t and period t-1.

For each region, the Bartik instrument predicts changes in employment due to national-level changes in labour demand. The intuition behind this instrument is that the industry shares are the only part of the instrument to vary at the region level, thus it relies on exogeneity of the the local industry composition -and thus the industry shares- for identification (Goldsmith-Pinkham et al, 2018). The growth rates are used for instrument relevance, rather than identification. We can see the instrument as reflecting the growth of regional labour market demand due to changes in the national rates of industry growth (Bartik, 1991). Differences in sectoral composition mean that regions vary in the extent and manner in which they are affected by national level shocks. As a result we can obtain exogenous variation in labour demand. Whilst the exogeneity comes from the industry composition of our regions, this is not enough to give us good estimates of labour demand shocks. See Van Dijk (2018) for a demonstration of this.
A potential issue with the Bartik instrument concerns the exogeneity of the industry shares. It can be argued that it is hard to justify the exogeneity of the instrument as it is a weighted average of many shifts. However it is not unreasonable for the sectoral composition of the economy in each region be determined by exogenous geographic and historical features. These

may relate to how rural or urban an area is and the presence of natural resources.

We can use this instrument to obtain 2SLS estimates of employment's impact on political support. When using 2SLS we have the following first stage equation:

$$\begin{aligned} Employment_{rt} = \beta_0 + \beta_1 Bartik_{rt} + \beta_2 GDP_{rt} + \beta_3 Religious_{rt} + \beta_4 Immigration_{rt} \\ + \beta_5 Secondary_{rt} + \beta_6 Tertiary_{rt} + \beta_7 EUfunds_{rt} + \beta_8 \lambda_t + \beta_9 \psi_r + e_{rt} \end{aligned} \tag{2.3}$$

The predicted values from this regression give estimated values of shocks to labour demand in each region and time-period. In the second stage the level of support for each political part is regressed against these predicted values. By using the exogenous estimates obtained in the first stage, we are able to overcome the issues associated with violations to the assumptions of OLS and interpret our coefficients as showing a causal relationship.

In order for our instrument to be valid we require two conditions to hold. Firstly, there needs to be a strong relationship between the Bartik instrument and employment. We find that whether this condition holds depends on the exclusion of time and region dummies. Looking at table 2.13 in appendix C, we can see that this condition does indeed hold when these are excluded. There is a significant relationship between the Bartik instrument and employment share in our sample at the 1% level. The first stage F-statistic is 18.45, showing that the instrument is strong in this case. However, the F-statistic is below 10 when including the dummies.

Another potential concern with using the Bartik instrument is that it may related to local labour demand shocks. When regions are exposed to shocks, labour markets will adjust to a new equilibrium. If this process is prolonged then the second stage error term may contain factors relating to this adjustment process (Jaeger et al, 2018). One way of avoiding this is to use the lagged industry composition with contemporary national-level growth. We run our 2sls models with an instrument constructed in this way as a robustness check. Results can be found in appendix E. We find no significant difference, suggesting that this adjustment process

is not a problem in our case.

2.5 Data

For our analysis the main source of data will be the European Social Survey (ESS). This survey is conducted across 20 EU countries and several near-eastern countries. Respondents are asked about a range of socio-demographic issues including values, social attitudes, political beliefs and general lifestyle, offering a deep insight into who the respondents are, what they believe and what their motivations are. Crucially, the ESS asks about political affiliation, thus allowing us to track the level of support for each of the parties being considered here.

Data is available for Hungary for all waves of the survey, but unfortunately we are only able to work with waves five, six and seven of the survey as the other waves do not contain information on the region in which the respondent is based, a detail that is pivotal for our identification strategy. In these three waves data is available for 20 NUTS3 regions. Each wave has around 1600-1700 respondents, with a total of 5275 respondents across the three waves of the survey.

We rely on the ESS for information on the level of support for each party. Two questions are of relevance here: firstly respondents are asked if they support one party more than any others; if they say yes then they are asked which party it is that they support. Whilst it would have been preferable to use the questions on actual voting behaviour, this would have given less variation in the data as there are at least two waves of the ESS conducted within each electoral cycle. Furthermore, economic circumstances can influence the decision of whether or not to vote at all (Guiso et al, 2017), thus looking at expressed attitudes prevents our results being affected by selection bias.

Other variables that we take from the ESS relate to religiosity and education. For data on employment status we rely on the questions that directly asked about the respondents employment status. For data on the strength of religious conviction- from which we can infer

membership of a religious community- respondents are asked how devout they are. We create a dummy variable which is equal to 1 if a respondent rates themselves as 8 or above on an 11 point scale, where 0 shows no faith and 10 shows very high religiosity. Respondents are also asked what their highest level of educational attainment is. Answers are coded in the ESS using UNESCO's International Standard Classification of Education (ISCED) codes. From this data we construct dummy variables for primary, secondary and tertiary as the highest level of education (all respondents have completed some formal education). All the variables mentioned thus far are aggregated to shares at the regional level. For the full text of the questions as they appear in the survey, please see Appendix A.

Further to these, data on an additional four variables were taken from Eurostat. The first of these is or independent variable of interest, namely employment. For each NUTS3 regions we were able to obtain data on the total number of people employed. We then divided this by the population to get employment as a share. Whilst it may have been more informative to use unemployment data, the difficulty of associating unemployment with a particular industry (as required by the Bartik instrument) was a major limitation to this. If we had used the ESS data on unemployment, then we would be relying on unemployed respondents to associate themselves with an industry. This would have been a matter of identity and would not have been a reliable basis on which to construct our instrument.

The second Eurostat variable gives data on net migration for each NUTS3 region. This measures net migration as the level of inward immigration per 1000 native inhabitants minus outward migration. Eurostats glossary of terms makes clear that this refers to international migration, thus we can rule out the possibility of the data reflecting internal movement of people within Hungary. High immigration into an area may influence vote choice by increasing the visibility of new cultural practices and increasing competition for jobs, hence making immigration a more salient political issue.

The third variable from Eurostat is GDP per capita in Euros. Inflation was reasonably high

in this period, averaging around 6% until 2013 when it steadily made its way down to 2%. Consequently, values have been deflated to give real values in 2015 euros. The fourth variable is population density for each NUTS3 region. This is given by the population divided by land area of the region - excluding any inland waters. This variable should serve as a proxy for the degree of urbanisation in each NUTS3 region.

As well as these we also have data on funds spent in each NUTS3 region under the European Union's Cohesion Fund and the European Regional Development Fund. This data was taken from the European Commission's data portal. The funds cover two programming periods. The first of these is the 2007-2013 programming period and the second is the 2014-2020 programming period. This gives the amount spent in each NUTS3 region under each programme. For the 2014-2020 programming period I only took data on expenditures actually made rather than funds allocated but not spent. Due to the period covered in this study covering the 2010-2014 period this means that there are only 2 values for each NUTS3 region.

2.5.1 Data Description

Here we aim to give an overview of some key features of the data. In figure 1 we can see the distribution of the variables measuring support for each of the three parties and employment share. The distribution of support for Fidesz and employment share is approximately normal. However the distribution of support for Jobbik is skewed and support for the MSZP is closer to a bimodal distribution. This may present issue with estimation. To deal with this we have applied a Johnson transformation to the data. The distribution of the transformed variable is shown in figure 2. Running a Shapiro-Wilk test for normality gives a p-value of 0.054, suggesting that we cannot reject the null hypothesis that the data are normally distributed.

Figures 3 and 4 show the spatial distribution of support for populist parties and the MSZP (Hungary's largest liberal party) within Hungary. In these figures we can see a map of Hungary with the county / NUTS3 boundaries shown. The regions are coloured according to the value of the variable in question. Here a darker shade indicates a higher share of support for populist

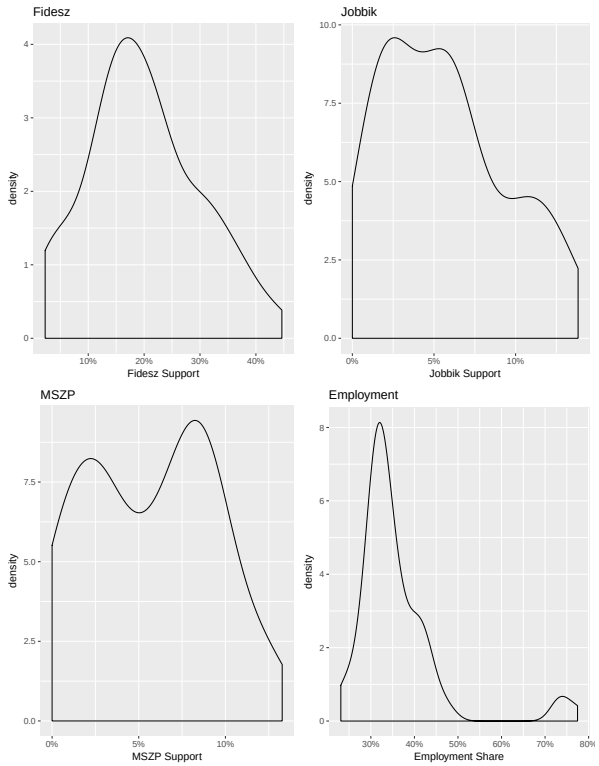


Figure 2.1: Variable distributions

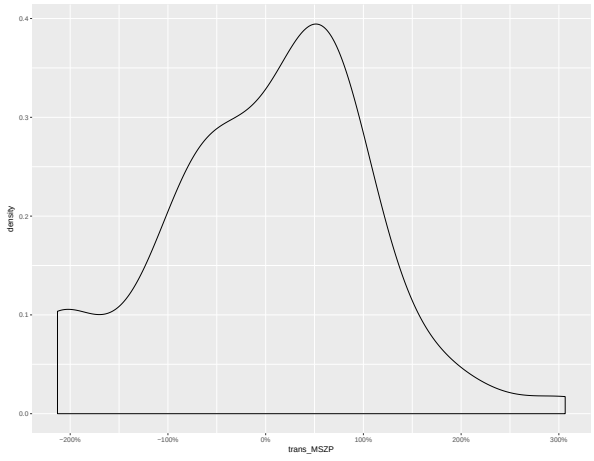


Figure 2.2: Distribution of Transformed MSZP data

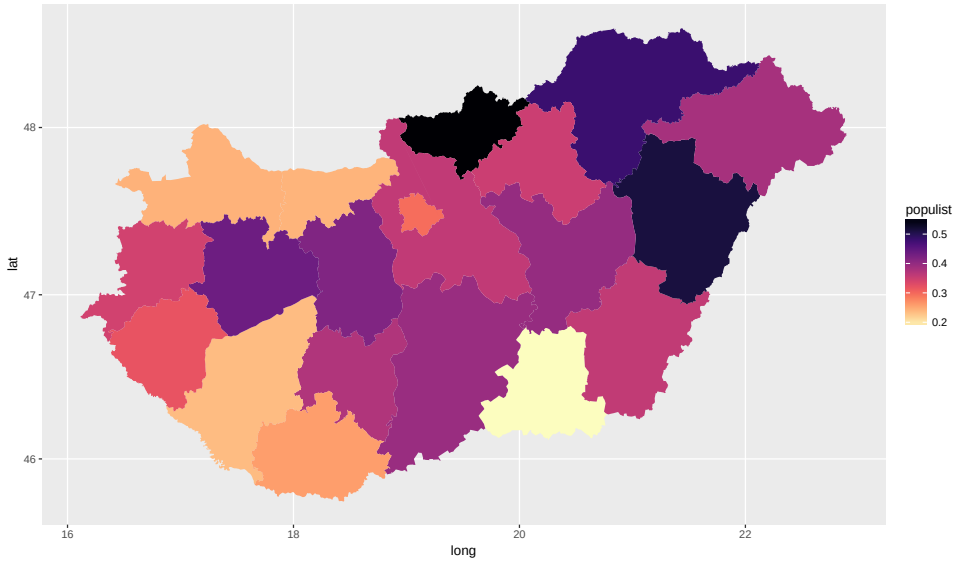


Figure 2.3: Map of populist party support

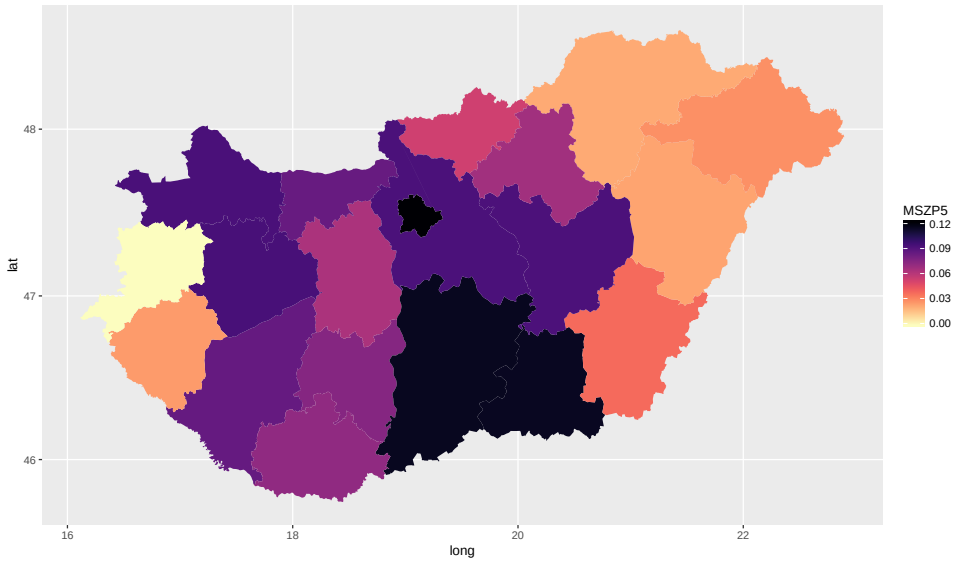


Figure 2.4: Map of MSZP support

parties or employment share. Looking at figure 3 can see the spatial distribution of support for populist parties. Generally there is something of an east/west divide within Hungary. The north-east of the country shows particularly high levels of support for populist parties. This area has been particularly affected by conflict between Roma and Hungarian communities in the last few years. As we have seen, this conflict between communities has played a large role in mobilising nativist groups. On the other hand, the western side of Hungary shows much lower support for populist parties. Figure 4 shows the distribution of support for the MSZP.We can see that support for the MSZP is concentrated in the western part of Hungary. There are also particularly strong concentrations in Budapest (the small black region in the center-north) and in the south. Notice however that the axes in the two figures are different and so the colours reflect the concentration rather than the level of support.

To get an initial idea of the relationships between employment and support for the parties studied here, we present smoothing curves in figure 5. These are obtained by using non-parametric Local Regression (LOESS) to estimate the conditional mean of party support for each level of employment. This method fits models to subsets of the data using weighted least squares to give greater weight to values near the point being estimated for. The figures plot the conditional means obtained using this method along the dashed line, giving us a visual representation of the relationship. In the top left cell we can see support for Fidesz plotted against employment share. The curve shows a generally negative trend, although it is not particularly clear. The top right cell looks at support for Jobbik. The curve here is reasonably flat, though the relationship could be negative or slightly non-linear. The bottom cell looks at the MSZP. Here the relationship appears negative when looking at the curve, however the observations are dispersed very widely around it and the negative relationship appears to be a weak one.

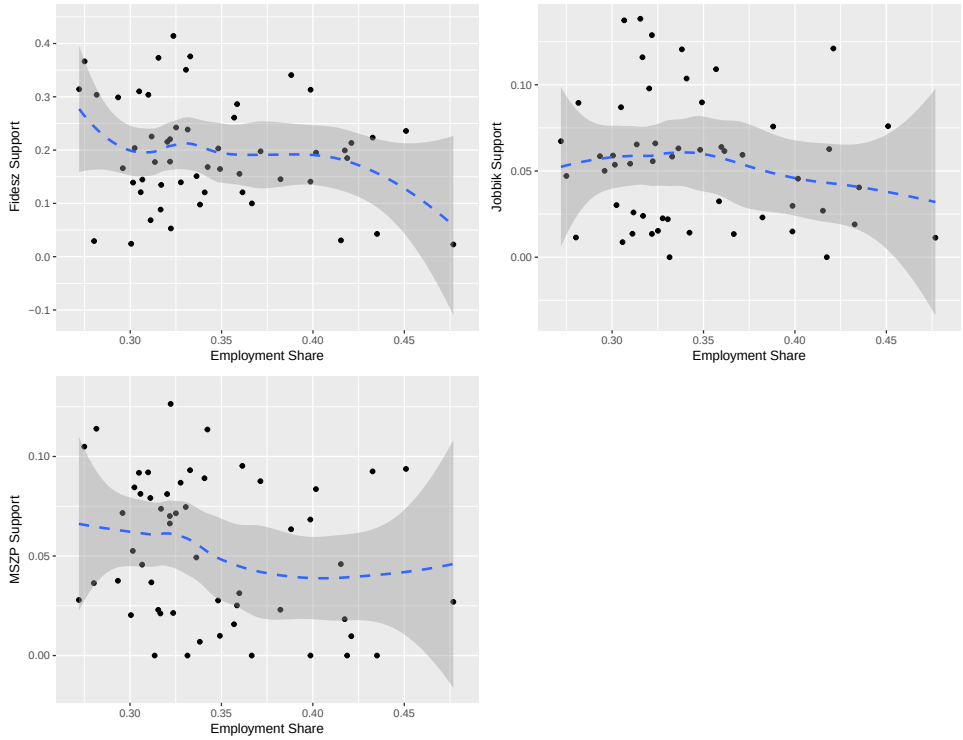


Figure 2.5: Smoothing functions

2.6 Results

Here we consider the results obtained from estimating the models above and consider their implications. Tables 2.1 to 2.4 show the results obtained from our OLS regressions. Table 2.1 shows the results of OLS regressions looking at the determinants of support for both populist parties together. Our results show no effect of employment share on the share of respondents claiming to support a populist party. The only significant variable in this model is the share of devoutly religious respondents. This fits with the findings in the previous literature, which show a relationship between religious values and support for socially conservative parties in Hungary.

In table 2.2 we can see the determinants of support for Fidesz. We do not find any significant effect of unemployment on support for Fidesz. We do find some significant effects however, the most consistent of these being the effect of religious denomination. The sign is as hypothesised, with regions housing larger religious communities showing greater support for Fidesz, as would be expected from the previous discussion. We also find significant effects of secondary and

tertiary education. Again, both coefficients give the effect on support for Fidesz relative to only receiving primary education. We find that support for Fidesz increases with the level of education. We can interpret this in terms of the previous discussion of the politics of class in Hungary. Fidesz is closely associated with the anti-communist movement of the late 1980's and has promoted itself as the party of the entrepreneurial middle class (Fehervary, 2011). As a result it follows that more educated white-collar workers will support Fidesz.

In table 2.3 we can see the determinants of support for Jobbik. We do not find any significant effect of employment share on support for Jobbik. Overall we don't actually find any significant effects at all. This suggests that support for Jobbik is primarily determined by factors outside of our model. This fits with the findings of Karacsony and Rona (2011), who show that the popularity of Jobbik is closely related to relations between Hungarian and minority groups - especially the Roma- as well as media coverage of clashes between these groups.

In table 2.4 we can see the determinants of support for the Hungarian Socialist Party (MSZP). Yet again we do not find any significant effect of employment share. We find a large though weakly significant effect of immigration into the regions, with higher immigration into a region being associated with higher support for the MSZP. This may be due to migrants primarily moving to urban areas, where the MSZP typically have their strongholds. This idea is supported by the small but significant relationship between support for the MSZP and population density. We also find a small, weakly significant effect of secondary education, with support for the MSZP falling as a region's citizens gain secondary education. As discussed earlier in the context of table 2.2, this effect of education may reflect class and occupational dynamics.

As noted earlier, we have reason to believe that our OLS estimates will not allow us to make causal inferences about the relationship between employment and political outcomes. **To recap, these are...** Consequently, we have estimated 2SLS models using the Bartik instrument to obtain exogenous variation in unemployment. The instrument uses the sectoral composition of each region to predict changes in labour demand due to the region's exposure to national

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Table 2.1: OLS, Cons, Y: Populist

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Employment	-0.565	-0.217	0.329	1.316	1.234	1.217	1.237	0.710
	(2.161)	(2.237)	(2.246)	(2.350)	(2.170)	(2.208)	(2.236)	(2.193)
Log GDP		-0.255	-0.284	-0.281	-0.232	-0.239	-0.201	-0.185
		(0.378)	(0.374)	(0.370)	(0.343)	(0.352)	(0.366)	(0.355)
Log EU			-0.189	-0.126	-0.163	-0.164	-0.166	-0.227
			(0.138)	(0.145)	(0.135)	(0.137)	(0.138)	(0.139)
Log Population				-2.237	-1.799	-1.869	-1.843	-1.981
				(1.723)	(1.600)	(1.726)	(1.748)	(1.700)
Religious					0.466**	0.472**	0.480**	0.497**
					(0.178)	(0.187)	(0.190)	(0.185)
Migration						0.900	0.597	3.418
						(7.494)	(7.617)	(7.581)
Secondary							0.0846	0.279
							(0.183)	(0.212)
Tertiary								0.517
								(0.305)
Constant	0.777	3.091	4.442	21.35	17.58	18.22	17.59	19.09
	(1.596)	(3.785)	(3.866)	(13.58)	(12.62)	(13.87)	(14.12)	(13.74)
Observations	60	60	60	60	60	60	60	60

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 2.2: OLS, Cons, Y: Fidesz

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Employment	-1.246	-0.912	-0.541	0.121	0.0459	0.0133	0.0591	-0.382
	(1.731)	(1.787)	(1.807)	(1.905)	(1.705)	(1.733)	(1.706)	(1.657)
Log GDP		-0.244	-0.264	-0.262	-0.217	-0.230	-0.140	-0.127
		(0.302)	(0.301)	(0.300)	(0.269)	(0.276)	(0.279)	(0.269)
Log EU			-0.129	-0.0865	-0.121	-0.122	-0.126	-0.178
			(0.111)	(0.118)	(0.106)	(0.107)	(0.106)	(0.105)
Log Population				-1.500	-1.096	-1.235	-1.173	-1.289
				(1.397)	(1.257)	(1.355)	(1.334)	(1.284)
Religious					0.429***	0.441***	0.460***	0.474***
					(0.140)	(0.147)	(0.145)	(0.140)
Migration						1.774	1.059	3.422
						(5.882)	(5.811)	(5.727)
Secondary							0.200	0.362**
							(0.140)	(0.160)
Tertiary								0.433*
								(0.230)
Constant	1.218	3.433	4.353	15.69	12.22	13.48	11.99	13.25
	(1.278)	(3.023)	(3.111)	(11.01)	(9.913)	(10.89)	(10.77)	(10.38)
Observations	60	60	60	60	60	60	60	60

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 2.3: OLS, Cons, Y: Jobbik

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Employment	0.680	0.695	0.869	1.194	1.188	1.204	1.178	1.092
	(0.777)	(0.809)	(0.817)	(0.859)	(0.868)	(0.882)	(0.860)	(0.877)
Log GDP		-0.0110	-0.0200	-0.0192	-0.0153	-0.00894	-0.0609	-0.0584
		(0.137)	(0.136)	(0.135)	(0.137)	(0.141)	(0.141)	(0.142)
Log EU			-0.0604	-0.0395	-0.0425	-0.0421	-0.0395	-0.0495
			(0.0501)	(0.0530)	(0.0538)	(0.0546)	(0.0533)	(0.0557)
Log Population				-0.737	-0.702	-0.634	-0.669	-0.692
				(0.630)	(0.640)	(0.690)	(0.673)	(0.679)
Religious					0.0371	0.0314	0.0200	0.0226
					(0.0710)	(0.0746)	(0.0731)	(0.0738)
Migration						-0.874	-0.462	-0.00390
						(2.995)	(2.931)	(3.030)
Secondary							-0.115	-0.0836
							(0.0706)	(0.0846)
Tertiary								0.0840
								(0.122)
Constant	-0.441	-0.342	0.0891	5.659	5.358	4.736	5.594	5.837
	(0.574)	(1.369)	(1.406)	(4.960)	(5.047)	(5.545)	(5.432)	(5.490)
Observations	60	60	60	60	60	60	60	60

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 2.4: OLS, Cons, Y: MSZP

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Employment	-0.649	-0.578	-0.629	-0.987	-0.976	-1.076	-1.102	-0.949
	(0.836)	(0.869)	(0.894)	(0.940)	(0.943)	(0.916)	(0.899)	(0.902)
Log GDP		-0.0524	-0.0497	-0.0507	-0.0577	-0.0975	-0.147	-0.152
		(0.147)	(0.149)	(0.148)	(0.149)	(0.146)	(0.147)	(0.146)
Log EU			0.0177	-0.00536	-0.00000900	-0.00234	0.000181	0.0180
			(0.0549)	(0.0579)	(0.0585)	(0.0567)	(0.0557)	(0.0573)
Log Population				0.813	0.750	0.324	0.290	0.330
				(0.689)	(0.695)	(0.716)	(0.703)	(0.699)
Religious					-0.0669	-0.0315	-0.0425	-0.0472
					(0.0772)	(0.0775)	(0.0764)	(0.0760)
Migration						5.478*	5.874*	5.058
						(3.111)	(3.063)	(3.118)
Secondary							-0.111	-0.167*
							(0.0738)	(0.0871)
Tertiary								-0.150
								(0.125)
Constant	0.603	1.078	0.951	-5.193	-4.651	-0.752	0.0731	-0.361
	(0.617)	(1.470)	(1.539)	(5.427)	(5.483)	(5.759)	(5.676)	(5.650)
Observations	60	60	60	60	60	60	60	60

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

level growth within each of the relevant industries. Variation in the predicted unemployment values should therefore be unrelated to other regional characteristics.

Table 2.12 in appendix C shows the first stage equations as specified in the previous section. In these regressions time and region dummies are included but omitted from the results tables shown here. Table 2.13 shows the first stage regressions when region and time dummies were not included. In table 2.12 the Bartik instrument is positively related with employment and is significant at the 1% level. However the coefficient is small. Another problem is that the F-Statistic is small below the Stock and Yogo rule-of-thumb of 10, meaning that the instrument is weak. When region and time dummies were excluded from the model, the first stage results showed the instrument to be strong. The Bartik instrument is comprised of regional compositions and year specific growth. The effectiveness of the Bartik instrument may be lost due to the fact that the dummy variables largely control for the variation that it is made up of, especially given the regional and time period we are considering here. We observe the same difference between results with and without dummies when looking at the results obtained when using initial industry shares in tables 2.16 and 2.17.

Tables 2.5 to 2.8 show the second stage results of the models run. In table 2.5 we use the 2sls model to estimate the relationship between employment and support for populists overall. We find that here employment share actually has a positive effect on support for populist parties. We can explain this in terms of the 'attack function' seen in section 2. The positive relationship may indicate that a reduction in native income (resulting from a negative employment shock) increases the perceived economic risks of a populist government by more than the prospective gains from attacking outside groups. However, there is an issue with the first stage F-statistics. Looking at table 2.12 we can see the first stage F-statistics are below 10 in most of the regressions. This means that despite the coefficient on the Bartik variable being significant at the 1% level, the instrument is still weak and will be biased towards the OLS coefficient. There is an issue here regarding the control variables used however. When looking at table 2.13 we can see the F-statistics obtained when running the regressions without the time and

region dummies. Here the F-statistics are typically above 16, which going by the Cragg-Donald measure indicates a strong instrument. In table 2.15 we can see the results obtained when running the regressions without the dummy variables. Looking at table 2.15 we can see quite different results are obtained when running regressions without the dummies. Here there is a significant, negative effect of employment share on support for populists, although this effect is driven the by the effect of support for Fidesz. This can be explained in term of the gains to be had from attacking an outside group. If employment prospects are improving for natives and thus incomes rising, then it follows the relative gains from attacking an outside group will be lower.

In table 2.6 we again see the determinants of support for Fidesz, estimated after instrumenting for employment share. we do not find significant effects of employment when including the time and region dummies. We do however, find significant coefficients for most of our control variables and with the correct sign. A notable exception is immigration, which does not any significant effect on support for Fidesz. This fits with Kitschelt and Bukovina's (2009) observation that far-right groups in Eastern Europe target native minorities as much as immigrants. When looking at table 2.15 we can see that the effect is negative and significant with the controls taken out. This is an interesting finding as it goes against the previous literature (see Algan et al, 2017 and Guiso et al, 2017) which argues that adverse employment shocks will increase support for populists. While this is true in many countries, it must be noted that in most of the countries previously studied populists are opposition parties and thus offer alternatives to what they portray as a failed establishment. However the result here suggests that this relationship is not universal and that it will be reversed if populists are in government and overseeing economic hardship.
As in the OLS results, here we also find that the number of highly religious respondents is positively associated with support for Fidesz in a region.

Table 2.7 looks at support for Jobbik. When including the time and region dummies we can see that support for Jobbik increases with employment. This may be a surprising result as it reflects both an opposition party gaining from good economic improvements and a populist one

Table 2.5: IV, Cons, Y:Populist

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Employment	5.011	3.437	4.480	6.209	5.702	5.697	6.091	6.164*
	(4.783)	(3.796)	(3.895)	(4.316)	(3.930)	(3.820)	(3.824)	(3.724)
Log GDP		-0.398	-0.447	-0.452	-0.389	-0.388	-0.359	-0.363
		(0.330)	(0.329)	(0.326)	(0.297)	(0.296)	(0.304)	(0.296)
Log EU			-0.234**	-0.141	-0.176*	-0.176*	-0.179*	-0.229**
			(0.116)	(0.116)	(0.107)	(0.106)	(0.107)	(0.108)
Log Population				-3.398**	-2.863*	-2.858*	-2.912*	-3.130**
				(1.658)	(1.516)	(1.537)	(1.544)	(1.493)
Religious					0.461***	0.461***	0.469***	0.481***
					(0.140)	(0.145)	(0.147)	(0.144)
Migration						-0.0480	-0.457	1.672
						(5.859)	(5.923)	(5.982)
Secondary							0.0921	0.247
							(0.142)	(0.166)
Tertiary								0.410*
								(0.246)
Constant	-3.339	1.826	3.371	28.99**	24.60**	24.55**	24.39**	26.27**
	(3.531)	(3.252)	(3.219)	(12.43)	(11.39)	(11.80)	(11.89)	(11.52)
Observations	60	60	60	60	60	60	60	60

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 2.6: IV, Cons, Y: Fidesz

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Employment	1.492	0.333	0.980	1.966	1.496	1.626	2.496	2.562
	(3.644)	(2.945)	(3.021)	(3.341)	(2.939)	(2.860)	(2.806)	(2.693)
Log GDP		-0.293	-0.323	-0.326	-0.268	-0.284	-0.219	-0.223
		(0.256)	(0.255)	(0.252)	(0.222)	(0.222)	(0.223)	(0.214)
Log EU			-0.145	-0.0920	-0.125	-0.126	-0.133*	-0.179**
			(0.0903)	(0.0901)	(0.0797)	(0.0797)	(0.0787)	(0.0782)
Log Population				-1.938	-1.442	-1.591	-1.710	-1.909*
				(1.283)	(1.134)	(1.151)	(1.133)	(1.080)
Religious					0.427***	0.436***	0.455***	0.465***
					(0.105)	(0.109)	(0.108)	(0.104)
Migration						1.433	0.530	2.479
						(4.387)	(4.346)	(4.326)
Secondary							0.203*	0.345***
							(0.104)	(0.120)
Tertiary								0.375**
								(0.178)
Constant	-0.803	3.002	3.961	18.57*	14.50*	15.76*	15.41*	17.13**
	(2.690)	(2.523)	(2.497)	(9.622)	(8.515)	(8.834)	(8.729)	(8.333)
Observations	60	60	60	60	60	60	60	60

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

at that. Given the aggressive nature of Jobbik's stance towards minority groups we can interpret this result as reflecting the reduced risk involved with voting for Jobbik. This means that improvements in economic conditions may allow citizens to more weight to identity concerns when deciding which political party to support. However in table 2.15 no effect is observed without the time and region dummies.

We do not find any significant effects of employment on support for the MSZP in table 2.8. We find negative effects of secondary and tertiary education shares, and a negative effect of log GDP. Referring back to table 2.15 we see a negative effect of employment share. Similarly, we find this negative effect when using the transformed version of the MSZP data in table 2.18, but only when time and region dummies are omitted from the model. Looking at table 2.18 we have the results of running these regressions with the transformed MSZP data. We still find a negative coefficient on employment share when time and region dummies are omitted, although the coefficient is very large and likely overstating the relationship. This may reflect the MSZP being less important as a safe option, being that it served several terms in government and is one of the parties still surviving from the start of democracy in Hungary. However this interpretation seems unlikely given the damage that the Global Finaicial Crisis did to the credibility of the MSZP.

2.6.1 Individual-level results

Next we use the original, individual-level data to estimate the effect of employment on individual-level decisions to support a political party. Here we present the results from probit regressions using the Bartik instrument for identification.

In these individual-level regressions, the dependant variable is binary - taking the value of 1 if the individual gives party j as the party they feel closest to, and 0 otherwise. Using OLS with a binary dependant variable is likely to result in residuals that violate the homoskedasticity

Table 2.7: IV, Cons, Y:Jobbik

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Employment	3.519*	3.104**	3.499**	4.242**	4.205**	4.071**	3.595**	3.601**
	(1.846)	(1.479)	(1.540)	(1.739)	(1.730)	(1.657)	(1.536)	(1.529)
Log GDP		-0.105	-0.123	-0.126	-0.121	-0.105	-0.140	-0.140
		(0.129)	(0.130)	(0.131)	(0.131)	(0.128)	(0.122)	(0.122)
Log EU			-0.0889*	-0.0486	-0.0512	-0.0501	-0.0463	-0.0505
			(0.0460)	(0.0469)	(0.0469)	(0.0462)	(0.0431)	(0.0444)
Log Population				-1.460**	-1.421**	-1.267*	-1.202*	-1.220**
				(0.668)	(0.667)	(0.667)	(0.620)	(0.613)
Religious					0.0335	0.0241	0.0142	0.0152
					(0.0616)	(0.0630)	(0.0589)	(0.0590)
Migration						-1.481	-0.987	-0.807
						(2.542)	(2.379)	(2.457)
Secondary							-0.111*	-0.0983
							(0.0569)	(0.0680)
Tertiary								0.0345
								(0.101)
Constant	-2.537*	-1.175	-0.590	10.42**	10.10**	8.790*	8.983*	9.141*
	(1.363)	(1.266)	(1.273)	(5.008)	(5.012)	(5.118)	(4.777)	(4.732)
Observations	60	60	60	60	60	60	60	60

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 2.8: IV, Cons, Y:MSZP

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Employment	2.698	2.081	2.136	2.094	2.172	2.599	2.148	2.111
	(2.038)	(1.597)	(1.670)	(1.865)	(1.859)	(1.830)	(1.708)	(1.641)
Log GDP		-0.156	-0.158	-0.158	-0.168	-0.220	-0.254*	-0.252*
		(0.139)	(0.141)	(0.141)	(0.141)	(0.142)	(0.136)	(0.131)
Log EU			-0.0123	-0.0146	-0.00913	-0.0126	-0.00901	0.0167
			(0.0499)	(0.0503)	(0.0504)	(0.0510)	(0.0479)	(0.0476)
Log Population				0.0821	0.0000742	-0.488	-0.426	-0.315
				(0.716)	(0.717)	(0.736)	(0.690)	(0.658)
Religious					-0.0706	-0.0408	-0.0502	-0.0562
					(0.0662)	(0.0695)	(0.0656)	(0.0633)
Migration						4.700*	5.169*	4.079
						(2.806)	(2.646)	(2.635)
Secondary							-0.106*	-0.185**
							(0.0633)	(0.0729)
Tertiary								-0.210*
								(0.108)
Constant	-1.868	0.157	0.238	-0.381	0.293	4.446	4.629	3.668
	(1.505)	(1.368)	(1.380)	(5.370)	(5.388)	(5.651)	(5.313)	(5.076)
Observations	60	60	60	60	60	60	60	60

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

and normality assumption of OLS. This will lead to invalid standard errors thus causing hypothesis tests to be unreliable. As a results the model is run here with probit models, which use a maximum likelihood procedure to model outcomes when the dependant dependant variable of interest is binary. The model can be written as:

$$\begin{aligned} Party_{ji} = \beta_0 + \beta_1 Employment_{rt} + \beta_2 GDP_{rt} + \beta_3 Religious_i + \beta_4 Immigration_{rt} \\ + \beta_5 Secondary_i + \beta_6 Tertiary_i + \beta_7 EU funds_{rt} + \beta_8 \lambda_t + \beta_9 \psi_r + e_i \end{aligned} \tag{2.4}$$

This model closely follows that outlined in equation 1. However, as this model estimates the relationship between employment and political choices at the individual level, data from the European Social Survey is used at the original individual level as denote with the i subscript. Eurostat data on regional indicators still varies by region and time period. While the instrument is controlling for regional unemployment, one can argue that the level of employment in a region is going to be strongly related to the chances of an individual in that region being employed.

Table 2.9 presents the results of the probit regression. It should be noted that the interpretation of probit coefficients in not straightforward. Due to the non-linear nature of the probit model, the effect of a unit change in any given variable will depend on the initial value of that variable as well as the values of the other explanatory variables (Hoetker, 2007). None the less the results still provide information on the significance, sign and relative magnitude of the effects of the explanatory variables.

The trends found here largely reflect those presented in tables 2.5 to 2.8. Table 2.9 shows that higher employment share reduces the probability of an individual supporting populists. However, looking at columns 2 and 3 of table 2.9 suggests that this result is driven entirely by a reduced probability of supporting Fidesz, while higher employment is shown to lead to an increased probability of the individual supporting the Jobbik party. This is a significant departure from the model shown in tables 2.5 and 2.6 and is the result of the individual level results showing a strong negative effect of employment on support for Fidesz, where previously

Table 2.9: Probit results

	(1) Populist	(2) Fidesz	(3) Jobbik	(4) MSZP
Employment	-7.029***	-9.459***	3.391**	-3.086**
	(1.064)	(1.073)	(1.646)	(1.539)
Log GDP	2.148***	2.759***	-0.791	0.398
	(0.325)	(0.330)	(0.512)	(0.466)
Log Pop	0.258***	0.371***	-0.161*	0.295***
	(0.0568)	(0.0586)	(0.0862)	(0.0827)
Log EU	0.0570	-0.0247	0.195***	0.0644
	(0.0444)	(0.0470)	(0.0667)	(0.0655)
Religious	0.254***	0.354***	-0.272***	-0.0686
	(0.0501)	(0.0510)	(0.0912)	(0.0757)
Migration	-50.52***	-51.60***	-13.34	5.303
	(7.488)	(7.748)	(11.59)	(10.55)
Secondary	0.146***	0.0776	0.235***	-0.0176
	(0.0481)	(0.0502)	(0.0764)	(0.0674)
Tertiary	0.164***	0.127**	0.171*	-0.0127
	(0.0571)	(0.0595)	(0.0906)	(0.0794)
Constant	-19.28***	-24.02***	3.576	-5.833
	(2.780)	(2.817)	(4.405)	(4.007)
N	5273	5273	5273	5273

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

any effect was found to be insignificant. The negative effect on support for Fidesz is also found when the region-level model is run without time or region dummies. As in the regional model without time and region dummies, a higher employment rate reduced the probability of support for the MSZP is negative. Employment is found to be a significant in each model in table 2.9.

2.7 Conclusion

In this paper we have examined several theories about economic hardship and its relationship to support for populist parties. Primarily we have looked to see if the finding that employment

leads to increased support for populist parties applies in a setting where populists are incumbents rather than in opposition. This allows us to shed some light on the broader question of whether voters support populist parties due to ideological values of as a protest against economic mismanagement by incumbent liberal parties.

We find that support for Hungary's populist incumbents Fidesz decreases as economic conditions improve. This is an interesting finding as it runs contrary to the economic voting hypothesis of Duch and Stevenson (2008), who argue that voters reward governments for good economic circumstances. It does support the findings of previous literature on populism, which predicts that support for populist parties is negatively related to employment (Algan et al, 2017; Dehdari, 2017). This suggests that support for populists has been driven by protest against liberal incumbent parties instead of positive evaluations of how populist parties would manage the economy.

However, looking at the Jobbik party makes it harder to draw this conclusion. We find weak evidence that support for Jobbik is positively related with the level of employment. We have interpreted this in terms of the role of risk of inter-group competition. Previous work suggests that identity and attitudes to minorities have driven the growth of Jobbik since 2006 (Karacsony and Rona, 2011). We interpret our positive coefficient as reflecting a lower risk or opportunity cost to supporting a populist outsider when economic conditions are more stable. This would suggest that the appeal of Jobbik lies in its appeals to culture and identity, however citizen's decisions to support the party will be shaped by the economic environment. If this is the case then there is not a duality between cultural and economic explanations of the rise of populism, rather economic factors may determine the importance of culture and identity in citizens political evaluations.

The setting of Hungary is informative but does not allow us to distinguish between far-right populists and and any other type of populist party. Future research could focus in the case of Greece, where a radical left party governed from 2015 to 2019. Furthermore, the last year has

seen Hungary lose its unique status as the only country in Europe with a populist government. In this time Italy, Austria and Poland have elected right-wing populist parties or coalitions thereof. Future survey data from these countries will allow us to see if the findings obtained here are specific to Hungary, or if we are observing a general trend in the support for incumbent populists and if they apply to mature democracies.

The results of the 2019 European Parliament election highlight the changing nature of politic in Europe and the need to understand the drivers of political preferences among voters.Not only did the main centre-left and centre-right parties (Socialists & Democrats and European People's Party respectively) lose seats - along with their dominant role in the parliament- the Alliance of Liberal Democrats and the Greens both saw significant gains in seats (BBC, 2019). At the same time the populist and nationalist parties (Europe of Nations & Freedom and Europe of Freedom and Democracy) also saw moderate gains. Research into how economic conditions shaped these results will be especially fruitful as the European Union tries to navigate this new dynamic.

2.8 Bibliography

Algan, Y, S Guriev, E Papaioannou, and E Passari (2017), The European trust crisis and the rise of populism, CEPR, Discussion Paper 12444, forthcoming in Brookings Papers on Economic Activity.

Arzheimer K, Carter E (2006). "Political opportunity structures and right-wing extremist party success." European Journal of Political Research, 45(3)

Autor D, Dorn D, Hanson G, Majlesi K, et al. (2016). "Importing Political Polarization? The Electoral Consequences of Rising Trade Exposure." Technical report, NBER Working Paper No. 22637.

Bartik TJ (1991). "Who Benefits from State and Local Economic Development Policies?" W.E. Upjohn Institute for Employment Research

BBC (2019) "European Elections 2019" https://www.bbc.co.uk/news/topics/c7zzdg3pmgpt/european-elections-2019

Becker, Sascha O., Thiemo Fetzer and Dennis Novy, (2017). "Who Voted for Brexit? A Comprehensive District-Level Analysis", CESifo Working Paper No. 6438.

Bodvarsson, B., Van den Berg HF, Lewer JJ (2008). "Measuring Immigration's Effects on Labor Demand: A Reexamination of the Mariel Boatlift." Labour Economics, 15(4)

Borjas GJ, Monras J (2017). "The Labour Market Consequences of Refugee Supply Shocks." Economic Policy, 32(91).

Card, D, (2001) "Immigrant Inflows, Native Outflows, and the Local Labor Market Impacts of

Higher Immigration," Journal of Labor Economics, Vol 19(1).

Clarke, H., Goodwin, M. and Paul Whitely (2017) "Brexit: Why Britain Voted to Leave the European Union", Cambridge University Press.

Clemens M and Hunt J (2017). "The Labor Market Effects of Refugee Waves: Reconciling Conflicting Results." Technical report, NBER Working Paper No. 23433.

Dehdari, S. (2017). Economic Distress and Support for Far-Right Parties Evidence from Sweden. Mimeo, IIES.

The Democratic Society (2014) "Hungarian Socialist Party", Published online : http://www.demsoc.org/2014/04/11/hungarian-socialist-party-mszp/

De Vries, C. (2017) The Cosmopolitian-Parochial Divide: What the 2017 Dutch Election Result Tells Us About Political Change in the Netherlands and Beyond. Journal of European Public Policy.

De Vries, C (2018) "Euroscepticism and the Future of European Integration", Oxford University Press.

De Vries, C. and Hoffman, I. (2016) "Fear not Values: Public Opinion and the Populist Vote in Europe", EUpions.

Duch, R. and Stevenson, R. (2008) "The Economic Vote: How Political and Economic Institutions Condition Election Results" Cambridge University Press, New York.

Enyedi, Zsolt (2016) "Paternalist Populism and Illiberal Elitism in Central Europe", Journal of Political Ideologies, Vol 21(1)

Feddersen, T. and Faruk, G. (2014) "Polarization and Income Inequality: A Dynamic Model of Unequal Democracy." Working Paper .

Fehervary, K. (2011) "Bourgeois Furnishings and a Postsocialist Middle Class in Hungary", Hungarian Studies, Vol 25(2)

Freedom House, (2017) "Breaking down Democracy: Goals, Strategies and Methods of Modern Authoritarians", Available at: $https://freedomhouse.org/report/special-reports/breaking-down-democracy-goals-strategies-and-methods-modern-authoritarians$

Financial Times, (2018) "The Rise and Rise of Viktor Orban", Available at: $https://www.ft.com/content$ $0095-11e8-9650-9c0ad2d7c5b5$

Golder, M. (2016) Far Right Parties in Europe. Annual Review of Political Science 19: 477-497.

Golder M. (2003) Explaining Variation in the Electoral Success of Extreme Right Parties in Western Europe. Comparative Political Studies 36: 432-466.

Goldsmith-Pinkham, Paul; Isaac Sorkin, and Henry Swift (2017). Bartik Instruments: What, When, Why and How. Working paper, Stanford University, Department of Economics.

Gomez, L and Ramiro, R (2016) "Radical-Left Populism during the Great Recession: Podemos and Its Competition with the Established Radical Left", Political Studies, Vol 65 (15).

Guiso, Luigi, Helios Herrera, and Massimo Morelli. (2017) "Demand and Supply of Populism". Working Paper n1703, Einaudi Institute for Economics and Finance (EIEF).

Hoetker, G. (2007) "The Use of Logit and Probit Models in Strategic Management Research:

Critical Issues" Strategic Management Journal, Vol 28

Inglehart, R. (1971) "The Silent Revolution in Europe: Intergenerational Change in Post-Industrial Societies", American Political Science Review, Vol. 65, No. 4

Inglehart Ronald, F. and Pippa Norris. (2016). "Trump, Brexit, and the Rise of Populism: Economic Have-Nots and Cultural Backlash". Harvard Kennedy School RWP16-026.

Jaeger, A., Ruist, J. and Stuhler, J. (2018) "Shift-Share Instruments and the Impact of Immigration", IZA Discussion Paper No. 11307

Karacsony, G. and Daniel Rona (2011). "The Secret of Jobbik: Reasons Behind the Rise of the Hungarian Far-Right", Journal of East European & Asian Studies, Vol. 2 (1)

Kiss, Y. (2014) "Hungary's Municipal Elections are Unlikely to See Fidesz Loosen its Dominant Hold over Hungarian Politics", LSE blogs. Available at: blogs.lse.ac.uk/europpblog/2014/10/01/hungarys-municipal-elections-are-unlikely-to-see-fidesz-loosen-its-increasingly-dominant-hold-over-hungarian-politics/

Kitschelt, H. and Bustikova, L. (2009) "The Radical Right in Post-Communist Europe: Comparative Perspectives on Legacies and Party Competition" Communist and Post-Communist Studies, Vol(42).

Knigge P. (1998) "The ecological correlates of right-wing extremism in Western Europe", European Journal of Political Research. 34:24979

Knutsen, O. (2013) "Social structure, social coalitions and party choice in Hungary", Communist and Post-Communist Studies, Volume 46, Issue 1.

Korosenyi, A. (1999) "Government and Politics in Hungary" Central University Press.

Lippenyi, Z., Maas, I. and Jansen, W. (2013) "Economic Voting in Hungary, 1998-2008", Electoral Studies, Vol(32)

Lubbers M, Scheepers P. (2002) "French Front National voting: a micro and macro perspective", Ethn. Racial Stud. 25:12049

Minkenberg M. 2000. The renewal of the radical right: between modernity and anti-modernity. Gov. Opposition, 35:17088

Mitra, A and Ray, D. (2014) "Implications of an Economic Theory of Conflict: Hindu-Muslim Violence in India" Journal of Political Economy, Vol 122(4)

Mudde, C. (2005) "Racist Extremism in Central and Eastern Europe", East European Politics and Societies, Vol 19 (2).

Mudde, C. and Rovira-Kaltwasser, C. (2017) "Populism: A Short Introduction", Oxford University Press.

Muller, J. (2017) "What is Populism?", Penguin Books

Palonen, E. (2009) "Political Polarisation and Populism in Contemporary Hungary" Parliamentary Affairs, Vol. 62.

Peri G, Yasenov V (2017). "The Labor Market Effects of a Refugee Wave: Synthetic Control Method Meets the Mariel Boatlift." IZA Discussion Paper No. 10605.

Reuters (2018) "Hungary Approves 'Stop Soros' Law, Defying EU Rights Groups" Available at:

https : *//uk.reuters.com/article/uk* − *hungary* − *soros/hungary* − *approves* − *stop* − *soros* − *law* − *defying* − *eu* − *rights* − *groups* − *idUKKBN*1*JG*1*V*1

Reuters (2014) "Hungary's ruling Fidesz party plans more energy price cuts -paper", Available at:
https://www.reuters.com/article/hungary-fidesz-idUSL5N0KY07V20140124

Rodrik, Dani. (2017). Populism and the Economics of Globalization. No. w23559. National Bureau of Economic Research.

Rydgren J, Tyrberg M (2016). Social Marginalization, Ethnic Threat, And Radical Right-wing Support in Sweden: A Multilevel analysis." Department of Sociology (SU) Working Paper Series No 26.

Spiegel (2013) "Hungarian Leader Adopts POlicies of Far-Right" Available at: *http* : *//www.spiegel.de/int* *hungarian*−*fidesz*−*party*−*adopts*−*policies*−*of*−*far*−*right*−*jobbik*−*party*−*a*−880590.*html*

Stegmaier, M. and Lewis-Beck, M. (2011) "Shocks and Oscillations: The Political Economy of Hungary" Electoral Studies, Vol. 30

Van Dijk, J. (2018) "Robustness of econometrically estimated local multipliers across different methods and data", Journal of Regional Science, Vol 58(2)

Voorheis, John, Nolan McCarty, and Boris Shor. 2016. Unequal Incomes, Ideology and Gridlock: How Rising Inequality Increases Political Polarization. Mimeo, University of Oregon.

Appendices

Appendix A: Summary Statistics

Table 2.10: Summary statistics

Variable	Mean	Std. Dev.
Fidesz_Support	0.199	0.101
Jobbik_Support	0.057	0.038
MSZP_Support	0.057	0.037
Employment	0.36	0.104
Log GDP	9	0.331
Log EU	6.845	0.59
Log Pop	4.626	0.853
Religious	0.178	0.097
Migration	-0.001	0.005
Secondary	0.491	0.074
Tertiary	0.204	0.078
N	60	

Appendix B: List of Industries

Table 2.11: Industries

Industry	Code
Agriculture	1
Industry (excluding construction)	2
Construction	4
Retail and Hospitality	5
Information and Communication	6
Finance and Insurance	7
Real Estate	8
Professional and Scientific	9
Public administration	10
Arts and Entertainment	11

Table 2.12: First stage results - with controls

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Bartik	0.384**	0.475***	0.460***	0.417***	0.417***	0.433***	0.441***	0.442***
	(0.151)	(0.147)	(0.150)	(0.148)	(0.150)	(0.153)	(0.157)	(0.157)
Log GDP		0.0597**	0.0593**	0.0540**	0.0540**	0.0514*	0.0537*	0.0538*
		(0.0250)	(0.0251)	(0.0247)	(0.0251)	(0.0254)	(0.0268)	(0.0268)
Log EU			0.00722	0.00145	0.00147	0.00121	0.00109	-0.00141
			(0.00913)	(0.00953)	(0.00972)	(0.00979)	(0.00994)	(0.0103)
Log Population				0.184*	0.184	0.148	0.148	0.138
				(0.109)	(0.111)	(0.121)	(0.123)	(0.124)
Religious					-0.000222	0.00242	0.00285	0.00344
					(0.0128)	(0.0134)	(0.0136)	(0.0137)
Migration						0.417	0.406	0.513
						(0.540)	(0.549)	(0.563)
Secondary							0.00435	0.0121
							(0.0133)	(0.0158)
Tertiary								0.0204
								(0.0223)
Constant	0.746***	0.146	0.0942	-1.305	-1.303	-0.984	-1.010	-0.920
	(0.00472)	(0.251)	(0.261)	(0.863)	(0.883)	(0.979)	(0.997)	(1.004)
F-stat	6.46	10.38	9.47	7.95	7.7	8.05	7.92	7.93
Observations	60	60	60	60	60	60	60	60

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 2.13: First Stage Results - No controls

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Bartik	0.563	0.474***	0.451***	0.496***	0.490***	0.479***	0.492***	0.486***
	(0.396)	(0.120)	(0.138)	(0.108)	(0.113)	(0.113)	(0.113)	(0.113)
Log GDP		0.294***	0.292***	0.222***	0.221***	0.233***	0.236***	0.235***
		(0.0122)	(0.0131)	(0.0155)	(0.0159)	(0.0194)	(0.0194)	(0.0194)
Log EU			0.00288	-0.0132*	-0.0136*	-0.0121	-0.0134*	-0.0120
			(0.00834)	(0.00704)	(0.00744)	(0.00755)	(0.00761)	(0.00771)
Log Population				0.0395***	0.0397***	0.0394***	0.0380***	0.0345***
				(0.00654)	(0.00667)	(0.00666)	(0.00673)	(0.00755)
Religious					-0.00751	-0.00817	-0.0117	-0.0193
					(0.0389)	(0.0388)	(0.0388)	(0.0394)
Migration						-1.219	-1.032	-1.151
						(1.092)	(1.101)	(1.105)
Secondary							-0.0531	-0.0320
							(0.0456)	(0.0498)
Tertiary								0.0638
								(0.0607)
Constant	0.360***	-2.282***	-2.287***	-1.726***	-1.718***	-1.839***	-1.817***	-1.825***
	(0.0133)	(0.110)	(0.112)	(0.128)	(0.136)	(0.174)	(0.174)	(0.174)
F-Stat	2.03	15.72	10.72	21.01	18.9	17.98	18.91	18.46
Observations	60	60	60	60	60	60	60	60

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 2.14: Probit first stage results

	(1) Fidesz_Support
[1em] Bartik	0.574***
	(0.0134)
Log GDP	0.277***
	(0.00266)
Log Pop	0.0395***
	(0.000872)
Log EU	-0.0163***
	(0.00106)
Religious	0.000744
	(0.00108)
Migration	-4.001***
	(0.123)
Secondary	-0.00182*
	(0.000982)
Tertiary	0.000424
	(0.00118)
Constant	-2.207***
	(0.0236)
Observations	5273

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 2.15: 2sls results, without controls

	(1) Populist	(2) Fidesz	(3) Jobbik	(4) MSZP
Employment	-2.784***	-3.182***	0.398	-0.632**
	(1.074)	(1.021)	(0.340)	(0.301)
Log GDP	0.697***	0.776***	-0.0794	0.0767
	(0.265)	(0.252)	(0.0837)	(0.0744)
Log EU	0.0126	0.00143	0.0112	-0.00285
	(0.0329)	(0.0313)	(0.0104)	(0.00923)
Log Population	0.112**	0.123***	-0.0112	0.0511***
	(0.0499)	(0.0475)	(0.0158)	(0.0140)
Religious	0.261	0.297*	-0.0359	-0.0187
	(0.188)	(0.179)	(0.0594)	(0.0528)
Migration	-13.89***	-10.54**	-3.359**	1.955
	(5.375)	(5.109)	(1.699)	(1.508)
Secondary	-0.0726	0.0343	-0.107	-0.0810
	(0.229)	(0.217)	(0.0723)	(0.0642)
Tertiary	0.147	0.156	-0.00886	0.0562
	(0.292)	(0.277)	(0.0922)	(0.0818)
Constant	-5.669***	-6.330***	0.662	-0.590
	(2.182)	(2.075)	(0.690)	(0.612)
Observations	60	60	60	60

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 2.16: 2sls, Initial Shares, With Controls

	(1) Populist	(2) Fidesz	(3) Jobbik	(4) MSZP
Employment	4.762	1.768	2.994**	2.052
	(3.450)	(2.538)	(1.405)	(1.573)
Log GDP	-0.317	-0.197	-0.120	-0.250*
	(0.283)	(0.208)	(0.115)	(0.129)
Log EU	-0.229**	-0.179**	-0.0503	0.0167
	(0.104)	(0.0764)	(0.0423)	(0.0474)
Log Population	-2.835**	-1.742*	-1.092*	-0.302
	(1.421)	(1.045)	(0.579)	(0.648)
Religious	0.485***	0.468***	0.0170	-0.0560
	(0.138)	(0.102)	(0.0563)	(0.0630)
Migration	2.120	2.733	-0.613	4.097
	(5.740)	(4.222)	(2.339)	(2.618)
Secondary	0.255	0.350***	-0.0947	-0.184**
	(0.159)	(0.117)	(0.0648)	(0.0725)
Tertiary	0.437*	0.391**	0.0465	-0.209*
	(0.235)	(0.173)	(0.0959)	(0.107)
Constant	24.42**	16.08**	8.341*	3.591
	(11.00)	(8.093)	(4.482)	(5.017)
First Stage F	8.71	8.71	8.71	8.71
Observations	60	60	60	60

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Appendix C: First Stage Regressions Results (Tables 12-14)

Appendix D: 2sls results, without controls (Table 15)

Appendix E-2sls results using initial industry shares (Tables 16 & 17)

Appendix F- Transformed MSZP data (Table 18)

Appendix G- Industry growth

hp Please see appendix B for industries corresponding to x-axis labels.

Table 2.17: 2sls results, Initial shares, No Cons

	(1) Populist	(2) Fidesz	(3) Jobbik	(4) MSZP
Employment	-2.789***	-3.147***	0.359	-0.619**
	(1.049)	(0.992)	(0.328)	(0.293)
Log GDP	0.698***	0.768***	-0.0702	0.0737
	(0.260)	(0.245)	(0.0810)	(0.0726)
Log EU	0.0126	0.00141	0.0112	-0.00286
	(0.0329)	(0.0311)	(0.0103)	(0.00920)
Log Population	0.112**	0.122***	-0.00987	0.0507***
	(0.0494)	(0.0467)	(0.0154)	(0.0138)
Religious	0.261	0.299*	-0.0383	-0.0179
	(0.188)	(0.177)	(0.0586)	(0.0525)
Migration	-13.90***	-10.48**	-3.424**	1.976
	(5.364)	(5.070)	(1.674)	(1.499)
Secondary	-0.0726	0.0346	-0.107	-0.0809
	(0.229)	(0.216)	(0.0714)	(0.0640)
Tertiary	0.148	0.154	-0.00582	0.0552
	(0.291)	(0.275)	(0.0909)	(0.0814)
Constant	-5.678***	-6.265***	0.587	-0.566
	(2.139)	(2.022)	(0.668)	(0.598)
First Stage F	19.72	19.72	19.72	19.72
Observations	60	60	60	60

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

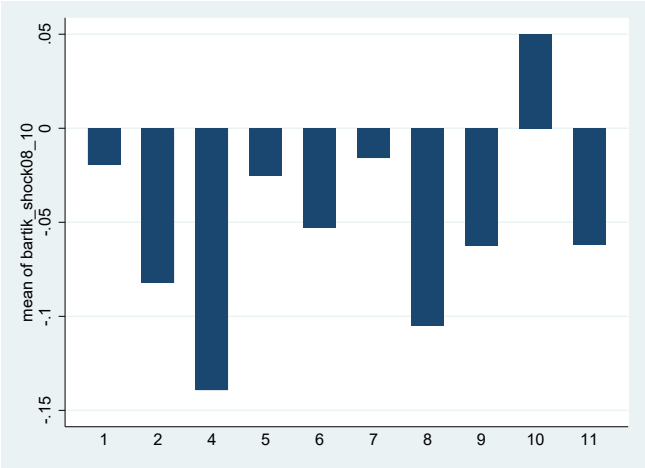

Figure 2.6: Industry Growth 2008-2010

Table 2.18: 2sls results with transformed MSZP data

	(1) No Cons	(2) Cons
Employment	-16.03*	95.55*
	(8.531)	(49.11)
Log GDP	1.724	-9.461**
	(2.104)	(3.909)
Log EU	-0.0561	-0.0301
	(0.261)	(1.426)
Log Population	1.416***	-7.189
	(0.397)	(19.69)
Religious	-0.790	-2.035
	(1.494)	(1.896)
Migration	53.63	109.0
	(42.68)	(78.89)
Secondary	-3.415*	-6.585***
	(1.816)	(2.183)
Tertiary	1.760	-5.970*
	(2.316)	(3.239)
Constant	-14.43	90.17
	(17.33)	(152.0)
First Stage F	18.46	7.93
Observations	60	60

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

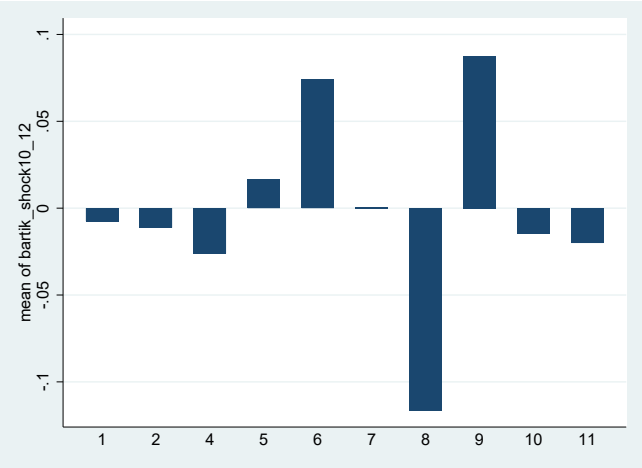

Figure 2.7: Industry Growth 2010-2012

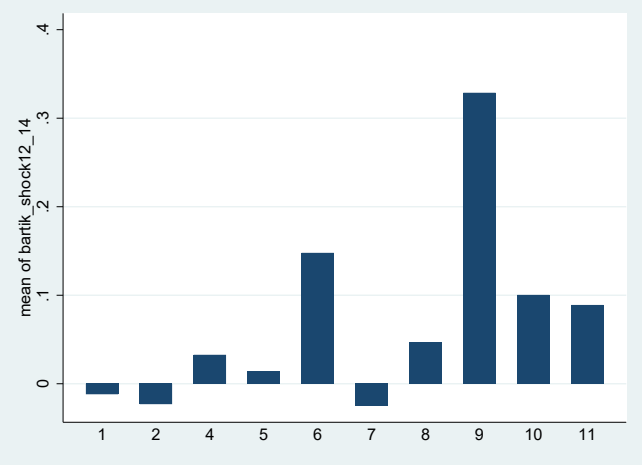

Figure 2.8: Industry Growth 2012-2014

Conclusion

July 15, 2019

In this thesis we have seen that there are is indeed a two-way relationship between the functioning of political and economic institutions. We have seen that when bureaucratic institutions do not function effectively and bribes are frequently extorted then firms are deterred from investing and from providing secure employment. The mechanism through which this works is uncertainty, with corrupt agreements not offering any of the legal protections that firms need in order to plan forwards. This will be detrimental to the growth prospects of the polity. If frequent corruption affects the type of employment that firms provide then this means that tackling corruption will also be an important part of anti-poverty efforts. These findings also suggest that anti-corruption policies that penalise firms may further deter investment, as the penalties incurred if a corrupt agreement comes to light will further increase the risks involved. This suggests that policies should focus on incentivising the behaviour of bureaucrats more than that of firms.

We have also seen that employment shocks can affect political outcomes and help determine the level of support enjoyed by populist parties. In looking at Hungary we have been able to observe the effect of employment levels on an incumbent populist party and opposition parties. Our findings run contrary to previous findings in the literature. Firstly we find that support for the populist incumbent falls as employment levels rise. The economic voting hypothesis would lead us to expect that as employment conditions improve incumbents should be rewarded for their handling of the economy. This seems particularly pertinent here as the Fidesz party have governed Hungary throughout its recovery from the Great Recession. We also find that support for the largest liberal party in Hungary the MSZP, also falls as employment shares increase. I interpret this in terms of the risks associated with supporting new or inexperienced political parties. We can see this in the weak, though positive relationship between employment and support for the populist opposition Jobbik party.This interpretation runs quite contrary to the dynamics often credited with driving support for populists in western Europe, where populist parties are seen as a protest option against established political elites.

There do not appear to be any obvious policy implications of these findings. However, given the rise of populist governments in Europe the findings here

may help predict political events outside of Hungary.