Reform of the Personal Income Tax in Spain: Effects on internal mobility of the unemployed

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This paper examines whether, and to what extent, the internal mobility of the unemployed in Spain was affected by a reform of the personal income tax that introduced a mobility incentive targeted at this group. The reform introduced a distinct change in the incentives to move for work for unemployed workers living in certain regions of Spain. The reform's effectiveness is assessed by means of a difference-in-differences econometric approach, combined with nationally representative administrative data. Results suggest that the reform led, at most, to relatively few new migration flows, and account for the existence of differential migration trends between the regions that adopted the reform and those that did not.

Keywords: Personal income tax, mobility, unemployed, Spain

JEL codes: H24, J61, R23.

Introduction

The application of Personal Taxes to individuals has been a topic of interest in the process of modeling the economic behavior of families. For example, the U.S. Earned Income Tax Credit (EITC), initiated in 1975, has been considered one of the best tools to address the economic needs of low-income families by reducing poverty and income inequality and increasing labor force participation (Kramer et al. 2019; Mammen et al. 2011). In Germany, Stöwhase (2016) analyzed how horizontal equity between families in the tax-benefit-system is affected by the within-household distribution of earnings. For the case of Spain, Escario and Molina (2004) and Labeaga et al. (2011) studied the optimal fiscal policy on tobacco consumption, and the capacity of the Spanish tax-system to reduce individual deprivation through a reform of the unemployment benefit system, respectively.

Another European case of the impact of the reform of personal taxes on the family behavior is the Spanish Personal Income Tax. On January 1, 2003, the Personal Income Tax introduced a reduction to gross income for the registered Spanish unemployed who moved to a new municipality in order to accept a job offer. The so-called Reduction for Geographical Mobility (RGM) ranged from €2,400 to €3,500 in the year of the move and the next, with no requirements as to the minimum duration of the new job or stay, providing the taxpayer lived for tax purposes in a region other than the Basque Country and Navarre (which have the power to regulate their own income taxes). Taxpayer amounts filed for RGM in the tax form totaled €35.9 million in 2003 and €93.6 million in 2014.[1] But whether and to what extent RGM stimulated the internal mobility of the unemployed, or served only to redistribute income to individuals who would have moved anyway, is unknown. In any case, by inducing a sharp change in the incentives to move for work, for unemployed workers living in certain regions of

Spain, RGM provides a unique opportunity to examine the causal effect of a large-scale program offering direct mobility incentives to the unemployed.

Given the requirements for claiming RGM (described below), the focus here will be on internal migration of the contracted type (Silvers 1977; called "search then move" migration by Molho 2001). According to Molho's (2001) model of spatial job-search, there are three reasons why this type of migration may have been stimulated by the RGM. First, subsidizing the costs of migration stimulates the locally-based unemployed to extend the area of search. Second, among those who do extend their search, RGM increases the wage required to accept a local offer and decreases that required to induce movement to a different area.[2] And third, the unemployed may have been encouraged to search for jobs beyond their home municipality, as "move then search" migrants who landed a job in the home area could not be entitled to RGM.

Spanish internal migration has been characterized as low by international standards, as well as being poorly responsive to wages and unemployment; see, for example, Bover and Velilla (2002). However, a growing trend in Spanish internal migration has been observed since 1982 (Bover and Arellano 2002: Minondo et al. 2013). Furthermore, Mulhern and Watson (2009) conclude that its amenability to traditional economic reasoning has improved since the labor market became more flexible, and researchers made use of more disaggregated data and more sophisticated modelling techniques.

Certain studies have analyzed the migration behavior of the unemployed in Spain. Using microdata from the Spanish Migration Survey (MS) 1987-1991, Antolin and Bover (1997) examined the influence of personal and regional unemployment on male migration, finding that the probability of migration for a registered unemployed individual was about four times lower than for a non-registered one. The reason why

RGM was targeted at registered job seekers may have something to do with this striking result. Related work by Ahn et al. (1999), utilizing longitudinal data from the Spanish Labor Force Survey (LFS) 1992-1994, found no significant differences between unemployment benefits recipients and the only-registered unemployed in terms of willingness to move for work.

During the period analyzed in this paper (1998-2007), the statistical reference sources for the study of migratory movements in Spain were the Residence Variation Statistics (RVS) and the Spanish Migration Survey (MS), both elaborated by the National Statistics Institute (Instituto Nacional de Estadística, INE). Both the RVS and MS measure changes in the municipality of residence. An advantage of the MS, which was conducted in parallel with the LFS, is that it included information on migrant labor force status. However, and mainly because determining family movement was not a primary objective of the LFS (INE 2008), several studies have revealed that the MS underestimated the number of migrants (e.g., see Martí and Ródenas 2004). Following, among others, Devillanova and García-Fontes (2004) and Minondo et al. (2013), this paper uses the Spanish Social Security's Continuous Sample of Work Histories to evaluate the effectiveness of RGM in fostering the geographical mobility of the unemployed.

The rest of the paper is organized as follows. The next section describes the intervention. The two sections that follow review the data, the selection of the sample, the definition of the main variables, and the empirical strategy. In the spirit of a difference-in-differences approach, we exploit the fact that RGM was not adopted in the Basque Country and Navarre, in order to compare contracted labor migration rates within and (in some specifications) into adopting and non-adopting territories of Spain. Results are presented in the penultimate section. The key finding of this study is that

RGM resulted in, at best, relatively few new migration flows. We conclude in the last section.

The reform of the Spanish Personal Income Tax

The Spanish Personal Income Tax (PIT) Law 2002/46, with effective date January 1, 2003, introduced a reduction to gross income for taxpayers who, being unemployed and registered as job seekers on Spain's National System for Employment (NSE, the Spanish public employment service), accepted a job offer in a municipality other than that of their residence, and consequently moved to a new municipality. Officially designed as a means of increasing labor mobility, the so-called reduction for geographical mobility applied in the tax year of the move and the next,[3] with no requirements as to the minimum duration of the accepted job or remaining in the new municipality, but with the provision that the taxpayer resided for PIT purposes in an autonomous region other than the Basque Country and Navarre.[4]

The Basque Country and Navarre, which, for historical reasons, have the power to regulate their own income taxes, have not introduced RGM. Therefore, in terms of the applicability of RGM, two territories can be distinguished that coincide with the two models of regional financing in Spain: the so-called Common Fiscal Territory (CFT), where the power to tax is attributed mainly to the central government, and the Basque Country and Navarre (BCN), which enjoy broader taxing powers. The CFT is made up of the regions shown in Figure 1 (other than the BCN) plus the Balearic Islands, the Canary Islands, Ceuta, and Melilla.

For purposes of the PIT, the taxpayer's region of residence is determined countrywide by successively applying the following rules: i) Where the taxpayer stayed longer over the tax year (and it is presumed that the taxpayer stayed in the region where

her/his habitual dwelling is located); ii) where the taxpayer obtained the most gross income over the tax year; and iii) the location of the taxpayer's last residence declared for PIT purposes. Thus, for example, if a registered unemployed individual living in Barcelona (which is in the CFT) moved to Madrid (which is also in the CFT) to work there from September 1, 2003, through August 31, 2004, he/she could apply RGM in 2003 and 2004. However, if the same individual was living in Bilbao (which is in the BCN) and moved to Madrid to work there for the same period, he/she could apply RGM in 2004 only. If the registered unemployed was living in Madrid and moved to Bilbao to work there for the same period, he/she could apply RGM in 2003 only.

RGM could not be claimed if the taxpayer had signed a "discontinuously permanent" work contract (widely used in Spain for seasonal work) and was just seasonally unemployed, if the taxpayer was simultaneously working and receiving unemployment benefits (due to, for example, a period of short-time work), or if the new job was a grant-paid position. The tax agency could require the taxpayer to prove the fulfillment of the conditions for claiming RGM. To this end, valid means of proof were established in Spanish Law 2000/1 on Civil Procedure (with effective date January 8, 2001), and had to include a rental agreement as a valid means of proving the change of municipality.

The reduction to gross income yielded by the RGM ranged from €2,400 to €3,500, depending on the taxpayer's net labor income and nonlabor income; see Table 1. Thus, for an individual taking the smallest possible RGM of €2,400 and a resulting taxable income of €12,000 in both 2003 and 2004, the tax saving was of €600 (19 percent of the tax) in each of these years. As a comparison, the monthly unemployment benefit net of withheld taxes averaged €543 in 2003.[5] The tax saving grew less than proportionally to income: For a taxpayer taking the smallest possible RGM and a

resulting taxable income of €24,000, the tax saving was of €726 in each of both years. The amount of the RGM was increased slightly in 2007, coinciding with a reform of the PIT (Spanish Law 2006/35, with effective date January 1, 2007). These amounts were further increased by 2 percent in 2008 (except for the limit on non-labor income), and remained unchanged until 2015, when RGM was converted into a deduction of total labor income of €2,000 in the tax year of the move and the next.

The Advisory Panel on Income Tax Reform delivered its report to Spain's Secretary of Finance on April 3, 2002. Although aspects of the report were covered in the media in the subsequent days, neither of the two measures recommended for encouraging the geographical mobility of labor was specifically designed for unemployed workers.[6] Hence, it may not be too farfetched to say that it was not until the law 2002/46 was published on the Spanish Official Gazette (BOE) on December 19, 2002, that the specifics of RGM began to be known to the general public. This circumstance raises the question of whether the slow diffusion of knowledge of RGM led to sluggish growth of migration rates. This possibility (which is reinforced by the data shown in Table 4 below) will be taken into account in the empirical specification.

Data and sample selection

Database

The data used here to assess the effect of the RGM come from the Continuous Sample of Work Histories (*Muestra Continua de Vidas Laborales,* MCVL), an ongoing, longitudinal dataset compiled annually by Spain's *Dirección General de Ordenación de la Seguridad Social*. In 2004, a 4-percent random sample of individuals affiliated with Spanish Social Security, who were either working, receiving unemployment benefits (UB), or receiving a pension, was selected (over 1 million individuals). The MCVL

gathered these individuals' complete Social Security affiliation history, including the start and end dates of each affiliation spell, plus some information derived from the Spanish Tax Agency and the Continuous Municipal Register. These original members were then followed for each successive edition of the MCVL. If an original member had no relationship with Social Security in the year of an MCVL iteration, he/she would be replaced by another randomly selected individual who was affiliated with Social Security during that year (and for whom the complete Social Security affiliation history would be gathered). When an original member re-started her/his affiliation to the Social Security, he/she would reappear in the MCVL edition of that year. We use the MCVL data and fiscal information from the years 2004 to 2014.

The MCVL provides the province and the municipality (if the latter had more than 40,000 inhabitants) of workplace establishments and public employment offices. In Spain, every employee must be associated with a Social Security contribution account code. This code is specific to each employer and each province, as Social Security legislation requires employers to keep separate contribution account codes for each province in which they operate. The municipality/province where the workplace establishment is located is the municipality/province of destination. To claim UB, the individual must first register in person as a job seeker at the public employment office associated with her/his home address, a registration which is renewed periodically. At the end of 2017, there were 711 public employment offices in Spain, covering all 50 provinces, plus Ceuta and Melilla. This figure has changed little since the mid 1990s (cf. Toharia 1997). The municipality/province where the individual registers to claim UB is the municipality/province of origin. Note that the municipality/province of origin (destination) may not be the municipality/province where the individual lives when he/she is receiving UB (working).

Sample Selection

The selected spells of UB received were preceded and followed by non-overlapping spells of employment and did not represent seasonal interruptions of the same job. As UB recipients are registered as job seekers in the NSE, this group satisfies the conditions for claiming the RGM in case of migration for work. The share of UB recipients among the registered unemployed in Spain was 61% in 2003.[7]

Registering as a job seeker in order to claim UB seems a decision unrelated to the propensity to migrate. However, individuals who searched prior to quit/layoff and landed new jobs could have claimed UB in the interim of the job-to-job transition with the primary intention of claiming RGM. If these individuals did not claim UB in the absence of RGM, their behavior would upward-bias the estimated effect of RGM. This reverse-causality argument will be investigated in the Results section.

The job prior to receiving unemployment benefits may have been left involuntarily or voluntarily by the worker, but the spell of benefits must have been terminated voluntarily (i.e. for work). The MCVL provides no information for periods when the unemployed worker was not receiving UB, so that one cannot know whether, after having exhausted UB, the individual continued to be registered at the NSE. (Even if we could know this, the decision to renew the registration could be related to the individual's propensity to migrate for work.) Workers receiving Unemployment Insurance (UI) benefits had an entitlement period ranging from 4 to 24 months.[8] The duration of Unemployment Assistance (UA) benefits was 6 months renewable up to maximum figures that depend on the contribution period and the age of the individual. The proportion of selected spells of receiving benefits that terminate voluntarily is 84%.

Individuals must have "accepted a job offer" to be able to apply RGM, but the self-employed in the new job were excluded from the sample. To be included, the new job must have started in the period 1998-2007, and the individual must be between 17 years and 61 years of age at the job start date. The decade 1998-2007 was a period of steady economic growth in Spain, in which the unemployment rate decreased from 19 to 8 percent. The lower bound on age is because access to UB in Spain generally required a minimum period of contribution of 6 months, with the minimum working age being 16 years. The upper bound on age is intended to keep retirement considerations low. Individuals aged 52 and older who were receiving UA benefits immediately before the new job were excluded, as legislation effective in May 26, 2002, set specific mobility incentives for this group.

Definition of Migration

As the province/municipality of residence is not available in the data, whether the unemployed worker migrated or opted instead for commuting to the new workplace is not clear-cut (see Giménez-Nadal and Molina 2014, 2016, 2019a, 2019b; Gimémez-Nadal et al. 2018, 2019). To distinguish in practice between these cases, the following rules are applied.

First, when the province of origin and destination were the same, it is assumed that the individual commuted.[9] Second, when the province of origin or destination was an island province (the Balearic Islands, Las Palmas, Santa Cruz de Tenerife), Ceuta, or Melilla, it is assumed that the individual migrated.

Third, in contiguous Spain, when the municipality of origin and destination were known (and were in different provinces), it is assumed that the individual migrated whenever the straight-line distance between municipalities was greater than 120 km, or

when this distance was not greater than 120 km but the travel time by car was above the 99th percentile of one-way commuting time by car in the region of origin (listed in Table 2). As an example of the consequences for sample selection of this criterion, Table 3 shows straight-line distances and travel times by car between the 10 municipalities of the BCN identified in the data. 25 pairs of these municipalities (out of the 29 possible different-province pairs) presented straight-line distances lower than 120 km. But 19 of these 25 pairs also presented travel times by car above the corresponding 99th percentile, and were, therefore, not excluded from the sample.

Fourth, in connection with Catalonia and the Region of Madrid, which were the regions where the train was used most commonly by commuters in 2003, the individual migrated whenever the travel time by train between two municipalities was above the 99th percentile of one-way commuting time by train in the region of origin.[10] This criterion excluded the pairs Madrid – Ciudad Real, Madrid – Ávila, Madrid – Talavera de la Reina, and Tarragona – Castellón.

Fifth, in contiguous Spain, when the municipalities of origin or destination were unknown, it is assumed that the individual migrated whenever the province of origin and destination were not contiguous. Finally, inter-provincial moves deemed to be commuting were removed from the sample in order to sharpen our central comparison.

To what extent does the group of migrants so defined represent the treated group? To investigate this issue, we gathered data from the Spanish Tax Agency's Statistic on Declarants of the Personal Income Tax and from the MCVL. The latter provides information about factors reported to the tax agency that influence the amount of withholding by the employer (though only for the year of that particular MCVL edition). Table 4 presents the total number of employer reports with the RGM item filed (column 1), the total number of tax returns with the RGM item filed (column 2), and the

population number of migrants (in our sense) (columns 3 and 4), for each year of 2003-2007. The number of employer reports does not match the number of tax returns because some employees did not communicate to the employer their entitlement to RGM. That the number of tax returns falls short of the number of migrants may be due to three reasons: migrants who were unaware of their entitlement to RGM, migrants who were exempt from filing tax returns,[11] and individuals classified as migrants who commuted or worked from home.[12] The increase in the ratio of tax returns to migrants over time accords with the first reason. As to the third possibility, sources of data to estimate the probabilities of misclassification are unknown.

Empirical Strategy

The challenge in estimating the effect of RGM is finding a control group that credibly represents the mobility of UB recipients in its absence. According to the residence rules for PIT purposes pointed out in the second section, RGM may have induced migration flows within and into the CFT, and discouraged them within and into the BCN. Thus, a test for evaluating the usefulness of RGM is to compare the difference, by territory of destination, of UB recipients' contracted migration rates before and after the introduction of RGM. To do this, the following linear probability model (LPM) is estimated by the method of ordinary least squares (OLS):

$$y_{ipt} = \alpha_t + \delta cft_p + \mathbf{z}'_{ipt}\boldsymbol{\eta} + \sum_{t=1999}^{2007}\left(\theta \times cft_p \times (t-1998)\right) + \sum_{t=2003}^{2007}\left(\beta \times cft_p \times (t-2002)\right) + \varepsilon_{ipt}. \quad (1)$$

The binary variable y_{ipt} is equal to 1 if UB recipient *i*'s job acceptance in province *p* and year *t* resulted in a migration, and equal to 0 otherwise, α_t denotes year fixed

effects, cft_p is a dummy variable for accepting a job offer in a province of the CFT, and $\mathbf{z}_{ipt}$ is a vector of control variables explained below. As discussed by Autor and Duggan (2008), the parameter θ captures a linear trend in the CFT relative to BCN, prior to the introduction of RGM, while β estimates any change in this trend following the intervention. The linear trend may not capture all non-cyclical movements in relative migration rates, and may be unable to represent a slow diffusion of knowledge of RGM. For a more flexible trend, we use a quadratic spline function, i.e. piecewise quadratic polynomials with continuous first derivatives (Baum 2006):

$$\begin{aligned} y_{ipt} = \alpha_t + \delta cft_p + \mathbf{z}'_{ipt}\boldsymbol{\eta} + \sum_{t=1999}^{2007}\left(\theta_1 \times cft_p \times (t-1998)\right) \\ + \sum_{t=1999}^{2007}\left(\theta_2 \times cft_p \times (t-1998)^2\right) + \sum_{t=2003}^{2007}\left(\beta_1 \times cft_p \times (t-2002)^2\right) + \varepsilon_{ipt}. \end{aligned} \tag{2}$$

A problem with this approach is that RGM may have induced migration flows into the BCN and might be irrelevant for certain migration flows into the CFT. Suppose, for example, that UB recipients living in Madrid (Bilbao) and accepting job offers in Bilbao (Madrid) consider their move to be short, so that their tax residence will not change. Then, RGM would (not) have induced them to migrate. Hence, a more powerful test for evaluating the efficacy of RGM may be given by comparing intra-territory contracted migration rates before and after the introduction of RGM.

The differential change in migration flows within the CFT, relative to migration flows within the BCN (denoted by $\bar{\beta}$ in equation 3), is expected to be positive after the introduction of RGM. To calculate this differential change, the following LPM (which is analogous to that employed by Goodman 2017 to identify the internal migration effects of the 2014 expansion of Medicaid in the U.S.) is estimated by OLS:

$$\overline{y}_{ipt} = \alpha_t + \overline{\delta} cft_p + \mathbf{z}'_{ipt}\overline{\boldsymbol{\eta}} + \sum_{t=1999}^{2007}\left(\overline{\theta} \times cft_p \times (t-1998)\right) + \sum_{t=2003}^{2007}\left(\overline{\beta} \times cft_p \times (t-2002)\right) + \varepsilon_{ipt}. \quad (3)$$

The binary variable $\overline{y}_{ipt}$ is equal to 1 if UB recipient *i*'s job acceptance in year *t* resulted in migration to a province of the same territory as her/his province of origin, and equal to 0 if *i* did not migrate or migrated to a province of the other territory. Abusing somewhat the notation, the province of origin is denoted by *p* in equation (3), so cft_p is here a dummy variable for receiving UB in a province of the CFT. For more flexible trends than in the linear case, the following model is also estimated:

$$\overline{y}_{ipt} = \alpha_t + \overline{\delta} cft_p + \mathbf{z}'_{ipt}\overline{\boldsymbol{\eta}} + \sum_{t=1999}^{2007}\left(\overline{\theta}_1 \times cft_p \times (t-1998)\right) + \sum_{t=1999}^{2007}\left(\overline{\theta}_2 \times cft_p \times (t-1998)^2\right) + \sum_{t=2003}^{2007}\left(\overline{\beta}_1 \times cft_p \times (t-2002)^2\right) + \varepsilon_{ipt}. \quad (4)$$

We would like to emphasize that the term cft_p captures time-constant differences in the propensity to migrate between the CFT and the BCN, stemming for example from different industry structures, culture, or institutions. Also, although the MCVL includes earnings data obtained from income tax records, we discarded an empirical approach exploiting differing "treatment intensity" across individuals or provinces because income in the year of the move and the next is not predetermined to the decision to migrate.

In equations (1)-(4), $\mathbf{z}_{ipt}$ includes the province-year unemployment rate plus individual characteristics that may significantly affect the decision to migrate of the unemployed individual (see DaVanzo 1978; Goss and Paul 1990; Goss and Schoening 1984; Harkman 1989; Schlottmann and Herzog 1981; Tatsiramos 2009; see also Herzog et al. 1993 and Greenwood 1997 for surveys of the internal migration literature): A

quadratic in age at the job start date (measured in deviations from 35 years), educational attainment, whether the individual had previously migrated internally (i.e., whether the province of origin differed from the province where he/she was first affiliated with Social Security), whether the individual is an immigrant, whether the individual is male, the occupational skill level of the previous job, whether the individual was voluntarily unemployed, the duration (in weeks) of the UB spell, and whether the individual was receiving UA benefits immediately before the new job. (Unfortunately, the MCVL does not collect retrospective information on family factors affecting the decision to migrate: e.g., DaVanzo 1978; Lansing and Mueller 1967; Mincer 1978; Van Dijk et al. 1989.) Province-year unemployment rates can account for time-variant local economic conditions relevant to the decision to migrate, while individual-level controls can account for differences in the composition of the samples and can additionally provide precision to the estimates.

Sample descriptive statistics are presented in Table 5. The overall contracted migration rate (calculated as the sample mean of y_{ipt}) is 5.1 percent, whereas the overall intra-territory contracted migration rate (calculated as the sample mean of $\overline{y}_{ipt}$) is 4.6 percent. Using the MCVL, but defining migrations as interregional changes, Minondo et al. (2013) report that, in the period 2004-2011, the proportion of economically active persons who accepted a job offer in a region other than that of their previous job was 3.5 percent.

Results

Reverse Causality

Individuals who searched prior to quit/layoff and landed new jobs could have claimed UB in the interim of job-to-job transitions with the primary intention of claiming RGM.

This behavior would show up as a prominent increase in the contracted migration rate of individuals with very short spells of UB receipt. Figure 2 presents contracted migration rates by decile of days receiving UB, for both pre-treatment and post-treatment years. Migration rates in the second to fourth lowest deciles increased after the introduction of RGM, but the migration rate in the lowest decile (1 to 8 days receiving UB) did not. Intra-territory contracted migration rates display the same pattern (Figure 3). The stability of the migration rate in the lowest decile puts the reverse causality caveat into question.

Visual Evidence of the Main Result

Figure 4 shows the evolution of contracted migration rates by territory of destination (CFT or BCN) and year, as well as the difference between both. Migration rates within and into the CFT were higher over the whole period. The decrease and rapid increase observed in the series for the BCN around the year 2000 may be related to the change in the sign of net migration in the Basque Country. This was about -2,000 individuals in 1998 and then grew almost steadily to some +16,000 individuals in 2007 (net migration in Navarre was slightly negative throughout the sample period), a fact that Sanso-Navarro et al. (2017) relate to the declining violent activity of *Euskadi ta Askatasuna* (ETA), the Basque terrorist group. While the difference in means increased in 2003, the jump does not appear large and was not sustained. However, it is possible that the incentive to accept jobs in the CFT created by RGM was counteracted by other trends, as for example the decrease of ETA actions. This is the main reason why specifications (1)-(4) control for differential trends between the CFT and the BCN.

Using the same layout as Figure 4, Figure 5 shows the evolution of intra-territory contracted migration rates in the CFT and the BCN. These were much higher in

the former, over the whole period, as this territory comprises more provinces to migrate to. There is also an increase in the difference in means in 2003, which, again, does not appear large and was not prolonged.

Regression Estimates

Columns (1) to (4) of Table 6 present, respectively, the main estimates from specifications (1) to (4) above. Results in columns (1) and (2) refer to contracted migration rates by territory of destination, whereas those in columns (3) and (4) are for intra-territory contracted migration. Differential trends in migration rates are represented by a linear spline in odd-numbered columns and by a quadratic spline in even-numbered columns.

In column (1), the estimate of .0156 (*S.E.* = .0102) for δ suggests that, in 1998, the contracted migration rate within and into the CFT was 1.56 percentage points higher than the corresponding rate in the BCN. The estimate of -.0012 (*S.E.* = .0015) for θ suggests that this difference was decreasing by 0.12 percentage points per year prior to the introduction of RGM. According to the estimate of .0014 (*S.E.* = .0022) for β, this downward trend stopped following the policy change. Since 2002, the contracted migration rate within and into the CFT increased by 0.02 percentage points more per year than the corresponding rate in the BCN. Figure 6 plots this evolution (using a solid line), as well as that predicted by the estimates developed with a quadratic spline, shown in column 2 (using a dashed line). Looking at this figure, the overall impression is that RGM may have promoted migrations within and into the CFT, but the effect, if any, is small and does not appear to grow over time.

The results presented in columns (3) and (4) are even less supportive of an effect. These results pertain to intra-territory migration flows, which provide a more

contrasted basis for evaluating the efficacy of RGM. In column (3), the estimate for $\overline{\delta}$ suggests that the contracted migration rate within the CFT was 1.89 percentage points higher than the corresponding rate in the BCN in 1998. This discrepancy was then growing by 0.11 percentage points per year (*S.E.* = 0.16) prior to the introduction of RGM. The estimate of -.0002 (*S.E.* = .0020) for $\overline{\beta}$ suggests that this tendency continued almost unchanged after the intervention. Figure 7 shows that this conclusion differs little from that yielded by the estimates developed with a quadratic spline presented in column (4).

Our estimates of the effect of the RGM are certainly imprecise, which is a consequence of the small size of the control territory. In the sample, the number of job acceptances resulting in a migration within or into the BCN ranges from 70 in 1999 to 147 in 2005. Looking back at the estimated β in column (1) of Table 6, the top of the 95 percent confidence interval is .0058. Assuming that the number of job acceptances in the CFT, plus migration rates within and into the BCN, held unchanged at their 2002 levels, the upper bound of .0058 would imply that the population number of contracted migrations within or into the CFT increased by 4,531 in 2003 as a consequence of the intervention, corresponding to 4,050 new migrants and to 10.0 percent of the migrants observed in 2003 (column 4 of Table 4).[13] A similar calculation suggests that, with a 95 percent confidence, RGM would be responsible for, at most, 7.0 percent of the migrants within CFT observed in 2003.

Table 6 also lists the estimated effects of the province-year unemployment rate and the individual-level controls. The higher the unemployment rate in the province of destination (the province of origin), the lower (the higher) the probability of migrating to (from) that province. This result concurs with Mulhern and Watson's (2009) assertion that Spanish internal migration in the years 1999-2006 followed economic expectations.

Significant effects are also found among the individual controls. Previous internal migrants are 4.63 (4.43) percentage points more likely to migrate (migrate intra-territorially) than otherwise comparable UB recipients, which represents a 92 percent (96 percent) increase in the propensity to migrate (migrate intra-territorially). With other factors held unchanged, immigrants are 1.01 percentage points more likely to migrate intra-territorially, whereas the effect on the likelihood of migration is measured imprecisely. As in Devillanova and García-Fontes (2004), the degree of mobility increases steadily with the qualification of the previous job. In comparison with UB recipients having less than a high school diploma, individuals having a high school diploma are 0.49 (0.72) percentage points more likely to migrate (migrate intra-territorially), while individuals having a college degree are 0.85 (1.25) percentage points more likely to migrate (migrate intra-territorially). The effect of age on the likelihood of migration is hump-shaped, peaking at 28 years, whereas the effect on the likelihood of intra-territory migration decreases regularly as individuals age. Being male increases the likelihood of migration by 3.83 percentage points (2.85 percentage points in the case of intra-territory migration). As predicted by Goss and Paul (1990), UB recipients who are voluntarily unemployed are more mobile. In comparison with UI benefits recipients, UA benefits recipients are 0.97 percentage points less likely to migrate intra-territorially (the effect on the likelihood of migration is measured imprecisely), which is in line with Tatsiramos' (2009) finding for Spain that receiving UB increases the probability of moving. As hypothesized by Harkman (1989), the likelihood of migration increases with the duration of unemployment.

Robustness Checks

Table 7 presents estimated beta coefficients developed from specifications (1)-(4), but in which the term cft_p has been replaced by a complete set of destination/origin province fixed effects (thus accounting for different mobility attitudes across provinces), and in which the linear/quadratic spline specific to the CFT has been replaced by linear/quadratic splines specific to each province of destination/origin. The conclusion that the effect of RGM is small or nonexistent is robust to this change.

It was assumed that the individual migrated when the travel time between two known municipalities in different provinces of contiguous Spain was greater than the 99th percentile of one-way commuting time in the region of origin. Setting this threshold at the 99.5th percentile (listed in Table 2 for commuting by car; in the case of commuting by train the 99th and 99.5th percentiles are the same) reduces the incidence of "false positives" (i.e. commuters classified as migrants), but curtails the control territory. This change reduced slightly the discrepancy between RGM filings and migrants shown in Table 4. The number of migrants within or into the CFT (within the CFT) now ranges from 40,100 (38,600) in 2003 to 53,515 (51,225) in 2007. As to the impact on the estimated effect of RGM, Table 8 presents the main coefficients of specifications (1)-(4) above, re-estimated under the new definition of migration. Irrespective of the specification, the estimated effect of RGM appears to be non-positive.

Conclusions

The introduction of a reduction to gross income for geographical mobility (RGM) in the Spanish personal income tax since the year 2003 created an incentive to move for the registered unemployed. A member of this population who found a job in, and moved to,

another municipality obtained a tax saving which (depending on individual circumstances) could well be more than one month of unemployment benefits. The incentive to move created by RGM was stronger for individuals not living in the Basque Country and Navarre (BCN), as these regions of Spain did not adopt RGM. Using a nationally representative administrative data source, this paper has quantitatively assessed RGM's effectiveness among the population of unemployment benefits (UB) recipients, using a difference-in-differences econometric approach. Controlling for differential trends in migration rates between the BCN and the parts of Spain that adopted RGM (the so-called Common Fiscal Territory, CFT), the estimated effect of RGM ranges from small to nonexistent. Under some assumptions, and with a 95 percent confidence, RGM appears to have induced, at most, 7.0 percent (10.0 percent) of the UB recipients' migration flows within (within or into) the CFT in the year 2003. Whether an increase in the amount of the reduction will enhance RGM's effectiveness remains to be determined.

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Conflict of Interest All authors declare that they have no conflict of interest.

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Table 1 Reduction for geographical mobility

Since:	Reduction to:	Amount (€; in year of move and next):	Amount applies if:
Jan 1, 2003	Gross income	3,500	NI ≤ 6,500 and 0 < LI ≤ 8,200
		3,500 – 0.2291(LI – 8,200)	NI ≤ 6,500 and 8,200 < LI ≤ 13,000
		2,400	NI > 6,500 or NI ≤ 6,500 and LI > 13,000
Jan 1, 2007	Gross income	4,000	NI ≤ 6,500 and 0 < LI ≤ 9,000
		4,000 – 0.35(LI – 9,000)	NI ≤ 6,500 and 9,000 < LI ≤ 13,000
		2,600	NI > 6,500 or NI ≤ 6,500 and LI > 13,000
Jan 1, 2008	Gross income	4,080	NI ≤ 6,500 and 0 < LI ≤ 9,180
		4,080 – 0.35(LI – 9,180)	NI ≤ 6,500 and 9,180 < LI ≤ 13,260
		2,652	NI > 6,500 or NI ≤ 6,500 and LI > 13,260
Jan 1, 2015	Labor income	2,000	–

LI and NI denote net labor income and nonlabor income, respectively. LI is total labor income net of employee payroll taxes, union membership fees, compulsory fees to professional associations, and legal expenses in litigation with employers. In the joint taxation of family units, the amount of the reduction was determined by aggregating the incomes of all family members.

Table 2 Commuting time by car in Spanish regions in 2003 (minutes, one way)

	Median	95 pctl	99 pctl	99.5 pctl
Andalusia	20	60	90	90
Aragon	20	40	80	90
Asturias	20	40	60	70
Balearic Islands	20	50	70	80
Canary Islands	30	70	100	120
Cantabria	20	60	70	80
Castile and Leon	20	40	100	140
Castile-La Mancha	20	60	60	100
Catalonia	20	60	90	120
Valencian Region	20	60	70	70
Extremadura	10	40	50	70
Galicia	20	60	70	90
Region of Madrid	30	70	80	90
Region of Murcia	20	60	80	90
Navarre	20	50	60	60
Basque Country	20	50	60	70
La Rioja	20	40	60	80
Ceuta	10	30	40	40
Melilla	10	30	40	40

Population estimates for regular working days of private sector employees aged 17-60. Authors' calculations with data from the 2002-2003 Spanish Time Use Survey.

Table 3 Straight-line distance (km) and travel time by car (minutes) between cities of the Basque Country and Navarre included in the data

	Irún (GI)	San Sebastián (GI)	Vitoria (AL)	Pamplona
Barakaldo (BI)	97; 87	82; 74	56; 55[a]	122; 109
Basauri (BI)	90; 77	74; 64	47; 48[a]	112; 102
Bilbao (BI)	94; 82	79; 69	52; 51[a]	118; 106
Getxo (BI)	99; 87	83; 75	62; 58[a]	126; 113
Portugalete (BI)	100; 94	84; 81	60; 59[a]	125; 114
Santurtzi (BI)	101; 92	86; 79	62; 58[a]	128; 113
Irún (GI)			91; 85	60; 77
San Sebastián (GI)			78; 71	62; 63
Vitoria (AL)				85; 71

The first entry in a cell is the straight-line distance calculated using the Stata program *geodist*. The second entry is the travel time by car under normal traffic conditions calculated using the Stata program *georoute*. The Basque Country is made up of three provinces: Alava (AL), Biscay (BI), and Gipuzkoa (GI). [a]: Pairs excluded from sample.

Table 4 Declarants of the personal income tax and migrants (by year)

Year	(1) Employer reports with the RGM item filled[a]	(2) Tax returns claiming the RGM[b]	(3) Migrants within CFT[a,c]	(4) Migrants within or into CFT[a,d]
2003		14,176	39,150	40,650
2004	10,700	17,038	44,225	46,400
2005	13,425	20,338	43,925	46,150
2006	15,575	24,693	44,925	47,600
2007	17,300	25,506	51,950	54,300

[a]: Population estimates developed with data from the MCVL. [b]: Figures from the Spanish Tax Agency's Statistic on Declarants of the Personal Income Tax, including individual and joint tax returns claiming the RGM. [c]: Unemployment benefits recipients aged 17-60 whose job acceptance resulted in a migration (in our sense) within the CFT. [d]: Unemployment benefits recipients aged 17-60 whose job acceptance resulted in a migration within or into the CFT.

Table 5 Descriptive statistics: 1998-2007 Continuous Sample of Work Histories

Variable	Mean	S.D.	Min	Max
Age (years)	35.39	9.59	17	60
Unemp. duration (weeks)	10.71	11.39	0.14	72.71
Province-year U-rate (%)	11.34	5.24	3.03	37.16

Variable (%)	Mean	Variable (%)	Mean
Migrated ($y=1$)	5.06	University degree	9.94
Migrated intra-area ($\overline{y}=1$)	4.62	Exactly high school	27.61
Origin in CFT	92.33	Less than high school	62.44
Origin in BCN	7.67	Previous internal migrant	14.05
Destination to CFT	92.31	Immigrant	9.17
Destination to BCN	7.69	Male	60.46
Job acceptance in 1998	6.64	Very-high-skilled occupation	2.59
Job acceptance in 1999	7.51	High-skilled occupation	5.29
Job acceptance in 2000	7.81	Medium-high-skilled occupation	11.44
Job acceptance in 2001	8.70	Medium-low-skilled occupation	54.06
Job acceptance in 2002	9.56	Low-skilled occupation	26.63
Job acceptance in 2003	10.14	Voluntarily unemployed	0.51
Job acceptance in 2004	11.65	Receiving UI benefits	94.50
Job acceptance in 2005	11.55	Receiving UA benefits	5.50
Job acceptance in 2006	12.43		
Job acceptance in 2007	14.01		

Data relate to 355,395 job acceptances made by 163,409 unemployment benefits recipients aged 17-60. The province-year unemployment rate is from INE.

Table 6 Estimated impact of the reduction for geographical mobility: changes in contracted migration rates of unemployment benefits recipients in the common fiscal territory relative to the Basque Country and Navarre, 1998-2007

	(1)		(2)		(3)		(4)	
	Difference in contracted migration rates by territory of destination				Difference in intra-territory contracted migration rates			
	Coeff.	S.E.	Coeff.	S.E.	Coeff.	S.E.	Coeff.	S.E.
Job acceptance in CFT	.0156	.0102	.0118	.0101				
Job acceptance in CFT × (year - 1998) × 1[year≥1999]	-.0012	.0015	.0035	.0027				
Job acceptance in CFT × (year - 1998)^2 × 1[year≥1999]			-.0008	.0006				
Job acceptance in CFT × (year - 2002) × 1[year≥2003]	.0014	.0022						
Job acceptance in CFT × (year - 2002)^2 × 1[year≥2003]			.0015	.0011				
Receiving benefits in CFT					.0189*	.0107	.0168	.0116
Receiving benefits in CFT × (year - 1998) × 1[year≥1999]					.0011	.0016	.0038	.0035
Receiving benefits in CFT × (year - 1998)^2 × 1[year≥1999]							-.0005	.0005
Receiving benefits in CFT × (year - 2002) × 1[year≥2003]					-.0002	.0020		
Receiving benefits in CFT × (year - 2002)^2 × 1[year≥2003]							.0008	.0008
Destination/Origin province-year U-rate	-.0019**	.0009	-.0019**	.0009	.0038***	.0005	.0038***	.0005
Age (– 35 years)	-.0003***	.0001	-.0003***	.0001	-.0004***	.0001	-.0004***	.0001
Age squared	-.00002**	.00001	-.00002**	.00001	-.00001	.00001	-.00001	.00001
University degree	.0085	.0053	.0085	.0053	.0125**	.0052	.0125**	.0052
Exactly high school	.0049**	.0023	.0049**	.0023	.0072**	.0030	.0072**	.0030
Previous internal migrant	.0463***	.0059	.0463***	.0059	.0443***	.0038	.0442***	.0038
Immigrant	.0013	.0098	.0013	.0098	.0101***	.0033	.0101***	.0033
Male	.0383***	.0054	.0383***	.0054	.0285***	.0035	.0285***	.0035
Very-high-skilled occupation	.0454**	.0173	.0454**	.0173	.0451***	.0114	.0451***	.0114
High-skilled occupation	.0521***	.0067	.0521***	.0067	.0525***	.0074	.0525***	.0074
Medium-high-skilled occupation	.0219***	.0017	.0219***	.0017	.0246***	.0030	.0246***	.0030
Medium-low-skilled occupation	.0170***	.0017	.0170***	.0017	.0172***	.0028	.0172***	.0028
Voluntarily unemployed	.0122**	.0057	.0122**	.0057	.0106*	.0055	.0106*	.0055
Unemp. duration (weeks)	.0002*	.0001	.0002*	.0001	.0002**	.0001	.0002**	.0001
Receiving UA benefits	.0013	.0044	.0013	.0044	-.0097***	.0026	-.0097***	.0026
Year fixed effects	YES		YES		YES		YES	
Observations	355,395		355,395		355,395		355,395	
Clusters	52		52		52		52	
R-squared	.0189		.0189		.0239		.0239	

This table reports estimated coefficients from specifications (1)-(4) in the text. In all columns, the estimation method is OLS and the analysis sample includes unemployment benefits recipients aged 17-60 who accepted a job offer. In columns (1) and (2), the explanatory variable is a dummy equal to 1 if the job acceptance resulted in a migration, and standard errors are clustered at the destination-province level. In columns (3) and (4), the explanatory variable is a dummy equal to 1 if the job acceptance resulted in a migration to a province of the same territory as the individual's province of origin, and standard errors are clustered at the origin-province level. 1[.] denotes the indicator function. *: Significant at 10%; **: significant at 5%; ***: significant at 1%.

Table 7 Estimated impact of the reduction for geographical mobility: changes in contracted migration rates of unemployment benefits recipients in the common fiscal territory relative to the Basque Country and Navarre, 1998-2007

	(1) Difference in contracted migration rates by territory of destination		(2) Difference in contracted migration rates by territory of destination		(3) Difference in intra-territory contracted migration rates		(4) Difference in intra-territory contracted migration rates	
	Coeff.	S.E.	Coeff.	S.E.	Coeff.	S.E.	Coeff.	S.E.
Job acceptance in CFT× (year - 2002)× 1[year≥2003]	.0013	.0021						
Job acceptance in CFT× (year - 2002)^2× 1[year≥2003]			.0019*	.0011				
Receiving benefits in CFT× (year - 2002) × 1[year≥2003]					.0002	.0012		
Receiving benefits in CFT× (year - 2002)^2 × 1[year≥2003]							.0007	.0008
Destination/Origin province fixed effects	YES		YES		YES		YES	
Year fixed effects	YES		YES		YES		YES	
Destination/Origin province × time trend	YES		YES		YES		YES	
Destination/Origin province × time^2 trend	NO		YES		NO		YES	
Destination/Origin province-year U-rate	YES		YES		YES		YES	
Individual-level controls	YES		YES		YES		YES	
Observations	355,395		355,395		355,395		355,395	
Clusters	52		52		52		52	
R-squared	.0282		.0286		.0347		.0352	

This table reports estimated coefficients from specifications (1)-(4) in the text. In all columns, the estimation method is OLS and the analysis sample includes unemployment benefits recipients aged 17-60 who accepted a job offer. In columns (1) and (2), the explanatory variable is a dummy equal to 1 if the job acceptance resulted in a migration, and standard errors are clustered at the destination-province level. In columns (3) and (4), the explanatory variable is a dummy equal to 1 if the job acceptance resulted in a migration to a province of the same territory as the individual's province of origin, and standard errors are clustered at the origin-province level. 1[.] denotes the indicator function. *: Significant at 10%; **: significant at 5%; ***: significant at 1%.

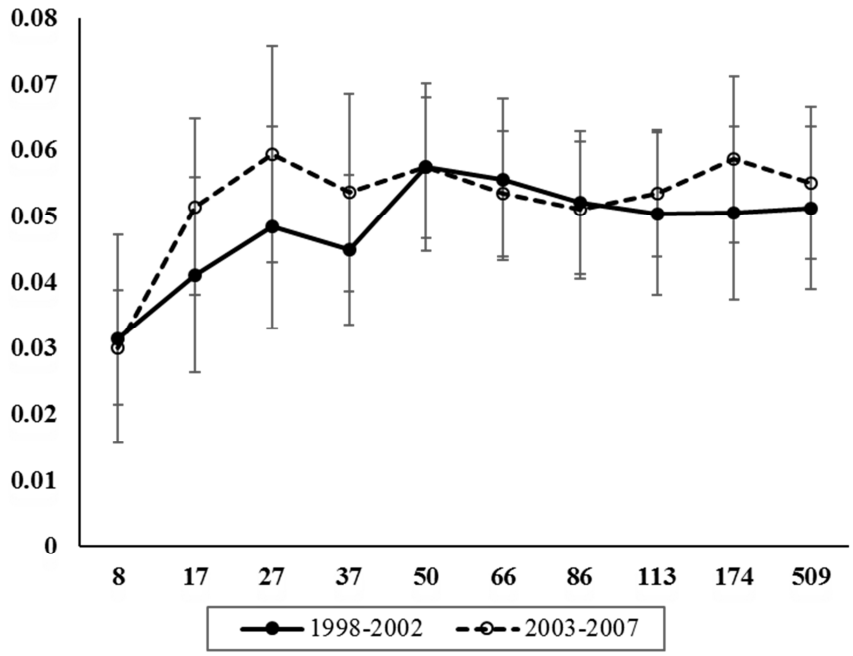
Table 8 Estimated impact of the reduction for geographical mobility: Changes in contracted migration rates of unemployment benefits recipients in the common fiscal territory relative to the Basque Country and Navarre, 1998-2007. Migration threshold set at 99.5th percentile of commuting time

	(1)		(2)		(3)		(4)	
	Difference in contracted migration rates by territory of destination				Difference in intra-territory contracted migration rates			
	Coeff.	S.E.	Coeff.	S.E.	Coeff.	S.E.	Coeff.	S.E.
Job acceptance in CFT	.0204**	.0098	.0160*	.0095				
Job acceptance in CFT$\times$(year - 1998) $\times$ 1[year$\geq$1999]	.0007	.0016	.0070**	.0030				
Job acceptance in CFT$\times$(year - 1998)^2 $\times$ 1[year$\geq$1999]			-.0013**	.0005				
Job acceptance in CFT$\times$(year - 2002) $\times$ 1[year$\geq$2003]	-.0013	.0023						
Job acceptance in CFT$\times$(year - 2002)^2 $\times$ 1[year$\geq$2003]			.0018*	.0010				
Receiving benefits in CFT					.0222*	.0116	.0193	.0126
Receiving benefits in CFT$\times$(year - 1998) $\times$ 1[year$\geq$1999]					.0027*	.0014	.0070**	.0033
Receiving benefits in CFT$\times$(year - 1998)^2 $\times$ 1[year$\geq$1999]							-.0009*	.0005
Receiving benefits in CFT$\times$(year - 2002) $\times$ 1[year$\geq$2003]					-.0028*	.0016		
Receiving benefits in CFT$\times$(year - 2002)^2 $\times$ 1[year$\geq$2003]							.0010	.0009
Year fixed effects	YES		YES		YES		YES	
Destination/Origin province-year U-rate	YES		YES		YES		YES	
Individual-level controls	YES		YES		YES		YES	
Observations	354,824		354,824		354,824		354,824	
Clusters	52		52		52		52	
R-squared	.0186		.0186		.0245		.0245	

This table reports estimated coefficients from specifications (1)-(4) in the text. In all columns, the estimation method is OLS and the analysis sample includes unemployment benefits recipients aged 17-60 who accepted a job offer. In columns (1) and (2), the explanatory variable is a dummy equal to 1 if the job acceptance resulted in a migration, and standard errors are clustered at the destination-province level. In columns (3) and (4), the explanatory variable is a dummy equal to 1 if the job acceptance resulted in a migration to a province of the same territory as the individual's province of origin, and standard errors are clustered at the origin-province level. 1[.] denotes the indicator function. *: Significant at 10%; **: significant at 5%; ***: significant at 1%.

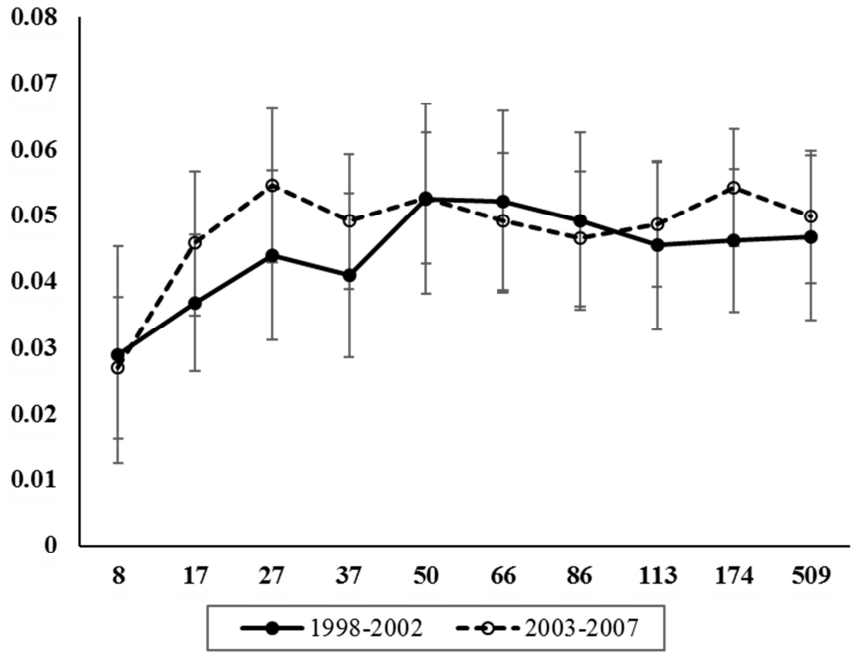
Figure 1 Autonomous regions of contiguous Spain

Figure 2 Contracted migration rates of unemployment benefits recipients, by decile of days receiving benefits and period



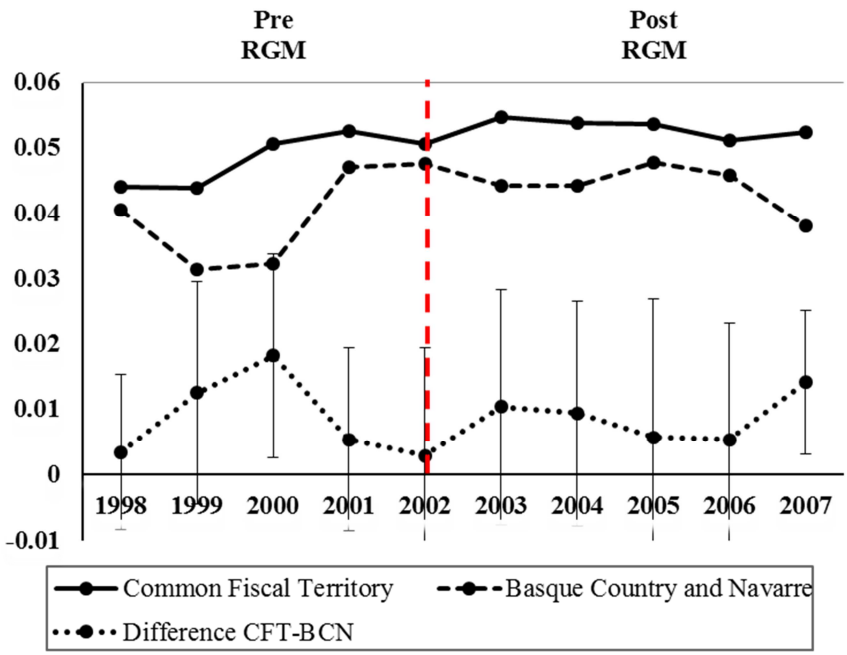
The analysis sample includes unemployment benefits recipients aged 17-60 who accepted a job offer. Each point represents a ratio of migrations to job acceptances. Error bars show 95 percent confidence intervals robust to clustering at the destination-province level. Deciles are (0, 8], (8, 17],…, (174, 509].

Figure 3 Intra-territory contracted migration rates of unemployment benefits recipients, by decile of days receiving benefits and period



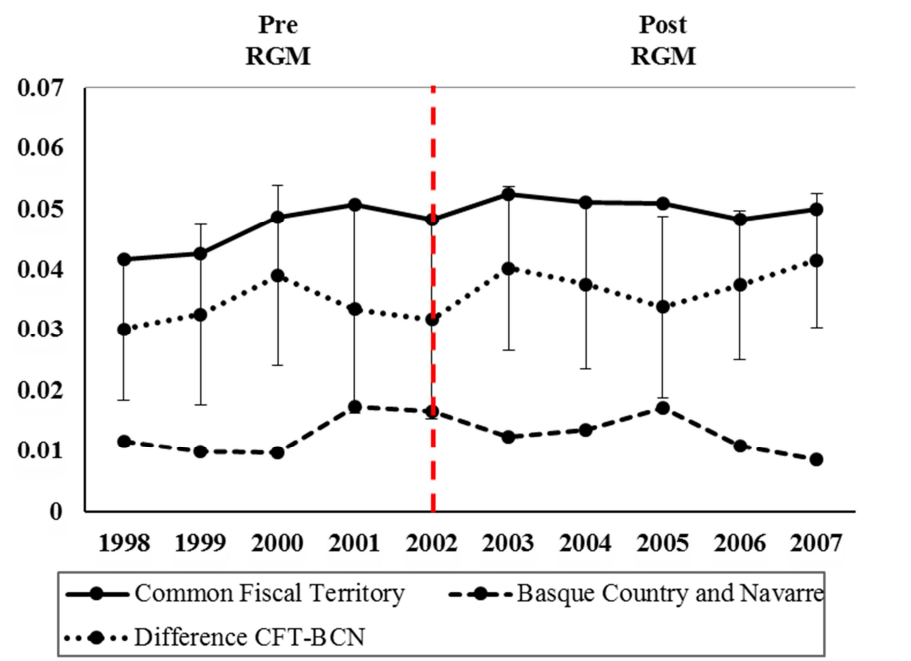
The analysis sample includes unemployment benefits recipients aged 17-60 who accepted a job offer. Each point represents a ratio of intra-territory migrations to job acceptances. Error bars show 95 percent confidence intervals robust to clustering at the origin-province level. Deciles are (0, 8], (8, 17],…, (174, 509].

Figure 4 Contracted migration rates by territory of destination and year



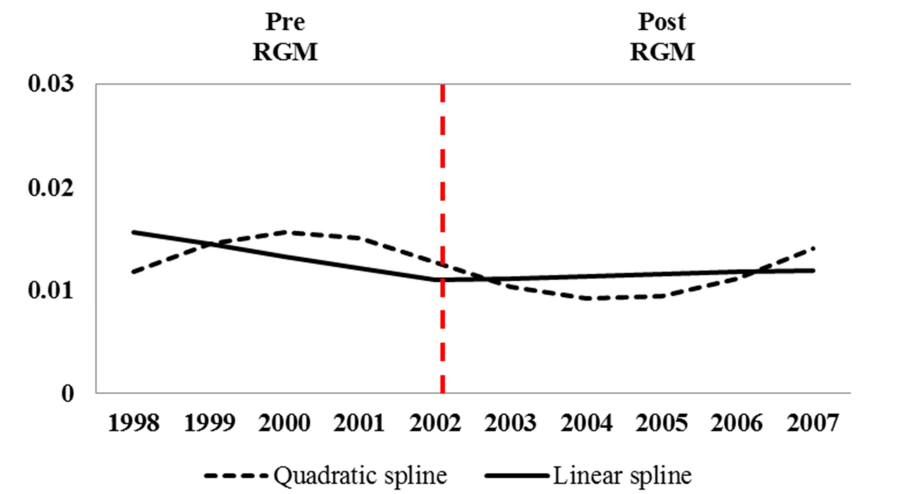
The analysis sample includes unemployment benefits recipients aged 17-60 who accepted a job offer. Solid and dashed lines with solid circles: Each point represents the ratio of migrations to job acceptances in the indicated territory. Dotted line with solid circles: Each point represents the difference in the ratio of migrations to job acceptances between the CFT and the BCN. Error bars show 95 percent confidence intervals robust to clustering at the destination-province level.

Figure 5 Intra-territory contracted migration rates, by territory and year



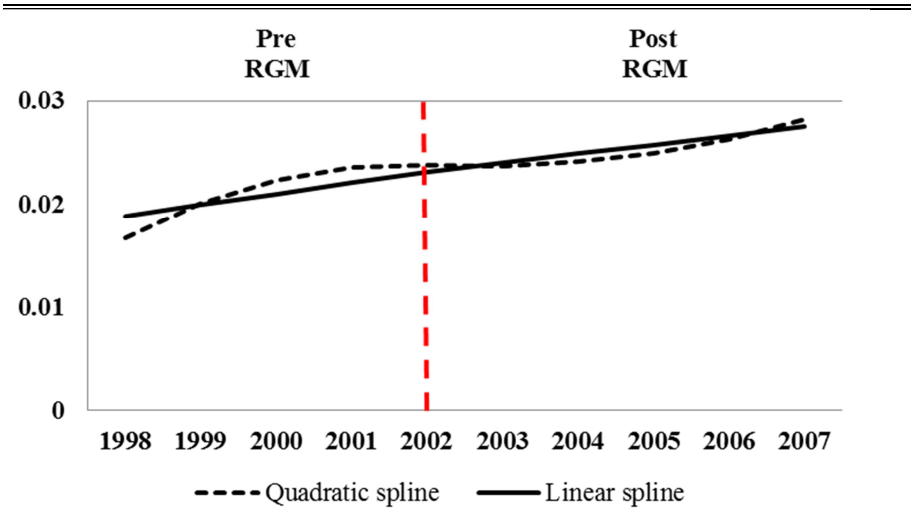
The analysis sample includes unemployment benefits recipients aged 17-60 who accepted a job offer. Solid and dashed lines with solid circles: Each point represents the ratio of intra-territory migrations to job acceptances in the indicated territory. Dotted line with solid circles: Each point represents the difference in the ratio of intra-territory migrations to job acceptances between the CFT and the BCN. Error bars show 95 percent confidence intervals robust to clustering at the origin-province level.

Figure 6 Estimated impact of the reduction for geographical mobility: difference in contracted migration rates of unemployment benefits recipients by territory of destination



The figure plots the estimated difference between the CFT and the BCN as developed with estimates shown in columns (1) and (2) of Table 6.

Figure 7 Estimated impact of the reduction for geographical mobility: difference in intra-territory contracted migration rates of unemployment benefits recipients



The figure plots the estimated difference between the CFT and the BCN as developed with estimates shown in columns (3) and (4) of Table 6.

[1] Spanish Tax Agency's Statistic on Declarants of the Personal Income Tax.

[2] We showed that the reservation wage for distant offers decreases by calculating the derivate of a rearrangement of expression (4) of Molho (2001) with respect to the costs of migrating (denoted by *m*), and then totally differentiating expression (6) of Molho (2001) with respect to *m*.

[3] In Spain, the personal income tax year coincides with the calendar year.

[4] Since 1995, Spain is organized in 17 autonomous regions plus two autonomous towns (Ceuta and Melilla, on the north coast of Africa). For brevity, they all will be called "regions." Some autonomous regions are divided into provinces, for a total of 50 provinces.

[5] Spain's Ministry of Labor, Migration, and Social Security Statistical Yearbook.

[6] The report proposed deducting moving expenses of job transfers plus a better fiscal arrangement for rental income.

[7] Spain's Ministry of Labor, Migration, and Social Security Statistical Yearbook.

[8] The Spanish Legislative Decree 1994/1 regulated the unemployment protection over the period covered by this analysis.

[9] The only exception to this rule are moves between the municipality of Arrecife (in the island of Lanzarote) and the municipalities of Las Palmas de Gran Canaria, Santa Lucía de Tirajana, or Telde (in the island of Gran Canaria), all of them located in the province of Las Palmas. Spain's provinces are generally small. Of the 503 pairs of same-province municipalities identified in the data (excluding the three inter-island cases indicated above), only 9 cases presented travel times by car above the 99th percentile of one-way commuting time by car in the corresponding region. The Stata programs *geocodehere*, *geodist*, and *georoute* were utilized to, respectively, assign geographic coordinates to the 147 municipalities identified in the data, calculate straight-line distances between pairs of municipalities, and calculate travel times by car "under normal traffic conditions" (Weber and Péclat 2017). The distribution of one-way commuting time by car in each region was calculated using the 2002-2003 Spanish Time Use Survey (STUS).

[10] 90 minutes in Catalonia and 110 minutes in the Region of Madrid. Travel time by train was taken from the National Network of Spanish Railways Organization's (Renfe) website in December 2017. Commuting time by train was calculated using the 2002-2003 STUS.

[11] Taxpayers with labor income below a certain limit were exempt from filing tax returns. For taxpayers having two or more payers during the year, the limit was 8,000 euros (10,000 euros in 2007) when the sum of the amounts received from the second and remaining payers in order of importance was greater than 1,000 euros (1,500 euros), and 22,000 euros when that sum was not greater than 1,000 euros (1,500 euros).

[12] Working from home was rather infrequent in Spain. In 2004, the proportion of male (female) employees aged 15+ usually working from home was 0.2 percent (0.5 percent) (Plantenga and Remery 2010).

[13] In 2002, the population number of job acceptances in the CFT made by UB recipients living in any part of Spain was 781,275. Multiplying this number by .0058 gives the number of new migrations induced by RGM. In 2003, the average number of migrations within or into the CFT per migrant was 1.1187 (1.1169 in the case of migrations within the CFT).