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ABSTRACT: This paper examines whether the distribution of public employment affects the electoral support for the incumbent government that allocates jobs. To do this we focus on the Spanish Plan for Rural Employment (PER), a program of temporary public employment introduced by the central government in two lagging regions. We evaluate voters' responsiveness to this policy using municipal-level electoral data and employing an estimator that combines propensity score matching with a difference-indifferences strategy (Heckman et al., Econometrica 65 (1998) 2). We show that the average treatment effect on the treated is a 2 percentage-point increase of the vote share for the ruling party at general elections and we also find evidence of an increase in electoral participation.

JEL Codes: H53 P16

Keywords: Public employment, electoral rewards, difference-in-differences, propensity score matching

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1 Introduction

Governments can redistribute rents from high-income to low-income groups through public employment specifically targeted at the disadvantaged group (Alesina, Baquir and Easterly (2000); Gimpelson, Treisman and Monusova (2000)). The consequences of implementing this type of policy are not only economic but also political. The present paper focuses on the latter effect and examines the extent to which voters are responsive to the distribution of public jobs. Although jobs, rather than other types of public investment, are a particularly effective political tool[1], they have received less attention from political economists than other types of government programs. Instead, the studies that document the electoral effects of government interventions focus mainly on welfare programs (Manacorda, Miguel and Vigorito (2011); Zucco (2011); De La O (2012); Labonne (2013); Diaz-Cayeros, Estevez and Magaloni (2008)), fiscal policies (Brender (2003); Brender and Drazen (2008); Sakurai and Menezes-Filho (2008)), and public spending in aggregate terms (Peltzman (1992); Levitt and Snyder (1997); Nazareno, Stokes and Brusco (2006); Drazen and Eslava (2010)).

The aim of this paper is to evaluate whether the allocation of public jobs increases electoral support for the incumbent government. We do this by examining the specific example of the Spanish Plan for Rural Employment (*Plan de Empleo Rural* - PER). The PER was introduced in the early 80s in Andalusia and Extremadura (two southern regions in Spain) in order to soften the negative consequences of their high unemployment. The program generates temporary employment targeted at agricultural workers, who suffer seasonal unemployment the most. Indeed, the policy has granted additional rents to low income households and, as documented by Jofre-Monseny (2013)[2], it has contributed to a reduction in the flows of people leaving rural municipalities in those regions (an effect mainly driven by lower out-migration). Nevertheless, in terms of economic development, the affected regions are still lagging well behind Spain's average region in terms of GDP per capita and unemployment rates[3].

Ten years after the introduction of the program an evaluation made by the Commission of Agriculture, Farming and Fisheries of the Spanish Congress raised its concerns on the harmful consequences of the program and stated,

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[1] They can be targeted to specific individuals and easily withdrawn from them (especially, if they are temporary). As stated by Robinson and Verdier (2013), they are "a credible, selective and reversible method of redistribution, which ties the continuation utility of a voter to the political success of a particular politician".

[2] The author employs a 'border' identification strategy, that compares municipalities in Andalusia and Extremadura close to the border with others in the adjacent regions, which are also close to the border but not affected by the program.

[3] According to the INE (National Statistics Institute), in 2011 Andalusia and Extremadura's GDP per capita were, respectively, 25% and 30% below the national average (and the two lowest in Spain), and unemployment rates for the same year were, 40% and 15% above the national average, respectively.

> "The system has fostered in Andalusia and Extremadura a culture of inactivity, which blocks any initiative of development and deactivates the willingness to work."[4]

What could then explain the permanence of such unproductive spending? In Spain, a widespread perception exists that the PER has merely served as a political instrument at the disposal of the socialist party (Partido Socialista Obrero Español, PSOE), who initially established the program and turned Extremadura and Andalusia into its strongholds.[5] Hence, a strong reason for keeping the program in place could be that politicians see public employment as a fruitful source of electoral rewards that compensates for the inefficient redistribution of income through jobs and, in turn, for its negative effect on economic growth. Further, the PER has often been cited as an example of patronage -namely, the direct exchange of votes for access to public employment- (see for instance Cazorla (1995); Hopkin (2001); Hopkin and Mastropaolo (2001)).

The contribution of this paper is twofold. On the one hand, this study makes a contribution to the empirical literature on distributive politics. This strand within the field of political economy has provided vast evidence on the political motives behind public spending, however, we believe there is less quantitative evidence on the electoral returns to such expenditures, particularly concerning public employment interventions. On the other hand, it uses a case study that has received a great amount of attention from the Spanish press and some international scholars but for which no formal quantitative evidence has yet been provided.

As its name indicates, the PER was designed to target rural municipalities where agriculture is the main economic activity; hence, in urban areas the share of PER workers (i.e. policy beneficiaries) is significantly lower. This is a key element of our identification strategy, which consists of applying a difference-in-differences matching estimator (Heckman, Ichimura and Todd (1997, 1998); Abadie (2005)) to a data set of electoral outcomes over the period 1982-1995. With this two-step approach we obtain the average treatment effect on the treated by first matching control and treated municipalities based on a propensity score and then using the corresponding weights to compute differences in outcomes in treated and control groups over time (the difference-in-differences estimator). Such methodology allows us to relax the assumption that the average outcome variable of the treated and control munici-

[4] Statement extracted from the report "*Dictamen aprobado por la Comisión de Agricultura, Ganadería y Pesca en relación con el informe elaborado por la ponencia especial para estudiar la reforma del actual sistema del Plan de Empleo Rural (PER) y el subsidio agrario. (154/000005)*", p. 21. Despite suggesting the need for reforms, the program has not suffered substantive changes since its establishment.

[5] The list of newspaper articles reporting this fact is very long. This is just one of the many examples:

"The PSOE sweeps to victory in the PER villages." ABC, 29/11/1993 http://hemeroteca.abc.es/nav/Navigate.exe/hemeroteca/madrid/abc/1993/11/29/052.html

palities should have parallel trends over time in case of no treatment. In addition, an analysis of the geographical distribution of PER jobs (using data at the municipal level) reveals that such distribution is determined to a large extent by three factors: the level of unemployment, the relevance of the agricultural sector in the municipality, and if the municipality is rural or urban. Hence, several proxies related to these factors are the variables used to match observations in the treatment group with those on the control group -which is formed by the adjacent regions of Murcia, Castile-la Mancha, and Castile-León, as explained in more detail in the next sections.

The empirical analysis shows that the average treatment effect on the treated municipalities was a two percentage-point increase in the vote share for the socialist party at the general elections, while no effect is observed at local elections. In smaller municipalities (those with less than 1,000 inhabitants), where the lower diversification of the economy makes PER jobs more relevant, the increase in the support for the PSOE more than doubles. Also, when examining the evolution of the treatment effect over time, we observe a "program introduction effect" (i.e. the greatest effect occurred in the term following the implementation of the PER). The results also indicate that after the establishment of the PER there was a three percentage-point raise in the turnout rate for general elections. In Spain, abstention rates amongst left-wing voters are much higher than amongst right-wing voters, hence, this last result could indicate that the increased support for the socialist party did not come from a shift of votes from other parties but rather from higher electoral participation.

Although there is scarce quantitative evidence for the influence of public jobs on election outcomes, the results of this paper are consistent with the significant electoral returns found in two other studies. Folke, Hirano and Snyder (2011) evaluate the impact of the introduction of civil service reforms in US states over the period 1885-1995 and show that in the absence of reform (i.e. when public jobs can be delivered with more discretion), entrenched parties had a higher probability of winning the next elections than non-entrenched parties. Calvo and Murillo (2004) focus on the demand and supply side of public jobs to explain why not all parties can benefit from the delivery of public jobs. The authors find that in Agrentina, the share of provincial public employees helped increase the percent of congressional votes obtained by the Peronist party while it had no statistically significant effect on the vote for the UCR-Alianza party.

The paper proceeds as follows. Section 2 presents in detail the functioning of the Plan for Rural Employment. In section 3 we describe the data used and the empirical strategy. Section 4 presents the results. Section 5 concludes.

2 The Plan for Rural Employment

2.1 Institutional framework

The PER has its origins in the so-called Community Employment (*Empleo Comunitario*), a program established in 1971 by the Franco regime. The Community Employment plan was designed to tackle the problem of unemployment but also, and most importantly, to keep social unrest under control. By the end of the 1970s, it was not only the government (ruled at that time by the party *Unión de Centro Democrático*, UCD[6]) distributing the funds of the Community Employment but especially the main unions (*Comisiones Obreras*, CC.OO, and *Unión General de Trabajadores*, U.G.T), who were accused of engaging in clientelist relations to recruit new members for the organization (González (1990)). At that time, the PSOE was neither a consolidated nor a well-structured political party as Hopkin and Mastropaolo (2001) note: "the [socialist] party essentially consisted of small groups of ambitious young politicians in a handful of cities" (p.166).

A few years later, in 1982, the socialist party came in power in the Spanish Parliament for the first time in its history. One of the first public programs to be implemented was the PER, which was effective from January 1984[7]. It was aimed at alleviating the effects of high seasonal unemployment in rural areas and solving the shortcomings of the Community Employment. The Royal Decree 3237/83 determined that the only Autonomous Regions that could have access to the program would be those where the unemployment rate amongst "seasonal agricultural workers" (*trabajadores eventuales agrarios*) was above the national average or where the amount of such workers was proportionally higher than that in other rural areas. The scope of the program was limited to Andalusia and Extremadura given that they fulfilled the necessary requirements: in 1983 the unemployment rate amongst the agricultural workers in Andalusia and Extremadura was 26%[8], compared to 11% in the rest of Spain. In 1996, when the People's Party (PP) came to power, it extended the program to the adjacent regions of Murcia, Castile-la Mancha, and Castile-León. The program was then slightly amended and renamed PFEA (*Pograma de Fomento del Empleo Agrario*). In Andalusia and Extremadura the main change was the establishment of two categories of projects: projects to guarantee a complementary income (equivalent to the PER projects) and projects to create stable employment (which public officials admit were not very effective).

[6] UCD was a center-right party that played a major role during the Spanish transition to democracy. It was the first party in government after the francoist dictatorship and it held power since 1977 until 1982, when it was replaced by the socialist party.

[7] It was initially regulated by the Royal Decree 3237/1983 of 28 December and the Royal Decree 513/84 of 11 January. The few amendments made afterwards are not relevant for this study.

[8] In 1984, 1985 and 1986 this figure raised to 46%, 44% and 48%, respectively, while it remained below 17% in the rest of Spanish regions.

Therefore, the change in these two regions was almost negligible. In the other regions the PFEA is not fully equivalent to the PER as they do not have the agrarian subsidy.

The PER is part of a broader public program, named SIPTEA (*Sistema Integrado de Protección de los Trabajadores Eventuales Agrarios*), which consists of three pillars to target agricultural workers in southern Spain: occupational training; a special unemployment benefit for agricultural workers (the agrarian subsidy); and the Plan for Rural Employment, through which municipalities, backed by funds from the National Employment Public Service, can offer public jobs unrelated to agriculture (e.g. basic infrastructure works such as road pavement) to agricultural workers. One of the PER's objectives is to help this type of worker to accrue the minimum amount of working days needed to claim the agrarian subsidy, as they are often difficult to reach. In 1984, the agrarian subsidy accounted for 75% of the national minimum wage, to be received over 180 days per year if the worker met the following requirements: the person was unemployed, inscribed in the Social Security census of seasonal agrarian workers, lived in Andalusia or Extremadura, was older than 16 and not old enough to obtain a retirement subsidy, and had worked (and paid contributions to the National Insurance) during the previous 12 months for a minimum of 60 working days (the so-called *peonadas*, in Spanish)[9]. According to Montabes and Corzo (1997), in 1993, 223,924 workers received the agrarian subsidy but only half of them (111,830) did it thanks to the PER.

The implementation of the PER requires coordination among several Administrations. The central government, through the National Employment Public Service (INEM), distributes the PER budget amongst its provincial delegations who act as regulatory bodies. Such commissions evaluate and approve or dismiss the reports sent by the city councils, which declare the type of project to be funded, the number or workers required and the share of agricultural workers to be hired. The main criterion to allocate projects is unemployment rates and the main requisite to be fulfilled by the projects is that a substantial share (in many cases up to 75%) of the workers hired must be currently-unemployed seasonal agricultural workers. Once the provincial delegations approve the projects and their financing[10], the city council selects the workers. Table 1 shows the growing evolution (especially between 1984 and 1986) of the contracts and funds assigned to the PER.

[9] Besides the minimum working days (which have been reduced several times), the other requirements remained unchanged through the whole period under study.

[10] The central government grants to municipalities most of the money they need to provide the jobs. In addition, a smaller part of the funds required comes from the regional government, which covers the cost of material and equipment, and whenever all these amounts do not suffice, the local government disburses a small portion of the cost.

Table 1: Evolution of the number of contracts and funds assigned to the PER

No. Employment contracts					Investment (pesetas per capita)
Year	Andalusia	Extremadura	Total	Total/inhab	Total
1984	85,191	27,367	112,558	1.4%	5,643.2
1985	196,939	57,598	254,537	3.2%	5,939.6
1986	212,978	73,198	286,176	3.6%	8,630.6
1987	201,556	80,672	282,228	3.6%	9,555.9
1988	159,913	73,387	233,300	2.9%	11,305.2
1989	151,554	65,071	216,625	2.7%	13,348.4
1990	122,590	51,398	173,988	2.1%	13,001.5
1991	113,077	47,866	160,943	2.0%	15,957.7
1992	94,357	43,937	138,294	1.7%	14,143.8
1993	111,830	50,576	162,406	2.0%	14,598.9

Source: Spanish Congress. Doc.61, Serie E. 18 May 1994

2.2 Political economy considerations

A common public opinion in Spain is that the PER acts as a breeding ground for patronage[11]. This is due to the combination of beneficiaries being low-income workers and that the selection of workers is largely discretionary[12]. Moreover, in some municipalities, local representatives -particularly mayors- have been accused of committing fraud, although only a small number of them have been prosecuted. A common claim is that they sign agrarian cards stating an amount of hours that the PER worker has not really accomplished. The trick allows the worker to claim unemployment benefits afterwards. Some argue that, as a result, the PER is responsible for a large amount of unfinished public works and an inflated number of unemployed people in Andalusia and Extremadura. For instance, Cazorla (1995) reports that in certain seasons there were Andalusian towns where the real number of unemployed individuals was only ten percent out of the total number of PER workers. Another example can be found in the Andalusian municipality of Pinos Puente where the number of subsidized

[11] See for instance the following newspaper articles:

"Andalusian economists ask to eliminate the PER because it fosters 'fraud and clientelism'". El Mundo, 22/08/2012 http://www.elmundo.es/elmundo/2012/08/22/andalucia/1345664993.html

"It still weights over Andalusia, in a determinant way, like a prejudice, the idea of clientelism. (...) the idea that they live thanks to European subsidies and the PER". Diario Córdoba 29/11/2005 http://www.diariocordoba.com/noticias/opinion/caciquismo-andaluz_218728.html

"PER recipients constitute a group who is mainly thankful to the government. The subsidized countryside votes for those who rule. This is the modern form of clientelism". ABC 29/11/1993 http://hemeroteca.abc.es/nav/Navigate.exe/hemeroteca/madrid/abc/1993/11/29/047.html

[12] Poor citizens are often regarded as more susceptible to patronage, or clientelism in broader terms, provided that the utility they obtain from the private rewards exceeds the disutility of voting contrary to their ideological preferences. This idea was pointed out by Stokes (2005) in her study of Argentinean machine politics.

workers went from 900 in 1984 to 4,500 in 1987 (i.e. from 7% to 33%, of total population)[13]. Hence, the "exchange relationship" would arise at the local level -between mayors and citizens who meet directly. In such situation, we would predict that mayors of PER towns benefit electorally regardless of their party affiliation.

It is outside the scope of this paper to provide evidence on the rewards to patronage. We believe that this is a complex endeavor that cannot be pursued with the data that is currently available (electoral outcomes aggregated at the municipality level). As discussed in Kitschelt and Wilkinson (2007), the difficulty lies in providing a clear identification of the patronage relationship and the subjectivity in assessing the real motivations behind the exchange of votes. In other words, proving that there exists a *quid-pro-quo* arrangement is a challenging matter that requires more precise data, like individual-level survey data (as in Calvo and Murillo (2004) or Brusco, Nazareno and Stokes (2004)).

Regardless of the above-mentioned limitations, our database of election results does allow us to assess the change in the support for the incumbent central government after the introduction of the policy. There are two motivations that would predict an increase in the support for the socialist party at the general elections. PER workers -and their families, in turn- would feel grateful because the program provides a job (and hence, a salary) when the agricultural sector cannot offer any due to high seasonality. At the same time, other citizens of beneficiary towns could also support the policy and the party who introduced it, becasuse agriculture's status as one of the main economic activities in the area has been maintained and rural area depopulation has been avoided.

The PER is a policy that citizens in the affected regions can clearly identify with the central government. Despite being implemented in only two regions, it is a national policy whose continuation depends on the willingness of the central government and voters are aware of this fact. This implies that the central government can fully claim the credit for this policy, in contrast to other government spending like intergovernmental transfers. Nevertheless, there was another party whose electoral support could have been altered due to the introduction of the program: the communist party (initially *Partido Comunista de España*, PCE, and after 1986 comparable to *Izquierda Unida*, IU). The change in the support for the PCE is, a priori, ambiguous. As noted previously, the main unions -closely linked to the Communist Party- were accused of attracting affiliates through the discretionary allocation of funds from the Community Employment. If this were the case, then the introduction of the PER, which left the unions with no control over the program's funds, could have translated into lower vote shares for the Communist Party. In parallel, the U.G.T union (contrary to what CC.OO did)

[13] In this particular case, an investigation for fraud started in 1990 and the mayor of Pinos Puente was sentenced to eighteen months of imprisonment for having signed 200,000 working hours for 4,000 laborers. http://elpais.com/diario/1996/06/08/espana/834184817_850215.html

gave its support to the approval of the program and this could have lead to an increase in support for the PCE.

3 Empirical approach and data

3.1 Identification strategy and estimation

In this study we are interested in finding the average impact of the introduction of the Plan for Rural Employment on the electoral support for the socialist party in the affected municipalities (i.e. the average treatment effect for the treated, ATT). An ideal strategy would be to use a randomized experiment, to ensure there are no permanent differences in any other pre-treatment variables. However, a counterfactual is not available as it is not possible to observe electoral outcomes at the same point in time in the treatment municipalities with and without the existence of the PER and, therefore, we instead turn to non-experimental methods that mimic an experiment. One such method is the difference-in-differences (DiD) approach (Card and Krueger (1994, 2000)), which has been broadly used in program evaluation studies. This consists of a fixed-effects estimation that takes into consideration two types of differences: structural differences between the treatment and the control group, and differences within the treated municipalities over time (i.e. between the pre- and post-treatment periods). In order to obtain more robust results and to account for the fact that it is essentially rural municipalities in Andalusia and Extremadura -rather than urban areas- who benefit from the PER, we use a DiD strategy in combination with propensity score matching.

Choice of the treatment and control groups

The treatment group is formed by those municipalities in Andalusia and Extremadura with at least 1% of population being PER beneficiaries. The control group, in turn, includes the adjacent regions of Castile-la Mancha, Castile-León and Murcia (see map in Figure1 for the regions' geographical location).

Figure 1: Treatment and control regions

The choice of the control regions has been made in order to reduce to the greatest possible extent the disparities between treatment and control groups[14]. On the socioeconomic side, prior to the approval of the PER, these five regions were on average rural regions with low population density, a per capita GDP lower than the average, a large weight of the agricultural sector in their regional GDP, and high unemployment rates in the agricultural sector. If the control group were all the Spanish regions -excluding Andalusia and Extremadura-, the differences in the economic structure would be larger (see Table 2). For instance, the Basque Country and Catalonia are more industrialized regions with lower agricultural production and less rural (if proxied by their population density). Moreover, on the political side, regionalist parties have a strong presence in these regions, which makes them less comparable to the treatment group, thereby making them less appropriate as control groups. Further, it is worth noting that from 1982 until 1996 (the period under study), the regional governments of the control regions, with the exception of Castile-León from 1987, were governed by the socialist party.

[14] In fact, as mentioned, it is Castile-la Mancha, Castile-León and Murcia where the PER (or PFEA afterwards) was extended to in 1996 by the People's Party.

Table 2: Socioeconomic indicators of the Spanish regions in the early 80s

Region	Density (pop/km2)	Agrarian production	Relative per capita GDP	Unemployment	Agricultural unemployment
Treated regions					
Andalusia	73.53	11.21%	75 %	22.41%	3.01%
Extremadura	25.22	17.05%	58%	16.34%	1.70%
Untreated regions					
Aragon	25.42	8.10%	103%	13.69%	0.25%
Balearic Islands	137.25	3.07%	115%	13.94%	0.02%
Basque Country	295.06	0.84%	131%	19.61%	0.21%
Canary Islands	193.98	5.25%	93%	19.11%	0.79%
Cantabria	95.99	0.6%	107%	12.60%	0.18%
Castile-La Mancha	20.47	16.03%	80%	14.08%	1.58%
Castile-León	27.33	7.60%	90%	13.56%	0.52%
Catalonia	185.54	2.50%	114%	21.07%	0.19%
Galicia	93.11	3.35%	84%	9.89%	0.19%
La Rioja	50.21	12.20%	118%	11.28%	0.05%
Madrid	588.84	0.33%	119%	16.70%	0.07%
Navarre	48.83	6.93%	127%	15.51%	0.27%
Principality of Asturias	106.28	1.27%	94%	13.90%	0.08%
Region of Murcia	84.67	9.25%	91%	16.62%	1.62%
Valencian Community	156.82	6.56%	101%	17.27%	0.40%

Notes:
(1) Definitions: density (population density, in 1981); agrarian production (agricultural production/GDP, in 1982), relative per capita GDP (regional GDP/national GDP, in 1982); unemployment (unemployed workers/total labor force, in 1983), agricultural unemployment (agricultural unemployed workers/ total labor force, in 1983).
(2) Data sources: population density (*Estadísticas Históricas de España, Siglos XIX– XX, (Bilbao: Fundación BBVA, 2005)*); agrarian production (Anuario de Estadística Agraria); relative per capita GDP (regional accounts, INE); total and agricultural unemployment (economically active population survey, *INE).*

Econometric strategy

Using the standard DiD estimator, the treatment effect (τ) would be estimated through the following linear regression:

$$Y_{it} = \alpha_i + \mu_t + \tau D_{it} + \lambda' X_{it} + \varepsilon_{it} \tag{1}$$

where Y_{it} denotes the outcome of interest (i.e. election outcomes) for municipality i at electoral term t; α_i and μ_t are municipality and time fixed-effects, to control for municipality-specific omitted variables and time trends, respectively; X_{it} is a vector of time-varying covariates (described in the next section); D_{it} is a binary variable equal to one if the municipality is affected by the program at election t (thus, before the 1984 election this indicator is fixed to zero); ε_{it} is the time-varying error term, assumed to be independently distributed. The key estimate is τ, which indicates the difference between the average change in the outcome variable of the treatment group and that of the control group.

A main feature of the Plan for Rural Employment is that the policy mainly benefits rural municipalities, as its name suggests. None of the decrees that regulate the PER however specifies which sort of municipality should be regarded as rural. In principle, all municipalities in Andalusia and Extremadura can request PER funds but, as already mentioned, in the application process they have to state the number of agricultural workers they plan to hire in each project. In big municipalities, such as province capitals, agricultural workers make up a much smaller proportion of the total labor pool -they do not even account for 1% of the total population. These municipalities are not regarded as "PER towns" and this aspect is a key point of our identification strategy. Provided that the treated municipalities are essentially rural, the parallel paths assumption required by the conventional DiD estimator may not hold[15]. This would happen if, for instance, in rural villages citizens would vote in a differential way and they have features that are not balanced between the treated and control groups.

To relax the parallel paths assumption, we estimate the ATT using a two-step strategy that combines propensity score matching with a difference-in-differences (DiD) approach. The procedure allows the treatment effect to vary across municipalities and has its origin in Heckman, Ichimura and Todd (1997, 1998)[16]. Blundell and Costa Diaz (2000) provide a good summary for the implementation of this strategy.

In the first stage of the empirical analysis, municipalities in the control group are matched to those in the treatment group using a propensity score, $P(X_i) = Prob(D_i = 1 \mid X_i)$, based on a set of characteristics (X_i) measured at the pre-treatment period. These characteristics are the level of unemployment, the relevance of the agricultural sector in the municipality and if the municipality is rural or urban (see exact variables and further discussion in the next section). The choice of these features is based on the fact that rural municipalities with a high level of unemployment and whose economy relies mostly on agriculture are highly likely to be treated municipalities.

In the second stage of the econometric strategy, we use the weights obtained through propensity score matching to compare differences in pre- and post-treatment electoral outcomes for the treated municipalities relative to weighted averages of pre- and post-treatment electoral outcomes in control municipalities. Therefore, we obtain a DiD estimator that is conditional on some observable variables and the average treatment effect on the treated is estimated as:

[15] In our framework, this assumption implies that the trends followed by electoral outcomes in the treatment and control municipalities in the absence of intervention (that is, before 1984) must be equal.

[16] Abadie (2005) proposes a semiparametric difference-in-differences estimator similar to that of Heckman, Ichimura and Todd (1997, 1998) but with a different weighting scheme.

$$\hat{\tau}_{ATT} = \sum_{i\epsilon\{D=1\}} \left[(Y_{i1} - Y_{i0}) - \sum_{j\epsilon\{D=0\}} W_{ij}(Y_{j1} - Y_{j0}) \right] w_i \tag{2}$$

where Y_{i1} and Y_{i0} are the outcomes of the treated municipality i in the post- and pre-treatment periods, respectively, and similar for municipalities j in the control group; W_{ij} are the weights obtained in the first stage using kernel regression; and w_i serves to reweight the distribution of electoral outcomes for the treated municipalities[17].

In this setting, there are two crucial assumptions that need to be fulfilled. The first one is that the outcomes of the treated and control municipalities should have a common trend in the pre-treatment period, conditional on some covariates X, which can be expressed as:

$$E\left[Y_{i1}^0 - Y_{io}^0 \,|\, X_i,\, D_i = 1\right] = E\left[Y_{i1}^0 - Y_{io}^0 \,|\, X_i,\, D_i = 0\right] \tag{3}$$

where Y_{it}^0 is the electoral outcome of municipality i at time t without being exposed to treatment. The second requisiste is that all treated municipalities ought to have a match in the control group (i.e. $0 < Prob(D_i | X < 1)$.

Lastly, the error term in our model may suffer from a serial correlation problem. This means that there may be unobservable factors that cannot be controlled for and affect election results, and at the same time are correlated over time within municipalities. Political preferences in a municipality are quite persistent: many municipalities have a historical record of repeatedly voting en mass for a specific party. Therefore, to provide consistent estimates the errors are clustered at the municipality level.

3.2 Data and variables

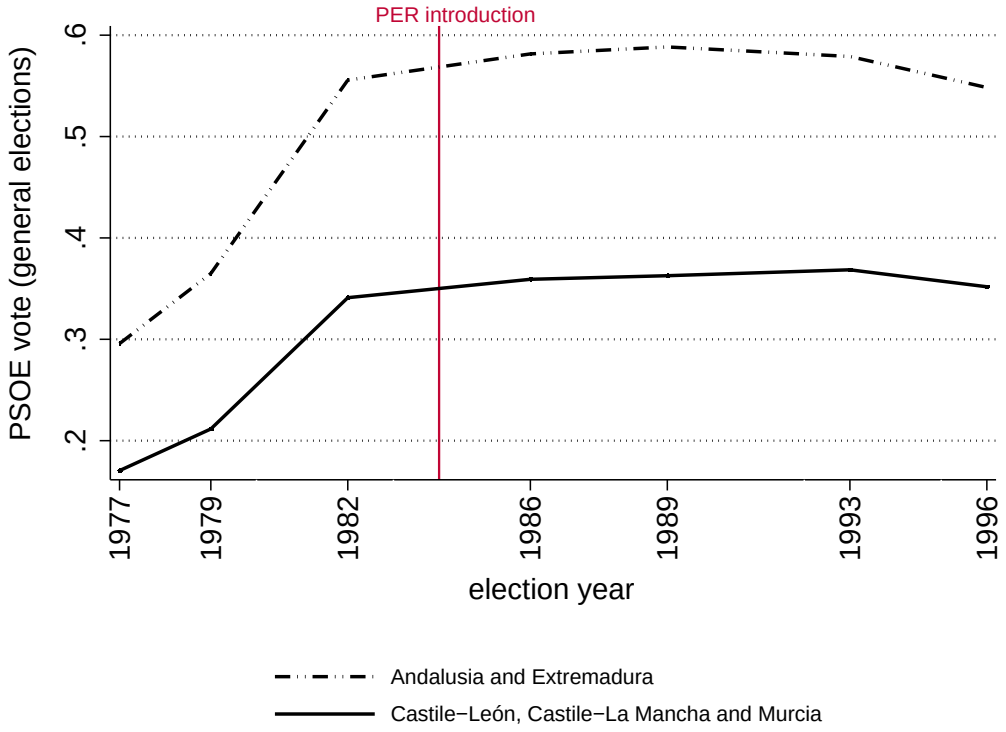
Sample. The database used to examine the potential effect of the PER on election outcomes consists of electoral results (vote share for the socialist and other parties) and voter turnout in general and municipal elections. The data cover the period 1982-1995 and the information has been collected from the Ministry of Home Affairs[18]. Electoral data is available since 1977 -the year of the first democratic election after Franco's dictatorship- taking the 1982 general election as starting point, however, prevents us from capturing the increased support that the socialist party experienced in Andalusia in the 1982 election due to the fact that one of the candidates running for president was Felipe González, originally from Andalusia. Figure 2 below shows the evolution of the vote share for the socialist party both in the treated and

[17] Recall that $\hat{\tau}_M = \sum_{i\epsilon\{D=1\}} \left[Y_i - \sum_{j\epsilon\{D=0\}} W_{ij} Y_j \right] w_i$ is the matching estimator of the average effect of treatment on the treated municipalities.

[18] The data is publicly available at http://www.infoelectoral.mir.es/

control regions over the period under analysis, and we can observe that the sharpest increase occurs before the introduction of the PER.

Figure 2: Socialist support in treated and control municipalities



The last election included in the study is 1995 because, as mentioned above, in 1996 the PER was replaced by a program (PFEA) that extended its scope to a larger number of Spanish regions. Thus, the general elections taken into consideration are those held in 1982, 1986, 1989 and 1993. Although the main focus of attention of this paper is on general elections (when the central government is elected), we also test whether there is some effect in the support for the socialist party at the municipal elections and to do that we include the local elections in 1983, 1987, 1991 and 1995.

As previously mentioned, to accurately define the treatment group, we must restrict the treated sample to those municipalities in Andalusia and Extremadura with a minimum level of PER beneficiaries[19]. Unfortunately, a systematic collection of data on the geographical distribution of PER recipients at the municipal level did not take place during the early years of the program. Despite this limitation, we have these detailed data for Andalusia (period 2008-2010), and for one of the two provinces of Extremadura, namely Badajoz (year 2008)[20]. Moreover, for one of the Andalusian provinces (Granada) the data spans over a

[19] Initially we set the threshold at 1% of PER beneficiaries out of total population in the municipality but we replace it with a more restrictive threshold in the robustness section.

[20] The regional and provincial governments have provided the data for Andalusia and Granada, respec-

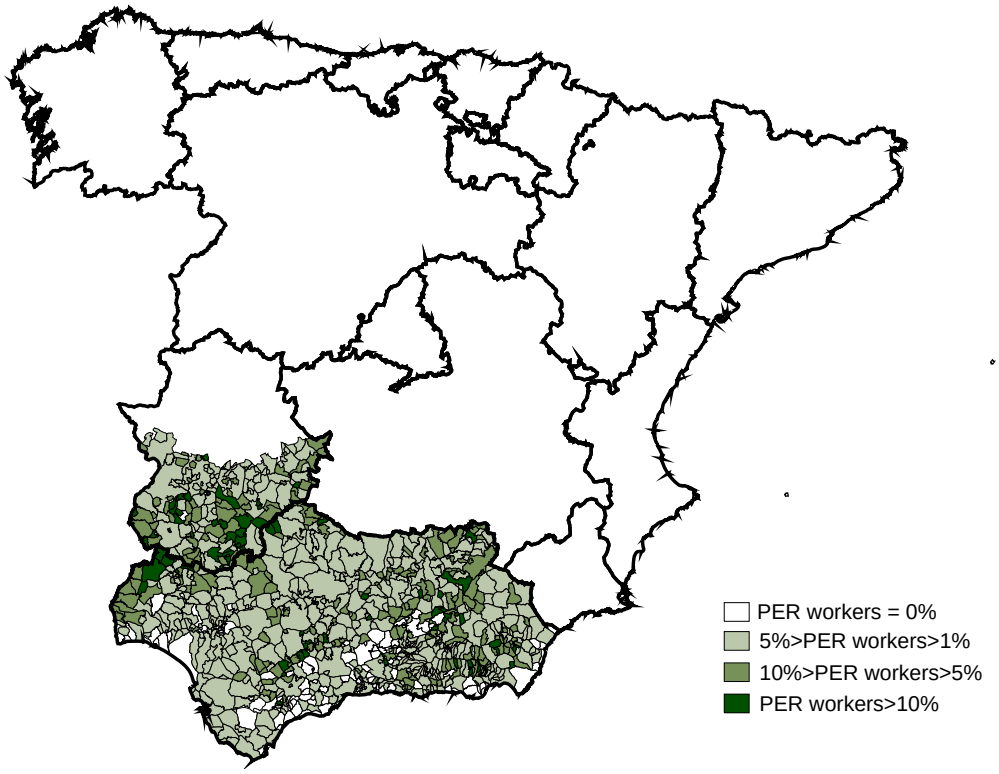
longer period (1998-2010). A close look at this information reveals that a large share of municipalities maintain their status of treated/untreated over the years. For instance, in the province of Granada the treatment status remains unchanged over the period 1998-2010 in 80% of the municipalities. This is consistent with the fact that, as mentioned, the program helped rural towns to maintain their agrarian activity and therefore the incidence of the PER remained fairly persistent over time. Also, there are certain Andalusian provinces that benefit more than others from the program (i.e. where a large number of projects and jobs are concentrated). Over the period 2008-2010 these provinces were Sevilla, Jaén, Granada and Córdoba, with an average percentage of PER jobs (computed as a share of total PER jobs in Andalusia) of 21%, 22%, 15% and 15%, respectively.

Provided that for Extremadura we only have data for 2008, we use the information of this year to construct the treatment group, which comprises the municipalities where the share of PER beneficiaries in 2008 exceeds the 1% threshold[21]. In our sample this group is formed by nearly 700 (out of 900) municipalities in Andalusia and Extremadura and, as expected, does not include most province capitals and big cities. Also, certain areas, like coastal towns (where tourism has a higher relevance than agriculture), have on average lower shares of PER beneficiaries (see map in Figure 3). The average percentage of program beneficiaries in the treated group is around 5% and the final sample contains information for over 3,600 municipalities.

tively, while the information for Badajoz was collected by the corresponding provincial delegation of the National Employment Public Service. In the case of Cáceres (the other province of Extremadura), the data was requested but not supplied.

[21] The province of Cáceres is dropped from the sample as no data is available.

Figure 3: PER workers as a share of total population in the municipality



Covariates used for the matching and other controls. The observables chosen to match control and treated municipalities are those that determine the probability of being affected by the program. The variables selected are: unemployment rate; units of temporary wage labor (*unidades de trabajo asalariado eventual al año*, UTAS) as a share of the town's total population[22]; education levels (measured as the share of population over 16 that were enrolled in an education program at the census year); and a dummy equal to one if the observation corresponds to a rural municipality[23]. The matching procedure ought to be undertaken with values of these variables prior to the introduction of the PER in 1984. Unemployment, education and population density are taken from the 1981 population census of the National Statistics Office, while the units of labor are collected from the 1982 agrarian census.

Besides the above-mentioned covariates, the difference-in-differences regressions include further controls[24]. The other variables that could potentially have an effect on electoral

[22] This information is extracted from the agrarian census elaborated by the National Statistics Office and it is a measure that accounts for the amount of full-time equivalent work per year. This figure is computed for both permanent and fixed laborers but we believe that the former better approximate the weight of PER workers.

[23] According to the OECD Rural Policy Review of Spain (2009), rural municipalities are defined as municipalities with a population density of less than 150 inhabitants per squared kilometer.

[24] The set of regressors is, however, limited due to the few information available for the pre-treatment

outcomes are population growth (which can alter the political preferences of the voters in a municipality if driven by immigration from other regions), and the share of retired workers (to take into account the age structure of the municipality). Descriptive statistics for the variables described in this section are provided in Table 3.

Table 3: Descriptive statistics

Variable	Treatment group				Control group			
	Mean	SD	Min	Max	Mean	SD	Min	Max
Vote share for the socialist party (general elections)	0.590	0.110	0	0.878	0.357	0.141	0	0.852
Voter share for the communist party (general elections)	0.073	0.081	0	0.660	0.028	0.035	0	0.542
Turnout (general elections)	0.768	0.084	0.263	0.973	0.783	0.084	0	0.144
Vote share for the socialist party (local elections)	0.499	0.183	0	1	0.323	0.252	0	1
Unemployment rate (%)	0.324	0.161	0	0.835	0.125	0.085	0	1
Units of temporary wage labor (per capita)	0.026	0.060	0	1.445	0.012	0.020	0	0.811
Education (%)	0.086	0.081	0	0.510	0.088	0.080	0	0.611
Rural municipality	0.957	0.202	0	1	0.986	0.116	0	1
Population growth (%)	-0.038	0.075	-0.845	0.223	-0.058	0.090	-0.733	1.693
Retired workers (%)	0.151	0.079	0	0.443	0.175	0.108	0	0.638

4 Results

4.1 The determinants of the geographic distribution of PER beneficiaries

The crucial aspect of our econometric strategy is to place a higher weight on those observations in the sample with a higher probability of being treated so that the treatment effect is not homogeneous across municipalities. We argue that in the treatment regions, the probability of being treated is explained by the level of unemployment, the relevance of agriculture as a productive sector, and the extent to which the municipality is rural. To provide evidence for this, we regress the covariates used in the matching procedure on a dependent variable that is equal to one if the share of PER workers in the municipality is over 1%. The regression is restricted to our sample of municipalities in Andalusia and Extremadura and all the figures are for the year 2008. Table 4 shows the estimates of a probit regression. All the variables selected are highly statistically significant and they show the expected sign. An increase in the units of temporary wage labor (UTAS) and unemployment rates, raises the probability

period.

that a municipality is affected by the PER, and the opposite effect is true when there is an increase in the share of population with tertiary education (as people with higher degrees are less likely to work in the agrarian sector and, therefore, less prone to become PER workers). Also, being a rural municipality (i.e. a less densely populated town) increases the probability of being a PER town by 60 percent. Although the model with the highest explanatory power is the one in the seventh column, where all the covariates are included simultaneously in the regression, the fact that these observables are fairly correlated[25] renders some of the coefficients insignificant and this is why we present other combinations of variables in the fifth and sixth columns.

Table 4: Determinants of treatment probability in 2008, Andalusia and Extremadura

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
UTAS	1.633				0.942		-0.182
	(0.594)***				(0.491)*		(0.535)
Rural municipality		0.573				0.550	0.476
		(0.039)***				(0.042)***	(0.048)***
Unemployment (%)			0.5616			0.285	0.872
			(0.131)***			(0.139)***	(0.131)
Education (%)				-5.217	-4.933		-3.496
				(0.525)***	(0.543)***		(0.625)***
Obs.	934	934	934	934	934	934	934
Pseudo R^2	0.0272	0.175	0.0265	0.144	0.152	0.186	0.224

Notes: (1) Dependent variable: binary variable equal to one if the number of PER workers exceeds 1% of the total population; (2) robust standard errors in parentheses, ***p<0.01, **p<0.05, *p<0.1; (3) the estimates correspond to marginal effects of a probit regression; (4) UTAS refers to the units of temporary wage labor per capita in the agricultural sector, rural municipality is a binary variable equal to one if the population density is less than 150 inhabitants per squared kilometer, unemployment is the number of unemployed workers as a share of total labor force, and education is the share of population with tertiary education.

We have also considered other variables to account for the weight of agriculture in a municipality or its rural nature but disaggregated data is unavailable for the pre-treatment period. These other covariates are the assessed value of the property (the lower this is, the more rural the municipality is), the share of employed people working in agriculture, and the share of people searching for a job in the agricultural sector as a share of total unemployed. The regressions including these variables are not provided for the sake of brevity but all these factors have a statistically significant impact on the probability of treatment (the assessed value of the property has a negative effect, while the estimates for the other two variables are positive).

[25] For instance, the correlation between *UTAS* and *Unemployment*, and *Rural municipality* and *Education*, are 0.2 and -0.4, respectively.

4.2 Political consequences of the introduction of the PER

Program effects on the support for the socialist party

In a previous section we have already shown a graphical representation of the vote share for the PSOE in the five regions in our sample. However, a graphical inspection of the evolution of socialist vote within Andalusia and Extremadura reflects a great divergence between the municipalities affected by the PER and those not affected. As shown in Figure 4, between 1977 and 1982 the support for the PSOE kept increasing in both types of municipalities, but after the 1982 election this trend only persisted in PER towns. At the same time, the vote share for the PSOE in the rest of the municipalities started to decrease.

Figure 4: Socialist support in municipalities within Andalusia and Extremadura

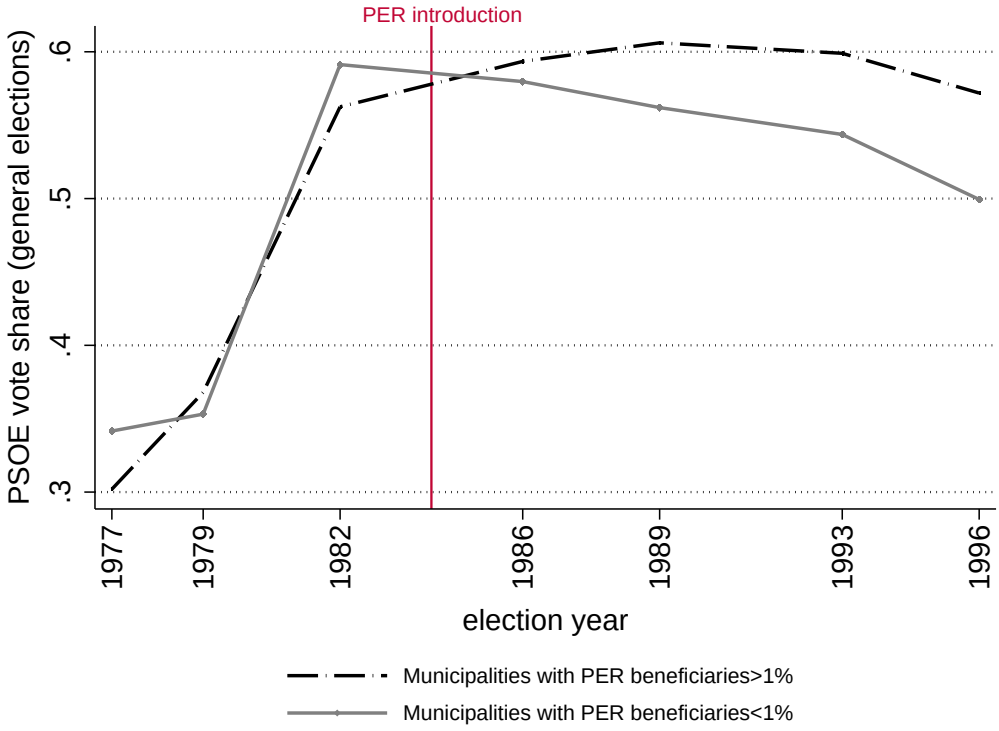


Table 5 reports the average treatment effect on the treated municipalities as expressed in Equation 2 above. In the first, second, and third columns, the dependent variable is the vote share for the PSOE at general elections, which is the main focus of this paper. However, we also want to confirm that no effect was present in local elections, where voters cast their vote based mostly on the characteristics of the mayoral candidates. In the fourth and fifth column the dependent variable is the vote share for the PSOE at local elections. All the regressions include a set of controls consisting of education and unemployment levels, population growth and percentage of retired workers, as well as time- and municipality-

fixed effects. The explanatory variable is a binary variable equal to one if the observation corresponds to a treated municipality after 1984 (variable labeled *PER*).

Table 5: Program effects on the support for the PSOE

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Dependent variable: PSOE vote share						
	at general elections				at local elections		
PER	0.018	0.023	0.011	0.023	0.003	0.006	0.000
	(0.005)***	(0.006)***	(0.006)*	(0.006)***	(0.013)	(0.009)	(0.009)
PER × Term1989-93				0.001			
				(0.005)			
PER × Term1993-96				0.000			
				(0.004)			
PER × Small			0.049				0.021
			(0.009)***				(0.013)
Observations	14,600	14,280	14,280	14,280	14,132	13,805	13,805
R-squared	0.065	0.105	0.121	0.105	0.0356	0.375	0.375
Controls	no	yes	yes	yes	no	yes	yes

Notes: (1) robust standard errors in parentheses, ***p<0.01, ** p<0.05, * p<0.1; (2) SE clustered by municipality; (3) time and municipality fixed-effects in all equations; (4) *Small* is a dummy variable equal to one if the municipality has less that 1,000 inhabitants; (5) *PER* is a binary variable that indicates treatment; (6) *Term1989-93* and *Term1993-96* are time dummies indicating the electoral term, and the reference term is that of 1986-1989 (i.e. first term after the program was introduced); (7) the controls included are an indicator of the education level, unemployment rate, share of retired workers and population growth; (8) the regressions in columns 4 and 5 also control for the party of the mayor.

The estimates in Table 5 show that in PER towns, there was a 2.3 percentage point increase of the vote share for the PSOE in the general elections after the introduction of the PER. Considering that in the treated municipalities the average socialist vote share in 1982 (prior to the establishment of the program) was 56%, the average treatment effect would be around 4% (=2.3/56). In the second column, we test whether the effect differs for small municipalities (those that have less than 1,000 inhabitants). In these type of municipalities, citizens may be more dependent on the PER, and therefore, more responsive to the introduction of the program[26]. Such dependency would arise, for instance, if the economic structure of the municipality is less diversified than in other rural areas and the opportunities to find a job in a sector unrelated to agriculture are lower. To test this hypothesis the regression in the second column accommodates a different slope for small municipalities including an interaction between the treatment variable (*PER*) and a dummy equal to one if the municipality's total population is lower than 1,000 (*Small*). The coefficient associated with this interaction reflects that the impact of the program is 5.9 percentage points larger in small municipalities and is statistically significant.

[26] In fact, the share of PER workers in these villages is on average larger than in bigger treated municipalities (9% versus 6%).

Another relevant aspect to evaluate is whether the increase in the support for the socialist party was a "program introduction effect" that disappeared over the years. To examine this idea in the model we include time dummies for the "post-treatment" terms interacted with the treatment variable and we take the first legislature after the introduction of the PER (the 1986-1989 term) as a reference term. The outcomes are presented in the third column of Table 5 and show that the impact of the project was statistically significant during the first term after the introduction of the PER but there was no further increase (or decrease) in the vote share for the socialist party in the second and third terms (neither seems to be a decrease).

Lastly, and as expected, no statistically significant change is found in the voting behavior at local elections, as shown in the fifth and sixth column of Table 5.

Program effects on other electoral outcomes

The increase in the support for the socialist party could be explained partly from lower abstention rates amongst PSOE voters given that abstention in Spain tends to be higher for left-wing voters (including PSOE supporters) than for right-wing ones[27]. To examine this issue further we run additional regressions using the voter turnout at the general elections as a dependent variable. The outcomes are presented in the first and second columns of Table 6. The coefficient associated to the explanatory variable in the first column suggests that the introduction of the program increased turnout in affected municipalities by 2.96 percentage points. In these municipalities the average turnout in the pre-treatment period at general elections was 77%, therefore the average treatment effect is a 4% increase. We also find that this effect is not significantly larger in small municipalities, as shown in the second column.

[27] A clear example is the Spanish general elections of 2004 where there was a substantial increase in voter turnout of 7 percentage points, which gave the PSOE its victory. The main opposition party, the People's Party, had a major loss of votes in percentage terms but not in absolute number of votes, which means that the mobilization of voters did not favor the PP (see Boso, Muñoz and Pallarés (2005)). Furthermore, in a quantitative analysis of the Spanish case, Rowe, Lago-Peñas and Lago-Peñas (2014) find that a one point increase in voter turnout raises the vote share for the socialist party by 0.5 points in the short-run and by 0.9 points in the long-run.

Table 6: Program effects on other electoral outcomes

	(1)	(2)	(3)	(4)	(5)	(6)
	Dependent variable					
	Turnout			PCE vote		
PER	0.027	0.029	0.028	0.004	0.006	0.007
	(0.004)***	(0.003)***	(0.003)***	(0.002)*	(0.003)**	(0.003)**
PER × Small			0.007			-0.006
			(0.006)			(0.003)*
Observations	14,600	14,280	14,280	14600	14,280	14,280
R-squared	0.329	0.356	0.358	0.196	0.200	0.201
Controls	no	yes	yes	no	yes	yes

Notes: (1) In columns 1 and 2 the dependent variable is the turnout at general elections, and in columns 3 and 4 it is the vote share for the communist party (initially PCE and IU afterwards) at general elections; (2) robust standard errors in parentheses, ***p<0.01, ** p<0.05, * p<0.1; (3) SE clustered by municipality; (4) *Small* is a dummy variable equal to one if the municipality has less that 1,000 inhabitants; (5) *PER* is a binary variable that indicates treatment; (7) the controls included are an indicator of the education level, unemployment rate, share of retired workers and population growth.

As discussed in section 2, the support for the communist party (PCE) could have also been altered by the introduction of the policy. We evaluate this hypothesis estimating the change in the PCE vote share after 1984. The results, shown in the third and fourth columns, reveal that in PER towns there was indeed an increase in the vote share for the communist party after the introduction of the program. The estimates point to a statistically significant increase of 2.96 percentage points in the support for the PCE, which for an average municipality (where the communist party had a 6% vote share in 1982) would represent a 5% increase. In small municipalities the change was significantly different and the average treatment effect on the treated was 6 percentage points lower than in bigger municipalities.

The increase in the support for the socialist party could come from abstention, from a shift in votes from other left-wing parties (such as the communist party), or from a combination of both. The results in the second and fourth columns could suggest that the different effect on the support for the socialist party that we observe in small villages is driven by a shift of votes from the communist party rather than from increased participation. However, the empirical evidence regarding the change in the behavior of communist voters has to be interpreted with caution for two reasons. The first one is that the results only hold for this precise specification and once the definition of treatment is changed, the estimates become statistically insignificant (see robustness section). Secondly, as explained above, in 1986 the communist party formed a coalition named *Izquierda Unida* (IU) with other left-wing parties. Although the PCE was the most representative party within IU, it is worth noting that the votes for the PCE do not fully equate to those of IU (although that is our assumption in the previous regressions).

4.3 Falsification and robustness tests

To conclude the results section, we include additional regressions with the aim to test the robustness of the previous findings. The first issue we examine is the sensitivity of the results with regards to the definition of treated municipalities. In the regressions presented above, treated municipalities are defined as those where the share of PER workers was above 1% of the total population. The use of a more restrictive measure of treatment, should yield results that remain statisically significant, although the size of the effect may be slightly larger as we are now concentrating on municipalities with a higher concentration of PER jobs. To test this hypothesis, the sample of treated municipalities within Andalusia and Extremadura is limited to towns where the share of PER workers exceeds 5% of the population (i.e. an above-average share of program beneficiaries). The new sample consists of nearly 600 treated towns. The outcomes are presented in Table 7. In overall terms, all the above results hold (except for the change in the support for the communist party). The estimates related to the changes in support for the PSOE are larger than the previous ones and the impact on voter turnout remains unaffected. For the average treated municipality, an increase of 3.5 percentage points in the socialist vote share (see first column) represents a statistically significant increase of 6% (=3.5/55). The change in turnout at general elections corresponds to an increase of 4% (=2.99/76) in the average PER town. The coefficients assigned to the effect of the program on the support for the socialist party at local elections remain statistically insignificant while those related to the support for the communist party at general elections become statistically significant.

Table 7: Restrictive definition of treatment (share of PER beneficiaries > 5%)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Dependent variable:							
	PSOE vote (G.election)		PSOE vote (L.election)		turnout (G.election)		PCE vote (G.election)	
PER	0.035***	0.016*	0.011	-0.001	0.029***	0.027***	0.005	0.007
	(0.009)	(0.008)	(0.011)	(0.012)	(0.004)	(0.004)	(0.005)	(0.006)
PER × Small		0.056***		0.033		0.007		0.0018
		(0.012)		(0.016)**		(0.007)		(0.006)
Observations	12,988	12,988	12524	12,524	14,280	14,280	14,280	14,280
R-squared	0.127	0.147	0.3919	0.393	0.356	0.358	0.200	0.201
Controls	yes	yes	yes	yes	yes	yes	yes	yes

Notes: (1) robust standard errors in parentheses, ***p<0.01, ** p<0.05, * p<0.1; (2) SE clustered by municipality; (3) *Small* is a dummy variable equal to one if the municipality has less that 1,000 inhabitants; (4) *PER* is a binary variable that indicates treatment; (5) the controls included are an indicator of the education level, unemployment rate, share of retired workers and population growth; (6) columns 7 and 8 control also for the party of the mayor; (7) columns 3 and 4 use outcomes from local elections and the rest of columns are based on general election results.

The threshold that determines whether a municipality in Andalusia or Extremadura is treated or untreated may also be used to perform a falsification test. This involves creating a fake treatment group that includes all the municipalities in the treatment regions with a share of PER workers below 1%. In this case, we expect to find no statistically significant effect of the program on electoral outcomes. The estimates presented in Table 8 confirm such expectations.

Table 8: Falsification test (share of PER beneficiaries < 1%)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Dependent variable:							
	PSOE vote (G.election)		PSOE vote (L.election)		turnout (G.election)		PCE vote (G.election)	
PER	0.004	-0.002		0.022	0.005	-0.000	0.000	-0.000
	(0.009)	(0.009)		(0.014)	(0.006)	(0.006)	(0.004)	(0.005)
PER × Small		0.045		-0.037		0.039		0.003
		(0.031)		(0.049)		(0.012)***		(0.011)
Observations	12,467	12,467		12,467	12,988	12,988	12,467	12,467
R-squared	0.209	0.214		0.370	0.351	0.352	0.370	0.370
Controls	yes	yes	yes	yes	yes	yes	yes	yes

Notes: (1) robust standard errors in parentheses, ***p<0.01, ** p<0.05, * p<0.1; (2) SE clustered by municipality; (3) *Small* is a dummy variable equal to one if the municipality has less that 1,000 inhabitants; (4) *PER* is a binary variable that indicates treatment; (5) the controls included are an indicator of the education level, unemployment rate, share of retired workers and population growth; (6) columns 7 and 8 control also for the party of the mayor; (7) columns 3 and 4 use outcomes from local elections and the rest of columns are based on general election results.

Finally, we test the alternative explanation that it was not the PER but rather the decentralization process started in the early 80s (prior to the introduction of the PER) in Andalusia and Extremadura what had affected the level of support for the socialist party in these regions. The Spanish Constitution approved in 1978 established the right of autonomy for the regions, which formed the basis for the current system of Autonomous Regions in Spain. Andalusia and Extremadura approved their Statute of Autonomy in 1981 and 1983, respectively, and this was followed by a decentralization of powers from central to regional governments, coupled with large transfers of funds to compensate for the costs. At the time of the approval of Andalusia and Extremadura's Statutes (and throughout the rest of the period in our sample) their regional governments were aligned with the central government, which could have led to certain biases in the allocation of transfers[28]. If these funds were used, for example, to build new schools or hospitals, voters could have further incentives to reward the PSOE. The decentralization process, however, should not have affected the electoral outcomes in Extremadura as the devolution of powers in the health and education

[28] Arulampalam et al. (2009) and Solé-Ollé and Sorribas-Navarro (2008) provide empirical evidence on such partisan bias for India and Spain, respectively.

sector took place in 2001 and 1999, respectively (CEOE (2011)). In Andalusia, the devolution of powers in these two sectors occurred in 1982 (education) and in 1999 (health). Thus, we only consider the decentralization of education in Andalusia as a potential confounder of our results. To test this possibility, we add the number of education centers per 1000 inhabitants as a control variable[29]. The results, not presented for the sake of brevity, show that the sign, significance and magnitude of the coefficients associated to the treatment variable remain unchanged and therefore confirm the robustness of our results[30].

5 Conclusions

This article examines the electoral rewards to public employment using as a case study the Spanish Plan for Rural Employment (PER). This program provides temporary public jobs to agricultural workers in order to mitigate the negative consequences of high seasonal unemployment in the agricultural sector. The policy has been highly controversial since its establishment in 1984. In socioeconomic terms, the PER has helped in reducing the flow of people leaving rural areas but it has not been effective in tackling unemployment. Further, there is the widespread perception that it was more beneficial politically than economically. In this sense, it is often argued that it was thanks to the PER that the socialist party not only was able to increase its support base, but also created its two main strongholds in the regions where the program was introduced (Andalusia and Extremadura). However, up until now, there has been no formal attempt to empirically test the electoral consequences of the PER for the socialist party.

We evaluate voters' responsiveness to this employment policy using municipal-level data over the period 1982-1995 and through employing a difference-in-differences matching estimator. The key aspect of our identification strategy revolves around the fact that the PER was designed to target rural municipalities, where agriculture is the main economic activity and unemployment rates are high. Provided that the program was not implemented nationwide but limited to only two Spanish regions, we can match affected municipalities in the treatment group (Andalusia and Extremadura) with similar ones in a control group formed by the adjacent regions of Castile-La Mancha, Castile-León and Murcia. The propensity score matching that we use is based on three factors that determine whether or not a municipality is treated: unemployment rates, the relevance of agriculture, and if the municipality is rural or urban. In the second stage of our empirical strategy, we use the weights obtained through matching to run a difference-in-differences (DiD) regression so that observations with a higher probability of being treated have a higher relevance. With the DiD estimator we can test

[29] The data is obtained from the census of establishments.

[30] The coefficient associated to the number of education centers is statistically insignificant.

whether the difference in the vote share for the socialist party observed in treated and control municipalities is significantly higher after the establishment of the program.

According to our results, the introduction of the PER in treated municipalities results in a 4% increase in the vote share for the socialist party at general elections and no reward at local elections (as expected given the relevance of the mayoral, instead of the presidential, candidate in these races). Also, the increased support for the PSOE is larger (around 10%) in smaller municipalities, where the economic structure is less diversified and the agricultural sector is the main driver of economic activity; thus, greater potential dependence on the PER increases its electoral rewards. We also find evidence that the electoral impact occurred mainly during the first term after the introduction of the program and no further increase took place in the next two terms. In addition, we document an increase in voter turnout at general elections. This could partly explain the increase in support for the socialist party as in Spain, an increase in voter turnout tends to favor left-wing parties.

The robustness of the results is tested in three different ways. The first one involves running the same regressions using a fake treatment group that includes municipalities in Andalusia and Extremadura who were not affected by the program (i.e. big urban municipalities). The second consists of testing how sensitive the results are to the definition of treatment. Finally, we evaluate whether the decentralization process that took place in Spain during the 80s could act as a potential confounder and conclude that this was not the case.

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