



Discovering tax decentralization: does it impact marginal willingness to pay taxes?

José María Durán-Cabré¹ · Alejandro Esteller-Moré¹ · Luca Salvadori^{2,3}

Received: 22 July 2024 / Accepted: 26 September 2024
© The Author(s), under exclusive licence to Springer Nature Switzerland AG 2024

Abstract

Decentralized fiscal decision-making should serve to enhance welfare. Thus, individuals are assumed to be willing to pay, at least, no less taxes than those they pay in a centralized system. We test this hypothesis by means of a survey experiment, leveraging the process of tax decentralization that has unfolded in Spain over the last 25 years and where there are two alternative regional financing regimes, with substantial differences. Our results suggest that individuals have very limited awareness of the tier of government to which they pay either the personal income tax (PIT) or the value added tax (VAT), frequently assuming taxes to be centralized. This holds true in common regime regions but even in regions where tax decentralization is maximum, as is the case of Spain's *foral* communities. On 'Discovering Decentralization' (i.e., being informed that a tax is more decentralized than initially perceived), individual's marginal willingness to pay taxes of common regime residents has a positive shift in PIT, while there is no evidence for VAT. Tax mix matters.

Keywords Tax decentralization · Fiscal knowledge · Survey data · Willingness to pay taxes

JEL Classification H11 · H71 · H77

✉ Luca Salvadori
luca.salvadori@uab.cat

¹ University of Barcelona and Barcelona Institute of Economics (IEB), Barcelona, Spain

² Autonomous University of Barcelona (UAB), Barcelona School of Economics (BSE), Barcelona Institute of Economics (IEB), Barcelona, Spain

³ Tax Administration Research Centre, TARC (University of Exeter), Exeter, UK

1 Introduction

A key characteristic of the relationship between taxpayer and government is the free-riding problem: one's own outcome is unaffected by one's own contribution. Free-riding behaviour is affected by various contextual factors and the challenge is "to identify aspects of government expenditure and tax policies that mediate the free rider impulse in an empirically important way" (Slemrod, 2022, p. 8). One of these contextual factors might be fiscal decentralization, a relevant political topic widely debated worldwide (see e.g., OECD, 2021).

Fiscal federalism literature highlights that in the presence of different preferences and needs, decentralizing the provision of public services can enhance social welfare when economies of scale are absent, and governments maximize social welfare (Oates, 1972). Decentralization can potentially improve governance standards enhancing accountability before citizens (Seabright, 1996). Yardstick competition provides an illustrative example of how increased accountability can manifest itself: voters may assess their own government's performance by using information on the performance of neighbouring regions (Besley & Case, 1995). However, political accountability also requires certain tax responsibilities on the revenue side (Boadway & Shah, 2009).^{1, 2}

If decentralisation enhances social welfare, it makes sense to wonder whether this contextual factor interacts with the propensity to pay taxes, that is, whether it contributes to depart from 'free-riding'. Güth et al. (2005) find that people's propensity to pay taxes is higher in a decentralized tax structure as compared to a centralized tax structure. Likewise, Ligthart and van Oudheusden (2015) find that fiscal decentralization is positively associated with trust of citizens in government related institutions, and Diaz-Serrano and Rodríguez-Pose (2012) provide evidence that fiscal decentralization has a positive impact on the overall subjective well-being of individuals.^{3, 4} If so, tax autonomy would cause a higher predisposition to pay taxes. Or the other way around, tax decentralization would certainly contribute to the

¹ This can occur in various ways. For instance, by assigning particular tax bases exclusively to lower level of government and allowing them to decide how to exploit them; by assigning tax bases and their revenues also to a lower level of government, while their administration remains centrally operated; by having state and federal governments jointly occupying tax bases, especially if they are broaden tax bases, and states could determine their own tax rate; or the levels of government may even co-occupy the same base, but they set and administer their tax structures independently.

² In fact, recent data on subnational governments' tax autonomy suggest that many countries have an "incomplete" form of decentralization that involves only the transfer of expenditure responsibilities to subnational governments, without the corresponding transfer of revenue responsibilities. They are funded through transfers from the central government, a practice that reduce the fiscal discipline of subnational governments (Golem, 2010).

³ See Martínez-Vázquez et al. (2017), for a comprehensive survey about the welfare consequences of decentralization and Espasa et al. (2017) for an estimation of the gains from expenditure decentralization applied to the Spanish case.

⁴ Guerra and Harrington (2022) suggest the limited explanatory power of culture in tax compliance, and points towards institutional differences, underscoring divergent regional experiences of state institutions as an explanatory variable, such as enforcement capacity, to explain national and regional tax compliance variations.

achievement of the social welfare gains due to fiscal decentralization, and in consequence the size of the public sector would become larger.

But are taxpayers aware that a share of their taxes is paid to regional governments? This is a necessary condition for tax decentralization to be welfare enhancing, and it is the focus of the first objective of our paper: to ascertain—by means of survey data and taking advantage of the level of tax decentralization in Spain—to what extent citizens are aware of to whom they pay their taxes. And, if they are not but are provided with the right information, how they react—if they do—after ‘discovering’ that taxes fund regional governments. Does this knowledge impact their marginal willingness to pay taxes (MWTP)? This is the second objective of our paper, which will be tested by means of an experiment also taking advantage of survey data.

We pursue those two objectives by capitalizing on the far-reaching decentralization process that has unfolded in Spain since the restoration of democracy in 1978. Indeed, tax decentralization has advanced significantly since the establishment of the regional tier of government provided for in the 1978 Constitution. Moreover, this advance has not followed a uniform trajectory across the regions. Based on historical rights recognized by the Constitution, the so-called ‘*foral* regions’ have enjoyed the maximum degree of tax autonomy possible from the outset. This stands in stark contrast with the situation in the rest of the regions, referred to as the ‘common regime’, in which tax empowerment is not as great and where it has been progressively granted over the last 25 years. The current level of decentralization in the common regime—including regulatory powers, tax compliance visibility, and tax administration—is markedly lower than in the *foral* regions. Some regions of the common regime currently claim for further tax decentralization: would this produce social welfare gains in the margin?

As previously said, to test these hypotheses, we conducted a specific survey in Spain at the end of 2021 in which we first asked about to which tier of government citizens believe they pay two main figures of the tax system: the personal income tax (PIT) and the value added tax (VAT). And we also asked about taxpayers’ MWTP. Our results show that citizens have little awareness of the assignment of taxes across different tiers of government: indeed, just 38.71% and 22.60% of respondents correctly assigned PIT and VAT, respectively. An overwhelming majority assume that the two taxes are more centralized than they are, a result somewhat expected among the residents of the common regime, but a surprising finding among those of the *foral* regime. Effective regulatory power and the visibility of just who has responsibility for administering taxation appear to make no difference in this regard. Hence, the necessary condition to enhance social welfare through greater tax autonomy does not hold in the Spanish case. Consequently, granting further autonomy to the Spanish regions of the common regime would not be desirable under the current level of knowledge by citizens. Note in the absence of this knowledge, tax decentralization may have a few potential drawbacks, including detrimental tax competition or increased tax administration and compliance costs, without yielding any tangible benefits.

Focusing on the potential tangible benefits, we also analysed the potential interaction between decentralisation and the propensity to pay taxes by means of an

experiment within the survey. Individuals who incorrectly assigned PIT and VAT to the wrong tier of government were provided with the correct information. Only for this group of individuals, we asked again about their MWTP and then compared the results before and after the actual state of tax decentralization was revealed to them. In the case of PIT in the common regime, we find a causal relationship between ‘Discovering Decentralization’ and MWTP. However, we observed no impact for VAT. This suggests that citizens might certainly be willing to pay more taxes when they understand the decentralization, which is in accordance with the basic standard fiscal federalism theory. However, they prefer paying PIT over VAT: the tax mix also matters.

The rest of the paper is organized as follows. In Sect. 2, we describe the main characteristics of decentralized taxation in Spain, highlighting the differences between the *foral* and common regimes. In Sect. 3, we describe the questionnaire from which we obtained the survey data, establish our hypotheses and outline the empirical framework. In Sect. 4, we present our main results, while Sect. 5 concludes.

2 Tax decentralization in the Spanish regional financing system

With the adoption of the 1978 Constitution, Spain created an intermediate level of government, a regional tier comprising the so-called Autonomous Communities (or ACs hereinafter), and granted them considerable powers of self-government. Since that date, the ACs have acquired substantial responsibilities from central government, and today play a pivotal role in the provision of such public services as education, health, and social services—the cornerstones of the welfare state.^{5,6} This public expenditure is funded according to two alternative financing systems: the so-called common regime encompassing 15 regions⁷ and the special (*foral*) regime applicable to the Basque Country and Navarre.⁸ This latter regime is rooted in historical considerations recognized by the Constitution. The roots of the *foral* regime can be traced back to the “Ley Paccionada” (1841) in Navarre and to the Economic Agreements (1876) in the Basque Country, both established in the aftermath of the Carlist wars (Monasterio, 2010). In what follows, we provide a brief overview of both systems in terms of their taxing powers and highlight, what are in practice, their substantial differences.

⁵ Notably, regional public expenditure accounts for 33% of total general government expenditure, a share surpassing that of Austria and Germany, while being closely aligned with that of Belgium, the EU’s other federal countries (OECD, 2023).

⁶ Although Spain is not a federal country from a strictly legal perspective (see, e.g. Sala, 2013), it is usually considered as such in the economics literature focused on decentralization.

⁷ Namely Andalusia, Aragon, Principality of Asturias, Balearic Islands, Canary Islands, Cantabria, Castile and Leon, Castile-La Mancha, Catalonia, Extremadura, Galicia, Community of Madrid, Region of Murcia, La Rioja and Valencian Community.

⁸ In addition to the 17 ACs, Spain includes two autonomous cities, Ceuta and Melilla, located in North Africa, with their own financing system derived from their particular historical and geographical characteristics. They are not considered in this paper.

2.1 Taxation in the common and foral regimes

In the common regime regions, the primary source of tax revenue originates from central taxes that are either fully or partially transferred or ‘ceded’ to the ACs. The evolution taken by the common financing system (marked by various reforms) has seen an expansion of both the number of ceded taxes and the corresponding responsibilities of the regions. During the initial phase, only a handful of taxes were ceded: the Net Wealth Tax, the Inheritance and Gift Tax, the Tax on Property Transactions and Stamp Duty and the Taxes on Gambling. Regions obtained their revenues and also the responsibility of their administration.

It was not until 1997 that the regions gained some regulatory authority over these ceded taxes, including PIT, which had also been partially ceded. Later, the 2002 reform incorporated additional ceded taxes, most notably VAT and manufacturing excise taxes. Cession percentages were also increased, reaching 33% of PIT for instance, and further enhancing the regulatory authority over the taxes. The current financing system, in force since 2009, seeks to strengthen the fiscal accountability of the common regime regions, resulting in a notable increase in both the number of ceded taxes and cession percentages (see Table 1). Notably, apart from Social Security contributions, corporate income tax remains the sole major non-ceded tax.⁹

The 2009 reform marked a significant shift, with 50% of both PIT and VAT being ceded to the regions. Revenues from ceded taxes constitute a substantial amount of total revenue. Specifically, the ceded PIT alone represents 35.40% of overall revenue, while the ceded VAT accounts for 27.50% (Durán-Cabré & Vilalta Ferrer, 2023).¹⁰ Additionally, ACs gained considerable regulatory power over PIT. Thus, they can independently set their own tax brackets and rates for the general base,¹¹ adjust personal and family allowances within a $\pm 10\%$ range, and introduce regional tax credits with only generic limitations. This means PIT liability can vary significantly across regions. The degree of regulatory power was also extended in the case of the Net Wealth Tax and the Inheritance and Gift Tax, with regions being allowed to determine their own rates and brackets, and to introduce a wide range of allowances, including a 100% tax credit (as the Community of Madrid has done since 2011 in relation to the Wealth Tax). The ACs have no regulatory powers over VAT or manufacturing excise taxes. Notably, and probably crucially for the effective enhancement of fiscal accountability, the administration of PIT, VAT, and excise taxes is the exclusive responsibility of the national tax administration, *Agencia Estatal de Administración Tributaria (AEAT)*.

Despite forming part of the common regime, the Canary Islands exhibit certain differences. Owing to their exclusion from the European VAT area, they levy a

⁹ In the paper we do not consider the potential impact of equalization grants on tax autonomy. See Bosch et al. (2024) for a recent analysis of the relationship between the revenue and the fiscal capacity of the Spanish regions.

¹⁰ Although official data are available for 2020 and for 2021, we use data corresponding to 2019 to avoid the impact of the pandemic on revenues collected.

¹¹ Spanish tax comprises two tax bases, a general one, integrated chiefly by labour income, and a saving base, comprised mainly of capital income. They account for 93 and 7% of the total bases, respectively. Common regime regions do not have any regulatory power over the rates applied to the saving base.

distinct general consumption tax. Additionally, the Islands impose specific taxes on petroleum products and tobacco, and are responsible for both the levying and collection of these taxes.

The *foral* regime is based on two distinct pillars that diverge significantly from the common regime. First, *foral* governments have full powers over the regulation, administration, and collection of all taxes, excluding tariffs and Social Security contributions. Their power to regulate indirect taxes is constrained, though, by European Union (EU) harmonization directives. Second, as *foral* regions collect all revenues, they offset national expenditure incurred by the central government by means of an annual payment to the State. In Navarre, made up of a single province, the *foral* government aligns with the regional government; however, in the Basque Country, the system is more complex owing to the presence of three provinces (Álava, Guipúzcoa and Vizcaya). Here, the *foral* governments coincide with that of each province, known as the *Diputaciones Forales*. While there is potential for regulatory differences between the three provinces, in practice there exists a high degree of internal harmonization (Zubiri, 2017).¹²

2.2 Visibility of PIT and VAT in the common and foral regimes

PIT serves as a stark illustration of the substantial differences between the two systems. In the common regime regions, residents pay their PIT primarily governed by national legislation. Although taxpayers only fill in a single tax return, they must assess two liabilities, one for the central and another for the regional government. Within the specific legal limits discussed in Sect. 2.1, regions have introduced numerous relevant changes. Hence, the differences between national tax liability and the corresponding regional liability of the same individual, as well as between distinct regional tax liabilities, can be considerable.

Table 2 shows the values of key elements for the assessment of tax liabilities. For simplicity's sake, we present only the respective minimum and maximum values set by the regions. The differences between the minimum tax rates—a relevant margin affecting all taxpayers—can reach up to 2 percentage points (p.p.), while for maximum rates, differences can reach up to 9 p.p. in the case of the regions and up to 5 p.p. between the national and regional rates. The changes introduced by the regions move in diverging directions: thus, in 2022, seven regions had reduced the minimum tax rate, while two had increased it; and, six regions had lowered the maximum rate, and nine had raised it. The total number of regional tax credits reached 286 in 2022, averaging 19 per region. These credits cover a wide array of aspects, mainly related to personal and family circumstances, housing and certain expenditures and donations. Despite the high number of tax credits, only 8.70% of taxpayers in 2020 benefited from them.

¹² With the aim of harmonizing taxes and fiscal cooperation, the Tax Harmonization Law of the Basque Parliament created the Tax Coordination Body, on which sit representatives of the regional government and the three *Diputaciones Forales*. The law, moreover, allows the Basque Parliament to eliminate, if necessary, essential differences between the provinces. However, this has yet to be applied.

As discussed, although 50% of PIT has been ceded to the regions, in practice this share depends on how the regions exercise their regulatory powers. Depending on the overall impact of the changes introduced, the taxpayer's regional liability might be smaller than, the same as, or larger than their national liability. In Fig. 1, we compare the regional average tax liability with the national average liability for each region. The differences between national and regional tax liabilities can be substantial; yet, the crucial question is whether taxpayers are aware of these differences, that is, if they know to which tier of government they pay their PIT.

Most revenue collected by means of PIT in Spain is levied via withholdings (i.e. at source). Final liability is determined when completing a tax return, and slightly over 70% of all returns result in a negative balance. In such instances, individuals request a refund. It should be noted that withholding rates are regulated solely by central government. The nature of this setup probably explains why PIT is more readily perceived as a national tax. Moreover, the tax return and associated computing program are the same for all regions in the common regime. As illustrated in Fig. 6, the role played by the ACs is not readily apparent in the tax return. Taxpayers are required to specify their region of residence at the outset, and after providing information about earned income, the program automatically calculates both national and regional liabilities, along with the final consolidated result or "differential liability". This figure indicates whether withholdings have resulted in the over- or underpayment of taxes.

In only two of the many small boxes on the last page of the tax return (highlighted in Fig. 6) taxpayers can see their regional liability before and after the application of any regional tax credits. Thus, the role played by the regions in relation to PIT and the fact that around 50% of the total payment corresponds to them are far from evident. Taxpayers only see central government and AEAT logos. Additionally, it should be borne in mind that the national agency is responsible for the administration of PIT, sends out all information about PIT, often including a pre-filled tax return, and is the body that conducts all tax audits or compliance checks. In short, the role played by the regions is far from visible.

In the case of VAT, the visibility of the regions is even more limited, given the absence of any regulatory powers. Only national rates are applicable on invoices, and, here again, taxpayers only encounter central government and AEAT logos when filling in their returns (Fig. 7). Even though half of the revenue collected corresponds to the regions, neither consumers nor taxpayers receive any information about this distribution.

The situation differs markedly in the *foral* regime. In the case of PIT, the regions are governed by their own law, and make no reference to national legislation. The determination of tax bases, corresponding tax rates (including the saving rate), any potential tax credits and withholding rates¹³ are the exclusive concern of the *foral* governments. The design of all tax returns and associated computing programs are regulated by the *foral* governments and taxpayers only see the *foral* government and *foral* tax administration logos (see, for example, Fig. 8). As for VAT, the tax

¹³ There are two exceptions: withholding rates on State employee wages and the interest of public sector-issued assets.

Table 1 Ceded taxes to the common regime regions and regional responsibilities, 2024

Ceded tax	Ceded percent- age	Regula- tory powers	Administrative powers	Millions € Revenues (2019) ^a
Personal income tax (PIT)	50	Yes	No	46,002
Value added tax (VAT)	50	No	No	35,769
Manufacturing excises	58	No	No	12,399
Specific tax on certain means of transport	100	Yes	No	633
Electricity tax	100	No	No	1374
Wealth tax	100	Yes	Yes	1155
Inheritance and gift tax	100	Yes	Yes	2887
Tax on property transactions and stamp duty	100	Yes	Yes	9402
Taxes on gambling	100	Yes	Yes	4076
Taxes on online gambling activities	100	Yes	No	155
Tax on waste disposal	100	Yes	On request	Not applied
Tax on bank deposits	100	No	No	577

Sources: Liquidación de los recursos del sistema de financiación de las comunidades autónomas de régimen común (2019) and Memoria de la Administración Tributaria 2020, Ministry of Finance

^aPotential revenues, that is, revenues which would result if no changes regarding the national regulation had been reported, but for the Wealth Tax, Taxes on Online Gambling Activities and the Tax on Bank Deposits for which we report the real amount

imposed aligns with the national standard, but the returns and associated computing programs are distinct (see, for example, Fig. 9).

3 The experiment and empirical methodology

3.1 The experiment: survey data

To test our hypotheses about taxpayers' awareness of tax assignment and the impact of this understanding on their MWTP taxes, we employ survey data.¹⁴ We designed an on-line survey, which was monitored and processed by a professional survey firm, *Netquest*, known for its extensive, high-quality panel of potential respondents.¹⁵ Launched in early November 2021, participation was by invitation only. The survey included one item concerning respondent sincerity and one quality check item to verify their attention. Additionally, those responses with a time of completion 20% faster than expected were excluded from the sample. Respondents had to be over

¹⁴ This type of data is increasingly used in empirical studies, particularly when it is impossible to capture certain information in high quality administrative data, such as perceptions, knowledge and beliefs, attitudes and reasoning (Stantcheva, 2023).

¹⁵ <https://www.netquest.com/en/online-surveys-investigation>.

Table 2 Differences in PIT between common regions and the state, 2022

Variable	National regulation	Regional regulation	
		Minimum	Maximum
Number of tax brackets	6	5	11
Minimum marginal tax rate (%)	9.50	8.50	10.50
Maximum marginal tax rate (%)	24.50	20.50	29.50
Income threshold for the top bracket (€)	300,000	53,407.20	200,000

the age of 18, residing in Spain, and were rewarded via an in-kind compensation programme.

The sample consists of 3017 observations, which ensures statistical representation at the national level, as well as for specific regions, including Catalonia, Canary Islands, the AC of Madrid, and the regions of the *foral* regime. The main descriptive statistics are presented in Table 3. Ideologically, most respondents self-locate on the left of the political spectrum (48.59%),¹⁶ while 11.9% preferred not to respond to the question concerning their ideology. The average age of respondents is 46.1, ranging from 18 to 92 years old. The variable *Older* is equal to 1 for individuals over the age of 45. Slightly more than half of the respondents (51.64%) have a university degree (as synthesized by the dummy variable *High_Edu*) and 31.02% are characterised as having a high income, meaning their monthly income is above 2,400 euros (around 40% above the median income per household member in Spain, approximately).¹⁷ Slightly more than half of the respondents is female, around 58% is married and about 30% is not active in the labour market. Finally, *Pro_Autonomy* is a dichotomous variable equal to one for those individuals who would like their region to be granted more political autonomy or independence.¹⁸ Of the individuals surveyed, 37.12% aspire to greater political autonomy for their region.

Taking into consideration the institutional characteristics of the financing systems across regions described in Sect. 2, we conducted the experiment, which can be summarised in three steps. In the first step, we asked the following basic question related to knowledge:

To which tier of government do you think you pay the following taxes?¹⁹

¹⁶ On a scale from 1 to 10, where a 5 represents *Centre*; between 1 and 4 represents *Left*; and between 6 and 10 represents *Right*.

¹⁷ The rest, 68.98%, either did not respond to that question or their monthly household income is below that amount.

¹⁸ This variable is defined based on the survey question: “Regarding the territorial organization of Spain, which of the following options best defines your political preferences?”, being the possible answers: 1. I would like less autonomy; 2. I am fine with the current territorial organization; 3. I would like more autonomy for my AC; 3. I would like the independence of my AC. The dummy variable *Pro_Autonomy* identifies respondents that opted for options 3 or 4.

¹⁹ In Spanish, ¿A qué gobierno crees que se pagan los siguientes impuestos?

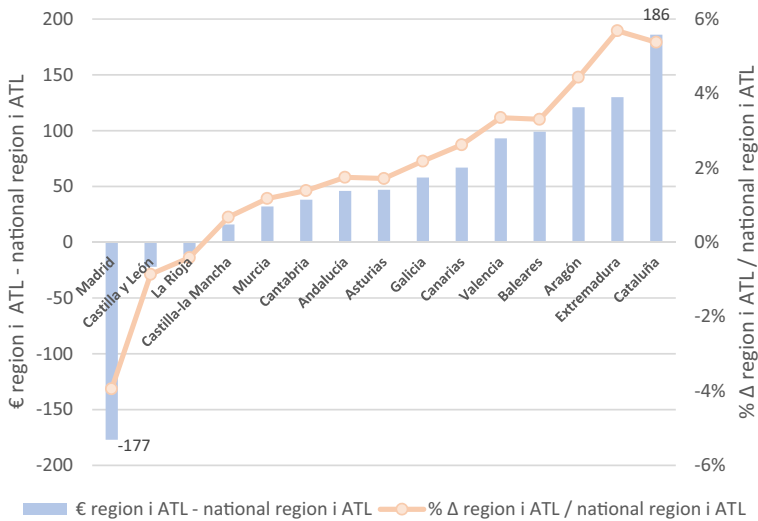


Fig. 1 Differences between regional and national average tax liabilities. Source: Durán Cabré and Vilalta Ferrer (2023). Left axis: € difference between regional average tax liability (ATL) and national average tax liability of the corresponding region. Right axis: % ratio of the previous difference with respect to the national average tax liability of each region

Although we asked about other taxes, in this paper we exploit solely responses concerning personal income tax (PIT) and value added tax (VAT). These two taxes should be the easiest to assign given their large weight in terms of tax revenue collected, but also because they levy broad bases (any source of income and any kind of consumption, respectively), which affect most citizens and are imposed periodically. Respondents were supplied with the following five possible responses: (i) All to the central government; (ii) All to the AC; (iii) A share to the central government and a share to the AC; (iv) All to the city council; and (v) Don't know. Clearly, the correct response is dependent on the respondents' AC of residence. In the case of PIT, (iii) is the correct response for a resident in the common regime and (ii) for one in the *foral* regime; in the case of VAT, again (iii) is the correct answer for a resident in the common regime, with the exception of a respondent resident in the Canary Islands for which the correct answer is (ii) as it is also for a resident in the *foral* regime.

As Table 3 shows, the level of awareness (variables *Mistake or Don't know PIT* and *Mistake or Don't know VAT*) can be described as quite low (see also Durán-Cabré & Esteller-Moré, 2023; Foremny, 2024): 61.3 and 77.4% of individuals simply do not know (or respond incorrectly to the question) to which tier of government they pay PIT and VAT, respectively. In the last two rows of the table, we define two variables that are of particular utility for our empirical analysis: *Decentralization PIT* and *Decentralization VAT*. Among those respondents that failed to identify the correct tier, these variables are equal to one for those who believe the tax to be more centralized than it is, and zero otherwise. For instance, in the case of PIT under the common regime (and also for VAT, with the exception of the Canary Islands), the variable equals one if the respondent erroneously believed the tax to be assigned in

its entirety to the central government. In the case of residents in the *foral* regime and for both taxes, the variable equals one if the respondent erroneously believed the tax to be fully centralized or shared with the central government. Introducing these variables allows us to discern the direction of this lack of knowledge: those perceiving the tax as being more centralized than it is vs those who erroneously believe it to be more decentralized than it is.

In the second step of the experiment, respondents were asked the following question:

Suppose the public sector is planning to increase public expenditure and to do so considers it necessary to increase the PIT burden only. Would you agree with this measure?²⁰

and alternatively with an increase in the VAT burden solely. If they supported the measure(s), they were asked to indicate how much more of each tax they would be willing to pay: up to an additional 5% of their annual income; between 6 and 10%; and more than 10%.

Finally, the third step included the experiment: when the respondents were mistaken in their response to the first question concerning tax assignment or simply responded ‘don’t know’ (Step 1), we informed them of the correct response according to their territory of residence. Endowed with this correct information, we asked again about their MWTP in the same way as in the second step above. This approach enabled us to infer whether the provision of correct information modified the originally revealed MWTP.

To parametrize the potential modification of the MWTP, we employ two alternative definitions. In definition 1), for either of the two steps, $MWTP=0$ if the respondent does not express a willingness to pay more taxes; $MWTP=+1$ if the respondent expresses a willingness to pay up to an additional 5% of their annual income; $MWTP=+2$ if the respondent expresses a willingness to pay between 6 and 10%; and $MWTP=+3$ if the respondent expresses a willingness to pay more than 10% of their income. Hence, $\Delta MWTP_i=0$ if there is no ‘before and after’ variation and the variable ranges from -3 to $+3$. Definition 2) is a little more restrictive: the difference only accounts for no variation (0), an increase in MWTO ($+1$) and a decrease in MWTP (-1) between the second and third steps.

Figure 2 (Fig. 3 just for the *foral* regime) shows the anatomy of the survey responses for PIT: 1168 individuals (38.71% of the sample) correctly assigned the tax to the corresponding tier; the rest either responded incorrectly (43.92%) or responded ‘don’t know’ (17.37%). The lack of awareness is pervasive, and even more so, as Fig. 4 shows in the case of VAT (Fig. 5 just for the *foral* regime), where only 22.6% of respondents correctly assigned the tax. After more than 25 years of tax decentralization, the observed phenomena are, to say the least, surprising. Both figures also show the direction of this lack of awareness. In the case of PIT, among the 43.92% who made an erroneous assignment, 93.4% believed the tax to be more centralized than it is. That is, most residents of the common regime presumed the

²⁰ In Spanish, “Supón que el sector público se está planteando aumentar el gasto público para lo cual considera necesario incrementar únicamente el IRPF. ¿Estarías de acuerdo con esta medida?”.

tax was assigned in its entirety to central government,²¹ while most residents of the *foral* regime believed it to be either fully assigned to the central government or shared between both tiers of government. The same bias holds for VAT, pointing to the prevalent perception of tax centralization within Spanish society. The very small percentage of individuals who believe either of the two taxes to be more decentralized than they are, and that actually opt to change their MWTP (e.g., in the case of PIT just 11 in the common and 1 in the *foral* regimes) invalidates any potential statistical analysis of ‘Discovering Tax Centralization’.

Table 4 provides descriptive evidence on Step 3, that is, the impact of informing respondents of the correct response to question 1 (‘Discovering Tax Decentralization’) on their MWTP taxes (definition 1). Following this ‘discovery’, the average MWTP PIT of those who were unaware of the correct assignment (Panel A)) increased from 0.2981 to 0.3256 (+0.0275). In this way (but, note, not shown in the table), the average MWTP PIT of the whole sample increased from 0.3361 to 0.3494 (+0.0133). Accordingly, the expected gains from expenditure decentralization rise, but the increase is tiny, reflecting a combination of the variation per individual surveyed and the small number of people that changed their preferences.²² In Panel B), we focus just on the variation in MWTP PIT of those sensitive to ‘Discovering Tax Decentralization’. The variation for this group of individuals, whose initial MWTP was also relatively high (0.5494), is +0.2346. The variation per individual surveyed who actually modified their MWTP is not negligible, but very few in fact opted to do so. A similar pattern is obtained for VAT.

Next, we outline the empirical framework developed to estimate the impact of ‘Discovering Decentralization’ on MWTP when controlling for the composition of the non-random sample of those who ‘Discovered Tax Decentralization’.

3.2 Empirical framework using survey data

We seek to identify the extent to which ‘Discovering Tax Decentralization’ modifies the average MWTP of PIT or VAT, respectively. To do so, we propose estimating by OLS the following standard ‘before-and-after’ regression for each tax:

$$\Delta MWTP_i = \delta Decentralization_i + X_i\beta + \mu_i \quad (1)$$

where μ_i is the error term with the usual statistical properties (both here and in the regressions that follow). The sample for this regression includes only those individuals that were unaware of the actual tax assignment in Step 1. For each tax and for each respondent, the dependent variable is the difference between the revealed *MWTP* after the correct information has been transmitted and the originally revealed *MWTP* (Step 3), either according to definition 1) or to definition 2). We prefer

²¹ The alternative (‘too decentralized’) would occur if their answer was ‘all to the to the city council’ (very unlikely) or ‘all to the Autonomous Community’ (a priori, likely).

²² Note that for both PIT and VAT, the number of individuals who ‘discover tax decentralization’ is larger than that shown in Figs. 2 and 3. This is so because—to estimate the impact on MWTP—the *foral* regime respondents who answered ‘Don’t know’ are considered to have ‘discovered’ decentralization, since their institutional reality is that of full decentralization. We return to this issue in Sect. 3.2.

Table 3 Descriptive statistics

Variable	Observations	Mean	Standard deviation	Min	Max
Mistake or don't know PIT	3017	0.6130	0.4872	0	1
Mistake or don't know VAT	3017	0.7740	0.4183	0	1
Right	3017	0.2251	0.4177	0	1
Left	3017	0.4859	0.4999	0	1
Centre	3017	0.1700	0.3757	0	1
Common regime	3017	0.7329	0.4426	0	1
Female	3017	0.5118	0.4999	0	1
Older	3017	0.5018	0.5001	0	1
Inactive	3017	0.3016	0.4590	0	1
Married	3017	0.5801	0.4936	0	1
High_Edu	3017	0.5164	0.4998	0	1
High_Income	3017	0.3102	0.4627	0	1
Pro_Autonomy	3017	0.3712	0.4832	0	1
Decentralization PIT	1470	0.9401	0.2373	0	1
Decentralization VAT	2024	0.9476	0.2228	0	1

definition 1) but show the results of the estimation of equation [1] and of the rest of the equations for both definitions of the dependent variable.²³ We seek to test whether δ is non-negative. In this regard, the use of control variables— X_i —is particularly important as by definition the sample of those without knowledge (wrong or ‘don’t know’) is not random. If their personal characteristics are correlated with the ‘treatment’ (i.e., the provision of correct information), the estimate of δ would be biased in absence of the controls.

We expanded our subsample to include residents in the *foral* regime that responded ‘don’t know’. In this instance, the provision of correct information can implicitly be assumed to imply *Decentralization*, as taxes are fully decentralized. A similar approach, however, cannot be adopted with residents in the common regime, as taxes are only partially decentralized. Consequently, in the estimation of eq. [1], the sample size exceeds the numbers of ‘wrong answers’ identified in Figs. 2 and 4, as we also include those individuals from the *foral* regime that responded ‘don’t know’ (Figs. 3 and 5).²⁴

²³ The survey was quite short. Despite this, not all respondents may necessarily have been consistent in their responses across its various steps. If they are willing to pay more PIT, and in Step 2 reveal a willingness to pay up to 5%, and say 6–10% in Step 3, this difference might not be attributable to their discovering the correct information, but rather to a certain inconsistency in spite of the ‘quality check’ described at the beginning of Sect. 3.1 (once an individual had started to respond to the survey, he or she could not go back to modify earlier answers). In contrast, inconsistency seems less likely to hold between having responded ‘yes/no’ to paying more taxes in Step 2 and ‘no/yes’ in Step 3. Hence, although definition 2) is certainly less flexible (i.e., there is less variation), it appears to be less prone to inconsistent answers from individuals across steps. There is, thus, a potential trade-off between the two definitions of the dependent variable. For this reason, we opt to show both set of results.

²⁴ In Fig. 2, according to the definition of *Decentralization PIT*, this variable applies (0 or 1) to 1,325 observations. However, in Table 3, it applies to 1,470 observations. The difference between 1,470 and 1,325 amounts to the ‘don’t know’ from *foral* regime, for whom all of them *Decentralization PIT* equals one. The analogous reasoning applies to *Decentralization VAT* in Fig. 3.

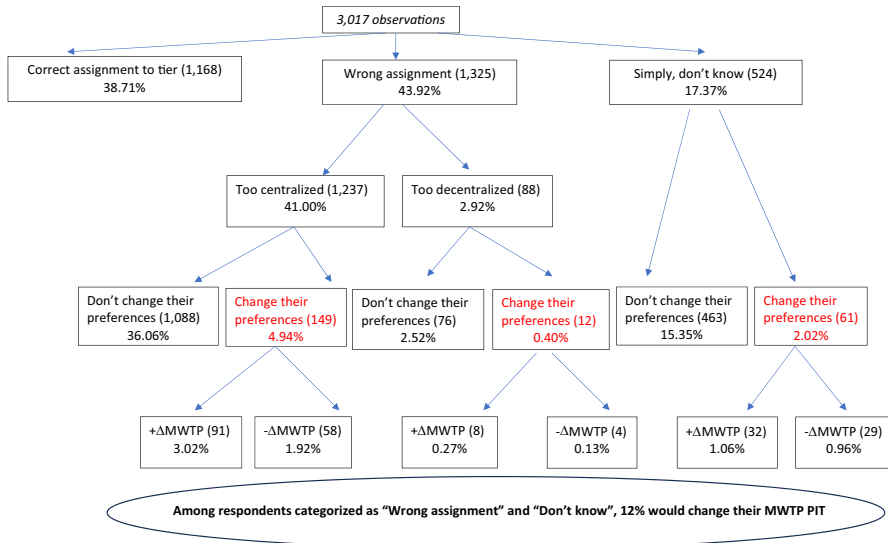


Fig. 2 Anatomy of response to the experiment: the case of PIT (all)

Equation (1) serves as our primary estimation and as a guide for our heterogeneity analysis. Specifically, we explore variations based on those individuals that would prefer greater political autonomy for their region of residence or who hold a political ideology of independence. Regardless of the gains attributable to allocative efficiency or to political accountability, we would also expect a greater variation

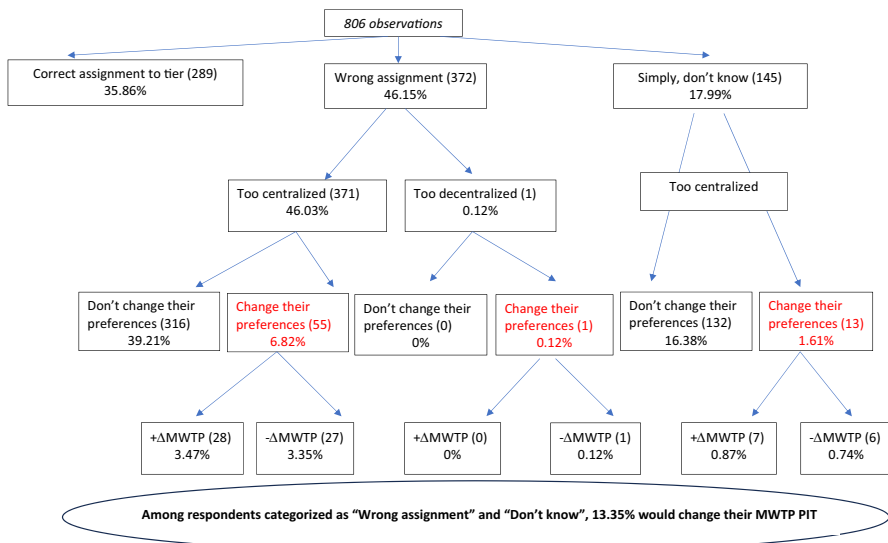


Fig. 3 Anatomy of response to the experiment: the case of PIT (*foral*)

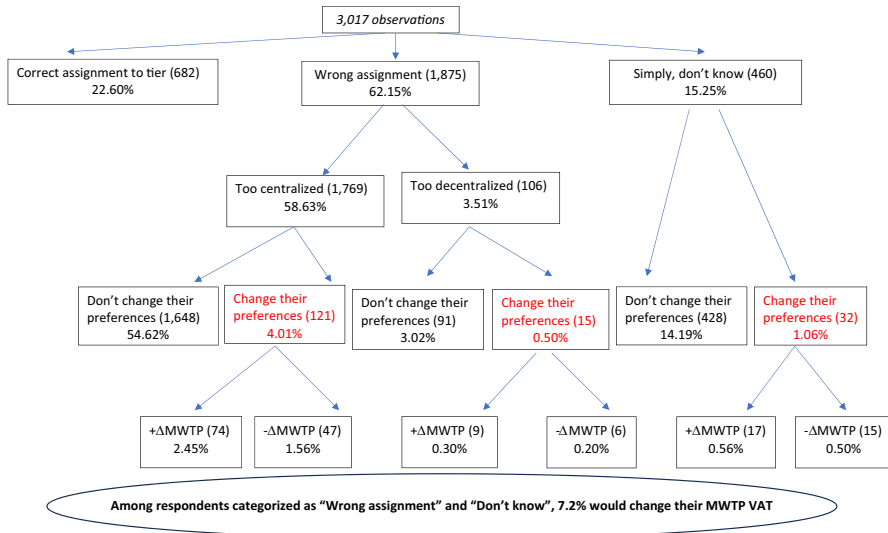


Fig. 4 Anatomy of response to the experiment: the case of VAT (all)

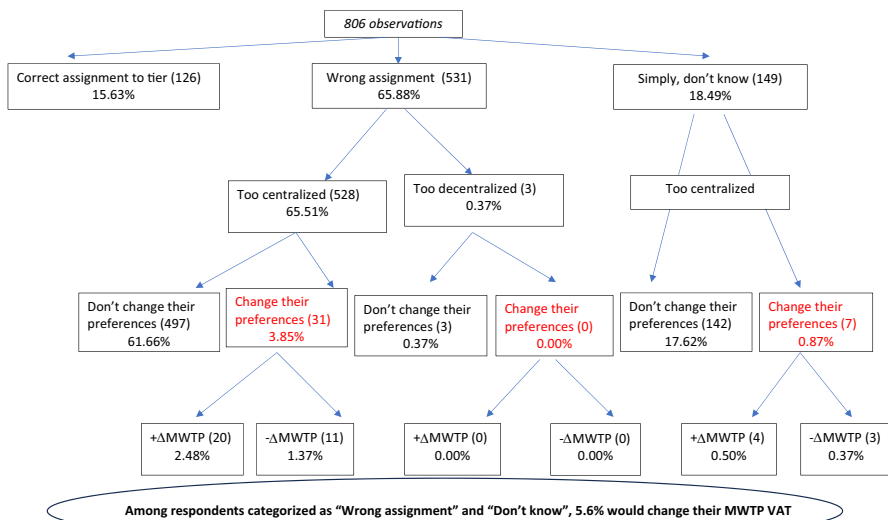


Fig. 5 Anatomy of response to the experiment: the case of VAT (*foral*)

among individuals favouring more political autonomy, given that tax decentralization—commonly associated with political autonomy—is a key component of such autonomy. It should be stressed, however, that the number of individuals altering their originally revealed MWTP is relatively modest (see Table 4), which makes the calculation of precise estimates challenging.

Before continuing with the analysis of ‘Discovering Tax Decentralization’, we also conduct a foundational examination to identify the determinants of knowledge, with a specific focus on discerning potential differences in this regard between residents of the *foral* and common regimes. Specifically, we aim to estimate the following equation²⁵:

$$\text{Lack of knowledge}_i = \Pi \text{ Common Regime}_i + X_i\beta + (X_i \times \text{Common Regime}_i)\kappa + \mu_i \quad (2)$$

For each tax, the dependent variable equals one if the individual either failed to identify the tax assignment correctly or responded ‘don’t know’. Due to the higher level of tax decentralization in the *foral* regime, we expect $\Pi \geq 0$. We present our results below.

4 Empirical results

4.1 Who is more likely to have wrong/no information about tax assignments?

In Table 5, we present our estimates for the determinants of knowledge regarding tax assignments (Eq. (2)). This analysis is based on the whole sample. In column (1), we show the results for PIT. Recall, only 38.7% of the full sample were aware of which tier of government the PIT is assigned to (Fig. 2); thus, the mean of the dependent variable is 0.613.

Those located at the extremes of the political spectrum (*Right* and *Left*) are relatively more informed with both estimates showing a statistically significant, negative sign that are greater in absolute values than the estimate of those self-located at the *Centre* (−0.092). These estimates need to be interpreted with respect to those who preferred not to reveal their position on the political spectrum. Similarly, gender makes a difference: women have less knowledge than men (+0.115). Relatively older people (aged above 45) show greater knowledge. Among the *Inactive* group (comprising students and retirees), we detect a dip in knowledge compared to that of their counterparts (+0.049), while the reverse holds for the *Married* category (−0.050). As expected, highly educated individuals (i.e., those with a university degree) exhibit more knowledge than others (−0.101) and, *ceteris paribus*, high-income individuals—presumably those with more at stake given their larger income tax liabilities—also demonstrate greater knowledge (−0.0915). Generally, the sign of each determinant aligns with expectations.

Next, we shift attention to the distinctive institutional features of the regional financing systems, as outlined in Sect. 2: that is, respondent residency in either the *foral* or the common regime. The *Common regime* variable is assigned a value of one for individuals residing in that regime and zero otherwise. Although the *foral* regime territories enjoy the maximum level of tax autonomy, *ceteris paribus*, the level of knowledge is slightly higher in the common regime (−0.041): that is, the

²⁵ Equation 2 is estimated through a linear probability model in order to simplify interpretation. The results (presented in Table 5) are corroborated when a logistic probability model is used instead (see Appendix, Table 11).

reverse of our expectations. Although the impact is statistically significant (at the 95% level), the value of the estimate is not very high: it is only slight less than half the impact caused by being high-income or being a highly educated individual.

To check whether this impact is caused by the differences between regimes or by the peculiar composition of each subsample, in column (2), we interact all the individual variables with *Common regime*. While, in accordance with our expectations, the rest of the estimates remain qualitatively the same, the sign of *Common regime* is reversed (+0.0203), but is now statistically insignificant. This indicates that the differences estimated in column (1) were due merely to a sample composition effect. Nevertheless, it should be stressed that the maximum level of tax autonomy—including visibility—of the *foral* regime does not by itself increase the level of knowledge of the citizen-voter-taxpayer residents therein with respect to those residing elsewhere.²⁶

In column (3), we analyse VAT. The mean of the dependent variable is higher than in the case of PIT, at 0.774 (see also Fig. 3): that is, 16.1 p.p. less knowledge than that reported for PIT. The lack of knowledge with regard to VAT is independent of the levels of income and education of the respondent (i.e., both variables do not exhibit statistically significant differences across individuals). As with PIT, those who prefer not to reveal their political ideology have less knowledge, but here we detect hardly any differences along the political spectrum (the estimate runs from -0.107 for *Centre* to -0.114 for *Left*). Once again, residents in the common regime demonstrate more fiscal knowledge than those in the *foral* regime (the estimate being equal to -0.100). In contrast to PIT, when we interact the control variable with *Common regime*, this latter result is strengthened (see column (4)): *ceteris paribus*, the likelihood of residents of the common regime correctly assigning VAT is 0.167 points higher than that of residents of the *foral* regime. Along with being right-wing, this has by far the greatest impact of all the potential determinants of knowledge. Considering the results for PIT and VAT, contrary to our expectations, being a resident of the *foral* regime by itself does not enhance knowledge about tax assignment. Indeed, in the case of VAT, it even diminishes knowledge compared to that of residents of the common regime.

This counterintuitive evidence is confirmed by the results in Table 6. The dependent variable equals one if the individual erroneously believed the tax to be more centralized than it actually is. In both columns, the control variables are interacted with the *Common regime* variable. Hence, the estimator of the latter variable (-0.170 for PIT, and -0.237 for VAT)—presenting a negative sign and statistical significance—indicates that, compared to *foral* regime residents, those of the common regime who answer incorrectly are less likely to believe that the corresponding tax is centralized.

²⁶ This unexpected lack of knowledge among residents of the *foral* regime is likewise reported by Durán-Cabré and Esteller-Moré (2019) using survey data for the 2014–2017 period from the *Centro de Investigaciones Sociológicas*, an official centre conducting sociological research in Spain. Although the surveys were not representative of the Spanish regions, the authors pointed out that the (low) level of knowledge about tax assignment in the common and *foral* regions was practically the same. In a similar line, according to an official poll conducted by the Basque Government in December 2010, when asked about the *foral* system, 45% of the respondents admit they have not heard about it and 4% do not reply the question (Gabinete de prospección sociológica, 2011).

Table 4 Step 3: variation in MWTP when ‘Discovering Tax Decentralization’. Definition 1

	Observations	Mean	Standard deviation
Panel A): Those who ‘Discovered Tax Decentralization’			
After MWTP (PIT)	1382	0.3256	0.5781
Before MWTP (PIT)	1382	0.2981	0.5678
Variation MWTP (PIT)	1382	0.0275	0.3871
After MWTP (VAT)	1918	0.1637	0.4215
Before MWTP (VAT)	1918	0.1502	0.4191
Variation MWTP (VAT)	1918	0.0136	0.3010
Panel B): Those who ‘Discovered Tax Decentralization’ and modified their MWTP			
After MWTP (PIT)	154	0.7840	0.6754
Before MWTP (PIT)	154	0.5494	0.7228
Variation MWTP (PIT)	154	0.2346	1.1120
After MWTP (VAT)	128	0.6797	0.5603
Before MWTP (VAT)	128	0.4766	0.6754
Variation MWTP (VAT)	128	0.2031	1.1526

According to Definition 1), the MWTP runs from zero (null MWTP) to three (highest MWTP)

These findings suggest that full tax decentralization in the *foral* regime—including greater visibility of returns as explained in Sect. 2.2—does not contribute any additional knowledge. As such, given the lack of knowledge observed, harnessing the potential advantages of decentralized taxation—such as, gains in allocative efficiency or electoral accountability, if any—certainly seems challenging.

4.2 Discovering tax decentralization: does it impact marginal willingness to pay taxes?

We aim to test whether tax decentralization has any impact on the size of the public sector measured in terms of MWTP, as argued in Sect. 2. If there is a positive relationship (i.e., tax decentralization causes a larger MWTP), then the current size of the public sector will be inefficiently small in the presence of low knowledge (as demonstrated in the previous section). Conversely, if the relationship is negative, an inefficiently large public sector would be inferred. This would be unusual due to the supposed gains from expenditure decentralization. Therefore, it is crucial that we explore this statistical relationship. In the absence of any statistical relationship, a lack of knowledge would not be particularly important, as tax decentralization would not influence the desired size of the public sector measured in terms of MWTP.

Table 7 examines whether *Decentralization* influences the revealed MWTP (eq. [1]). In columns (1) and (2), we test this hypothesis for PIT, and in (3) and (4) for VAT. Although not explicitly shown, we control for the complete set of personal characteristics of the individuals surveyed and of the financing regime. Results clearly indicate that MWTP—regardless of how it is defined and the particular tax in question—does not vary because of *Decentralization*. The estimates are very low in terms of their absolute values and statistically insignificant. Hence, it seems the

Table 5 Determinants of wrong/no-information about tax assignments

Variables	(1) Mistake PIT or don't know	(2) Mistake PIT or Don't know	(3) Mistake VAT or Don't know	(4) Mistake VAT or Don't know
<i>Common regime</i>				
<i>Right</i>	-0.0407** (0.0198)	0.0203 (0.0648)	-0.100*** (0.0163)	-0.167*** (0.0493)
<i>Centre</i>	-0.146*** (0.0295)	-0.116* (0.0599)	-0.110*** (0.0245)	-0.197*** (0.0500)
<i>Left</i>	-0.0918*** (0.0299)	-0.0627 (0.0543)	-0.107*** (0.0250)	-0.0582 (0.0370)
<i>Female</i>	-0.145*** (0.0254)	-0.169*** (0.0445)	-0.114*** (0.0208)	-0.0762*** (0.0293)
<i>Older</i>	0.115*** (0.0179)	0.111*** (0.0343)	0.0649*** (0.0158)	0.0276 (0.0262)
<i>Inactive</i>	-0.144*** (0.0186)	-0.0972*** (0.0335)	-0.0417** (0.0168)	-0.0938*** (0.0266)
<i>Married</i>	0.0485** (0.0189)	0.117*** (0.0420)	0.0864*** (0.0166)	0.0910*** (0.0293)
<i>High_edu</i>	-0.0499*** (0.0184)	-0.0208 (0.0348)	0.0184 (0.0167)	0.0301 (0.0269)
<i>High_income</i>	-0.101*** (0.0175)	-0.0834** (0.0340)	-0.0186 (0.0155)	-0.00435 (0.0261)
<i>Pro_Autonomy</i>	-0.0915*** (0.0200)	-0.0873** (0.0380)	0.0101 (0.0174)	-0.0523* (0.0294)
<i>Right X common regime</i>	0.0296 (0.0182)	0.0109 (0.0356)	0.00418 (0.0161)	-0.0214 (0.0266)
<i>Centre X common regime</i>		-0.0328 (0.0692)		0.101* (0.0581)
<i>Left X common regime</i>		-0.0376 (0.0652)		-0.0672 (0.0489)
<i>Female X common regime</i>		0.0370 (0.0544)		-0.0514 (0.0401)
<i>Age X common regime</i>		0.000751 (0.0403)		0.0560* (0.0327)
<i>Inactive X common regime</i>		-0.0629 (0.0404)		0.0780** (0.0341)
<i>Married X common regime</i>		-0.0807* (0.0471)		-0.00998 (0.0351)
<i>High_edu X common regime</i>		-0.0371 (0.0410)		-0.0188 (0.0339)
<i>High_income X common regime</i>		-0.0230 (0.0397)		-0.0196 (0.0322)
<i>Pro_Autonomy X common regime</i>		-0.00410 (0.0447)		0.0877** (0.0364)
Constant	0.859*** (0.0328)	0.0288 (0.0415)	0.902*** (0.0273)	0.0333 (0.0331)
Observations	3017	3017	3017	3017
R-squared	0.097	0.101	0.035	0.042

Robust standard errors in parentheses. ***p < 0.01, **p < 0.05, *p < 0.1

degree of tax decentralization does not play any significant role in determining the willingness to pay.²⁷

Table 8 seeks to test whether the impact of decentralization differs depending on the regional financing system. Due to the limited number of observations for the *foral* regime, hereon in we shift our focus to the common regime. Also, note, that common regime citizens are those more able to perceive differences as regards which tier of government determines the provision of public goods, since in these regions the process of decentralization, in contrast with that in the *foral* regime, was parsimonious. In the case of PIT and the common regime, *Decentralization* leads to an increase in MWTP (+0.129 according to definition 1), and +0.113 according to the more restrictive one²⁸), whereas, in the case of VAT, the estimate is positive, but statistically insignificant. Hence, for the common regime subset, expenditure decentralization has a statistically significant impact on the average MWTP, but only in the case of PIT. Coherent with the estimated positive assessment of expenditure decentralization in Spain (Espasa et al., 2017), citizens might be willing to pay more, but the composition of the mix matters: they prefer PIT to VAT.

In Table 9, we examine whether the increase in MWTP caused by *Decentralization* in the common regime is ‘simply’ driven by individuals’ aspirations for greater political autonomy. In this scenario, the impact of ‘Discovering Decentralization’ would be primarily motivated by regional sentiment. While in the case of PIT, those with aspirations of greater political autonomy increase their MWTP by a greater margin on ‘Discovering Decentralization’, the same, somewhat unexpectedly, does not occur for VAT. In none of the cases, however, the impact of *Decentralization* on MWTP is statistically different across individuals depending on their political aspirations of autonomy for their region. Interestingly, Foremny (2024) finds evidence of the role of identity in shaping attitudes toward taxation and redistribution. National identity might matter for taxation, but if taxes have a redistributive purpose.

The impact might also be interrelated with that of respondents’ political ideology. For example, in the first step of the experiment, extreme leftists may have reported the highest MWTP, and so there is no room for further increases. In contrast, right-wing individuals might be especially prone to decentralization as a way to promote market efficiency (Qian & Weingast, 1997) or, simply, they might not care which tier of government provides what, as they prefer a minimal state. As such, we cannot rule out heterogenous responses along the ideological axis. In Table 10, though, we see no statistically significant differences caused by ideology.

5 Conclusions

Expenditure decentralization might be welfare enhancing. If so, promoting tax decentralization should result in a higher (or, at least, never a lower) MWTP, provided one necessary condition is met: citizens are aware of who they pay their taxes to.

²⁷ These results are qualitative and quantitative similar if we drop subjects who answered “don’t know” when asked about the tier of government to which they pay their taxes (see Appendix, Table 12).

²⁸ This impact is not negligible as the average MWTP PIT for common regime is 0.326.

Here, we have sought to test whether this condition holds by conducting an experiment based on survey data and taking advantage of the tax decentralization process that has unfolded in Spain over the last 25 years. Our results show that citizens have little awareness of the assignment of taxes across different tiers of government: indeed, just 38.71% and 22.60% of respondents correctly assigned PIT and VAT, respectively, it being overwhelmingly assumed that the two taxes are more centralized than they actually are.

Contrary to our expectations, being a resident of the *foral* regime, in which tax decentralization is almost full, by itself does not enhance knowledge about tax assignment. Indeed, in the case of VAT, it even diminishes knowledge compared to that of residents of the common regime. Hence, the necessary condition for taking advantage of the supposed welfare gains attributable to tax decentralization does not currently hold in the Spanish case. A priori, this is not good news.

To infer whether this lack of awareness is something worth rectifying, we estimate the extent to which being in possession of the correct information modifies the originally revealed MWTP. We obtain mixed results. In the case of PIT, although few individuals change their preferences (only 12.05% of those who erroneously believed the tax to be more centralized than it actually is), we estimate a causal relationship between ‘Discovering Decentralization’ and MWTP. In the case of VAT, we record no impact at all. Hence, citizens might be willing to pay more, but the composition of the mix also matters: they prefer PIT to VAT. Likewise, we cannot conclude that any change in MWTP is related to citizens’ aspirations of greater political autonomy for their region or with their political ideology.

Our analysis of the lack of knowledge about tax assignment leads to a final consideration about how the main taxes are currently administered in modern tax systems. Pre-filled returns, e-returns or tax withholdings make compliance and payment much easier. PIT contributors do not have to make any calculations that might involve the application of progressive tax schedules; many do not even have to keep payslips, bank records or invoices, as the tax authority already disposes of this information. VAT is an indirect tax, whose taxable persons from a legal point of view (i.e., those that charge, collect and pay VAT) generally carry out economic activities; yet the tax seeks to be a levy on final consumers (i.e., taxpayers from an economic point of view). Product prices are usually inclusive of VAT (at least in the EU) and, therefore, it seems reasonable to assume that most taxpayers pay little attention to the total VAT due. All in all, while there are gains in compliance costs, tax collection procedures do little to raise citizen awareness of which tier of government they pay their taxes to and, likewise, just how much tax they are paying. Hence, it might be worth considering the trade-off between lowering compliance costs and increasing taxpayer awareness of the taxes they pay and to whom they pay them.

Table 6 Common vs. *foral* regime: who is more aware of tax decentralization?

Variables	(1) Wrongly guess PIT is more centralized	(2) Wrongly guess VAT is more centralized
<i>Common regime</i>	−0.170** (0.0746)	−0.237*** (0.0582)
<i>Right</i>	−0.109* (0.0603)	−0.201*** (0.0500)
<i>Centre</i>	−0.0552 (0.0548)	−0.0752** (0.0383)
<i>Left</i>	−0.160*** (0.0453)	−0.0791*** (0.0294)
<i>Female</i>	0.110*** (0.0344)	0.0263 (0.0265)
<i>Older</i>	−0.0998*** (0.0336)	−0.0874*** (0.0268)
<i>Inactive</i>	0.109** (0.0427)	0.0957*** (0.0296)
<i>Married</i>	−0.0167 (0.0350)	0.0329 (0.0274)
<i>High_edu</i>	−0.0820** (0.0341)	−0.000767 (0.0265)
<i>High_income</i>	−0.0882** (0.0380)	−0.0469 (0.0296)
<i>Pro_Autonomy</i>	0.00644 (0.0358)	−0.0265 (0.0270)
<i>Right</i> × <i>common regime</i>	0.0436 (0.0774)	0.217*** (0.0650)
<i>Centre</i> × <i>common regime</i>	0.0259 (0.0749)	0.0136 (0.0593)
<i>Left</i> × <i>common regime</i>	0.119* (0.0647)	0.0561 (0.0499)
<i>Female</i> × <i>common regime</i>	−0.0496 (0.0423)	0.00979 (0.0347)
<i>Age</i> × <i>common regime</i>	−0.0175 (0.0426)	0.109*** (0.0365)
<i>Inactive</i> × <i>common regime</i>	−0.0956* (0.0495)	0.00886 (0.0366)
<i>Married</i> × <i>common regime</i>	−0.0291 (0.0432)	−0.0292 (0.0361)
<i>High_edu</i> × <i>Common regime</i>	−0.0186 (0.0414)	−0.0205 (0.0339)
<i>High_income</i> × <i>common regime</i>	0.0263 (0.0459)	0.124*** (0.0373)
<i>Pro_Autonomy</i> × <i>common regime</i>	0.0319 (0.0436)	0.0511 (0.0350)
Constant	0.806*** (0.0549)	0.946*** (0.0377)
Observations	2638	2399
R-squared	0.079	0.041

Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 7 Does MWTP change when individuals ‘Discover Decentralization’?

Variables	(1) $\Delta MWTP_PIT$ (Def. 1)	(2) $\Delta MWTP_PIT$ (Def. 2)	(3) $\Delta MWTP_VAT$ (Def. 1)	(4) $\Delta MWTP_VAT$ (Def. 2)
<i>Decentralization</i>	0.0169 (0.0413)	0.00915 (0.0372)	0.00663 (0.0286)	0.00915 (0.0239)
Observations	1382	1382	1918	1918
R-squared	0.015	0.019	0.006	0.007

The dependent variable is the difference in the MWTP (before and after the treatment). The sample is restricted to those individuals who initially either failed to identify the tax assignment correctly, believing the tax to be more centralized than it is, and those who responded ‘don’t know’. According to definition 1), the dependent variable is the difference between the MWTP after being provided with the correct information and before, where MWTP runs from zero (null marginal willingness to pay taxes) to three (highest MWTP); in definition 2), the difference only accounts for no variation (0), an increase in MWTP (+1) and a decrease in MWTP (−1). In all regressions, we control for the whole set of personal characteristics (see Table 3), and the (*foral* or common) regime in which the individuals surveyed reside. Robust standard errors in parentheses

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

Table 8 Does MWTP change when individuals in the common regime ‘Discover Decentralization’?

Variables	(1) $\Delta MWTP_PIT$ (Def. 1) <i>Common</i>	(2) $\Delta MWTP_PIT$ (Def. 2) <i>Common</i>	(3) $\Delta MWTP_VAT$ (Def. 1) <i>Common</i>	(4) $\Delta MWTP_VAT$ (Def. 2) <i>Common</i>
<i>Decentralization</i>	(a) 0.129** (0.0511)	(a) 0.113** (0.0502)	(a) 0.0525 (0.0479)	(a) 0.0500 (0.0380)
Observations	866	866	1241	1241
R-squared	0.032	0.034	0.010	0.013

The dependent variable is the difference in the MWTP (before and after the treatment). The sample is restricted to those individuals who initially either failed to identify the tax assignment correctly, believing the tax to be more centralized than it is, and those who responded ‘don’t know’. According to definition 1), the dependent variable is the difference between the MWTP after being provided with the correct information and before, where MWTP runs from zero (null marginal willingness to pay taxes) to three (highest MWTP); in definition 2), the difference only accounts for no variation (0), an increase in MWTP (+1) and a decrease in MWTP (−1). In all regressions, we control for the whole set of personal characteristics, and the (*foral* or common) regime in which the individuals surveyed reside. Robust standard errors in parentheses

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

Table 9 Does MWTP change when individuals in the common regime ‘Discover Decentralization’ depending on their aspirations for greater political autonomy?

Variables	(1) $\Delta MWTP_PIT$ (Def. 1)	(2) $\Delta MWTP_PIT$ (Def. 2)	(3) $\Delta MWTP_VAT$ (Def. 1)	(4) $\Delta MWTP_VAT$ (Def. 2)
(a) <i>Decentralization</i>	0.106** (0.0521)	0.101* (0.0518)	0.0516 (0.0587)	0.0648 (0.0486)
(b) <i>Decentralization</i> $\times$ <i>Pro_Autonomy</i>	0.0786 (0.125)	0.0451 (0.122)	0.0293 (0.099)	−0.0329 (0.0679)
Impact of <i>Decentralization</i> for those in favour of more political decentralization [(a) + (b)]	0.1849 (0.1134)	0.1459 (0.1109)	0.0810 (0.0794)	0.0319 (0.0475)
Observations	866	866	1241	1241
R-squared	0.045	0.048	0.017	0.017

The dependent variable is the difference in the MWTP (before and after the treatment). The sample is restricted to all those individuals who—residing in the common regime—failed to identify the tax assignment correctly. Decentralization is a qualitative variable that equals one for those individuals who underestimate the degree of tax decentralization. Pro_Autonomy is a dummy equal to 1 for those individuals who would like more political autonomy for their regions or independence. According to definition 1), the dependent variable is the difference between the MWTP after being provided with the correct information and before, where MWTP runs from zero (null marginal willingness to pay taxes) to three (highest MWTP); in definition 2), the difference only accounts for no variation (0), an increase in MWTP (+1) and a decrease in MWTP (−1). In all regressions, we control for the whole set of personal characteristics and for these variables interacted with Decentralization. Robust standard errors in parentheses

***p < 0.01, **p < 0.05, *p < 0.1

Table 10 Does MWTP change when individuals in the common regime ‘Discover Decentralization’ depending on their political ideology?

Variables	(1) $\Delta MWTP_PIT$ (Def. 1)	(2) $\Delta MWTP_PIT$ (Def. 2)	(3) $\Delta MWTP_VAT$ (Def. 1)	(4) $\Delta MWTP_VAT$ (Def. 2)
(a) <i>Decentralization</i>	0.119** (0.0567)	0.099* (0.055)	0.0434 (0.052)	0.043 (0.041)
(b) <i>Decentralization</i> $\times$ <i>Right</i>	−0.0147 (0.081)	−0.0036 (0.077)	0.038 (0.069)	0.029 (0.059)
Impact of <i>Decentralization</i> for rightist individuals [(a) + (b)]	0.105* (0.058)	0.096* (0.054)	0.0817* (0.046)	0.071* (0.042)
Observations	866	866	1241	1241
R-squared	0.0393	0.0427	0.0124	0.0153

The dependent variable is the difference in the MWTP (before and after the treatment). The sample is restricted to all those individuals who—residing in the common regime—failed to identify the tax assignment correctly. Decentralization is a qualitative variable that equals one for those individuals who underestimate the degree of tax decentralization. According to definition 1), the dependent variable is the difference between the MWTP after being provided with the correct information and before, where MWTP runs from zero (null marginal willingness to pay taxes) to three (highest MWTP); in definition 2), the difference only accounts for no variation (0), an increase in MWTP (+1) and a decrease in MWTP (−1). In all regressions, we control for the whole set of personal characteristics and for these variables interacted with Right. Robust standard errors in parentheses

***p < 0.01, **p < 0.05, *p < 0.1

Appendix

See Figs. 6, 7, 8, 9 and Tables 11 and 12

20/01/2023 10:02:12

Resumen de declaraciones

	CONJUNTA	Declarante	Cónyuge
Resultado de la declaración	8.147,01	634,34	1.313,34
Resultados del trabajo			
Total ingresos íntegros computables	83.705,66	41.540,75	62.064,30
Rendimiento neto reducido	83.705,66	39.640,75	60.064,30
Resultados del capital mobiliario a integrar en la base imponible del ahorro			
Total ingresos íntegros	450,00	225,45	225,45
Rendimiento neto reducido	450,00	225,45	225,45
Resultados de los inmuebles a disposición de sus titulares o arrendados o cedidos a terceros			
Suma de rentas inmobiliarias imputadas	785,15	335,50	680,10
Ganancias y pérdidas patrimoniales sometidas a retención (sociedades y fondos de inversión)	430,54		
Ganancias patrimoniales reducidas no mantenidas		204,27	204,27
Base imponible general	82.650,31	39.976,72	61.514,05
Reducciones de la base imponible general			

Agencia Tributaria
Impuesto sobre la Renta de las Personas Físicas
Ejercicio 2022 - Documento de ingreso o devolución
Modelo 100

Primer declarante
NIF: [redacted] Apellidos y Nombre: [redacted]

Cónyuge
NIF: [redacted] Apellidos y Nombre: [redacted]

Datos de la autoliquidación
Número de Asilante: [redacted] Ejercicio: 2022 Período: DA

Resumen de la declaración
Base líquida general: 40.514,09 Base líquida del ahorro: 426,72 Cúota íntegra estatal: 4.617,18 Cúota íntegra autonómica: 4.801,30 Cúota líquida estatal: 4.617,18 Cúota líquida autonómica: 4.801,30
Resultado a ingresar o devolver (casilla 0895) o casilla 0895 (de la declaración): 88 X Tribución conjunta: 88
Importante: si la cantidad consignada en la casilla 0895 (resultado determinado como consecuencia de la cumplimentación del apartado 7 de la declaración) (obligación de suspensión del ingreso de un cómputo / Remisión del otro cómputo al color de la devolución), indicado marcando con una "X" esta casilla: 7

Declaración complementaria
Resultado de la declaración complementaria (se cumplimentará exclusivamente en caso de declaración complementaria del ejercicio 2022 de la que se derive una cantidad a ingresar): 0000
Importante: en las declaraciones complementarias no podrá precomputarse el pago en dos plazos.

Fraccionamiento del pago a ingreso
Si el importe consignado en la casilla 0895 es una cantidad positiva, marque con una "X" la casilla correspondiente para indicar si desea o no fraccionar el pago en dos plazos. Recuerde que si opta por domiciliar la totalidad o el primer plazo, dicho importe se cargará en cuenta el 30 de junio.
NO FRACCIONA el pago: [redacted] SI FRACCIONA el pago en dos plazos: 8 X
Ingreso efectuado a favor del Tesoro Público. Cuenta restringida de establecimiento en la recaudación de la Agencia Estatal de Administración Tributaria de autoliquidaciones.
Consigne en la casilla 1, el importe que desea ingresar (la totalidad, si no fracciona el pago, o el 60 por 100 si fracciona el pago en dos plazos).
Importe (se la totalidad del primer plazo): 1, 788,00
Forma de pago: DOMICILIACIÓN Código BIC: [redacted]
En caso de domiciliación, cumplimente los datos de una cuenta bancaria abierta en España de la que sea titular y en la que desea que le sea cargado el correspondiente pago.
Indique qué día y a qué plazo para efectuar el ingreso en todo el 30 de junio de 2023, indicando:

Opciones de pago del 2.º plazo
Si ha optado por fraccionar el pago en dos plazos, indique marcando con una "X" la casilla correspondiente, si desea o no domiciliar el pago del 2.º plazo en Entidad Colaboradora.
NO DOMICILIA el pago del 2.º plazo, deberá efectuar el ingreso hasta el día 8 de noviembre de 2023, indicando: [redacted] 2
SI DOMICILIA el pago del 2.º plazo en Entidad Colaboradora, consignar en la casilla 1, el importe de dicho plazo. En caso de no haber domiciliado el primer plazo, cumplimente los datos de una cuenta bancaria abierta en España de la que sea titular y en la que desea que le sea cargado el correspondiente pago. En este caso, el importe se cargará en cuenta el 8 de Noviembre.
Importe del 2.º plazo (10% de la casilla 0895): 1, 525,34 Código BIC: [redacted]

Devolución
Si el importe consignado en la casilla 0895 es una cantidad negativa, indique si solicita devolución o remisión a la:
Devolución: [redacted] Importe: D [redacted]
Importante: si solicita la devolución, consignar en el apartado "Cuenta bancaria" los datos completos de la cuenta en la que desea recibir la devolución bancaria.
Mediante transferencia a cuenta bancaria abierta en España:
Código IBAN: [redacted]
Mediante transferencia a cuenta bancaria abierta en el extranjero (datos identificativos de la entidad bancaria extranjera) (By transfer to a foreign bank account (identifying data of the foreign bank)):
U.E./SEPA: [redacted] Código/Code SWIFT/BIC: [redacted] Código/Code SWIFT/BIC: [redacted]
Recibo (date): [redacted] Número de cuenta/cuenta no: [redacted]
Recibo (date of the bank): [redacted] Recibo (date of the bank): [redacted]
Código/ID: [redacted] País/Country: [redacted] Código País/Country code: [redacted]

Fig. 6 PIT returns and assistance programs in the common regime

Impuesto sobre el Valor Añadido. Autoliquidación. Modelo 303

Rellene los datos que se solicitan para continuar

El asterisco * indica que es imprescindible completar este dato

* Introduzca N.I.F.

000000000

* Introduzca apellidos y nombre / Razón social

* Ejercicio del período

- Seleccione -

* Selección de período

- Seleccione -

Enviar



Agencia Tributaria
Teléfono: 901 33 55 33
<https://sede.agenciatributaria.gob.es>

Impuesto sobre el Valor Añadido
Autoliquidación
Ingreso del Impuesto sobre el Valor Añadido a la importación liquidado por la Aduana.

Modelo
303

Identificación (1)

MF: Apellidos y nombre o Razón social

☐ **Tributación exclusivamente foral.**
Sujeto pasivo que tributa exclusivamente a una Administración tributaria Foral con IVA a la importación liquidado por la Aduana pendiente de ingreso

Sujeto pasivo inscrito en el Registro de devolución mensual (art. 20 RIVA).....
Sujeto pasivo que tributa exclusivamente en régimen simplificado.....
Autoliquidación conjunta.....
Sujeto pasivo acogido al régimen especial del criterio de Caja (art. 163.1 LIVA).....
Sujeto pasivo destinatario de operaciones acogidas al régimen especial del criterio de caja.....
Opción por la aplicación de la promota especial (art. 103.1 LIVA).....
Revocación de la opción por la aplicación de la promota especial (art. 103.1 LIVA).....
Sujeto pasivo declarado en concurso de acreedores en el presente período de liquidación.....

Fecha en que se dictó el auto de declaración de concurso: Día Mes Año
Si se ha dictado auto de declaración de concurso en este período indique el tipo de liquidación: Preconcurso Postconcurso

Devengo (2) Ejercicio: 2023 Período: 1T

Liquidación (3)

Régimen general

IVA devengado

	Base imponible	Tipo %	Cuota
Régimen general	152	02 4,00	152
	155	06 5,00	155
	156	08 10,00	156
	157	08 21,00	157
Adquisiciones intracomunitarias de bienes y servicios.....	110		111
Otras operaciones con inversión del sujeto pasivo (excepto adq. intracom.).....	112		113
Modificación bases y cuotas.....	114		115
	116	1,75	118
Recargo equivalencia.....	119	1,40	121
Modificaciones bases y cuotas del recargo de equivalencia.....	122	5,20	124
	123		125
Total cuota devengada (152 + 01 + 155 + 06 + 08 + 11 + 13 + 15 + 156 + 18 + 21 + 26 + 26)			504,00

IVA deducible

	Base	Cuota
Por cuotas soportadas en operaciones interiores corrientes.....	28 59.774,11	29 12.084,09
Por cuotas soportadas en operaciones interiores con bienes de inversión.....	30	31
Por cuotas soportadas en las importaciones de bienes corrientes.....	32	33
Por cuotas soportadas en las importaciones de bienes de inversión.....	34	35
En adquisiciones intracomunitarias de bienes y servicios corrientes.....	36	37
En adquisiciones intracomunitarias de bienes de inversión.....	38	39
Rectificación de deducciones.....	40	41
Compensaciones Régimen Especial A.G. y P.....		42
Regularización bienes de inversión.....		43
Regularización por aplicación del porcentaje definitivo de prorrata.....		44
Total a deducir (29 + 31 + 33 + 35 + 37 + 39 + 41 + 42 + 43 + 44)		12.084,09
Resultado régimen general (27 - 45)		-11.580,09

La autenticidad de este documento puede ser comprobada mediante el Código Seguro

Fig. 7 VAT returns and assistance programs in the common regime

Declaración Telemática de I.V.A.		
Modelo	F66 - I.V.A. Mensual	
Datos del declarante	[Redacted]	
Periodo	Año: 2023	Periodo: Octubre ☐ Última
Tipo de declaración	☒ Ordinaria ☐ Sustitutiva	
Presentación	☒ En nombre propio	
Idioma	☒ Castellano ☐ Euskera	

[continuar](#)

Información básica sobre protección de datos

Responsable	Hacienda Foral de Navarra
Finalidad	Gestión, inspección y recaudación de los tributos e ingresos de derecho público competencia de la Comunidad Foral de Navarra.
Legitimación	Ejercicio de poderes públicos.
Destinatarios	No se cederán datos a terceros salvo que exista consentimiento o sin consentimiento cuando lo habilita la normativa.
Derechos	Acceder, rectificar, suprimir y limitar el tratamiento de los datos así como otros derechos, como se explica en la información adicional.
Información adicional	Puede consultar información adicional en la página web http://hacienda.navarra.es , en el apartado de protección de datos personales.



Gobierno de Navarra

Nafarroako Gobernua

IMPUESTO SOBRE EL VALOR AÑADIDO (I.V.A.)



Imprimir en Blanco

713

713 3 99634525 3

CARTA DE PAGO

AÑO

TRIMESTRE

SUJETO PASIVO	N.I.F./C.I.	Apellidos y Nombre (o Razón Social)	Teléfono
---------------	-------------	-------------------------------------	----------

INSTRUCCIONES:

Este documento debe utilizarse para realizar ingresos en Euros por el concepto, año y periodo arriba indicados sin que, en ningún caso pueda consignarse una cantidad negativa. Los ingresos deben realizarse en Entidades Bancarias o Cajas de Ahorro.

CANTIDAD A INGRESAR

1

 Fecha: a de de
 (Firma del sujeto pasivo o su representante)

Ingreso efectuado a favor de la HACIENDA FORAL DE NAVARRA, cuenta para la RECAUDACIÓN de los TRIBUTOS.

FORMA DE PAGO:

☐ En efectivo☐ E.C. Aduedo en cuenta

Importe: I

BAN Entidad Oficina D.C. Num. Cuenta

Fig. 9 VAT returns and assistance programs in the *foral* regime

Table 11 Determinants of wrong/no-information about tax assignments (logit models)

Variables	(1) Mistake PIT or Don't know	(2) Mistake PIT or Don't know	(3) Mistake VAT or Don't know	(4) Mistake VAT or Don't know
<i>Common regime</i>				
<i>Right</i>	-0.189** (0.0943)	0.0391 (0.368)	-0.639*** (0.113)	-1.550*** (0.522)
<i>Centre</i>	-0.768*** (0.160)	-0.657** (0.320)	-0.820*** (0.193)	-1.686*** (0.459)
<i>Left</i>	-0.529*** (0.167)	-0.412 (0.314)	-0.807*** (0.197)	-0.796* (0.481)
<i>Female</i>	-0.772*** (0.148)	-0.907*** (0.263)	-0.849*** (0.181)	-0.959** (0.421)
<i>Older</i>	0.517*** (0.0817)	0.510*** (0.157)	0.381*** (0.0933)	0.208 (0.202)
<i>Inactive</i>	-0.662*** (0.0863)	-0.466*** (0.158)	-0.249*** (0.0993)	-0.766*** (0.219)
<i>Married</i>	0.245*** (0.0899)	0.597** (0.232)	0.520*** (0.104)	0.854** (0.347)
<i>High_edu</i>	-0.233*** (0.0860)	-0.108 (0.167)	0.106 (0.0982)	0.229 (0.223)
<i>High_income</i>	-0.470*** (0.0816)	-0.405*** (0.162)	-0.112 (0.0921)	-0.0542 (0.211)
	-0.395***	-0.382**	0.0574	-0.383* (0.217)
	(0.0875)	(0.168)	(0.101)	
<i>Pro_Autonomy</i>	0.141 (0.0861)	0.0526 (0.168)	0.0184 (0.0955)	-0.157 (0.217)
<i>Right×common regime</i>		-0.113 (0.372)		1.044** (0.506)
<i>Centre×common regime</i>		-0.145 (0.372)		0.00102 (0.528)
<i>Left×common regime</i>		0.207 (0.318)		0.149 (0.467)
<i>Female×common regime</i>		-0.00702 (0.184)		0.247 (0.229)
<i>Age×common regime</i>		-0.265 (0.189)		0.676*** (0.247)
<i>Inactive×common regime</i>		-0.409 (0.253)		-0.404 (0.364)
<i>Married×common regime</i>		-0.159 (0.195)		-0.173 (0.249)
<i>High_edu×common regime</i>		-0.0839 (0.188)		-0.0784 (0.235)
<i>High_income×common regime</i>		-0.0104 (0.197)		0.574** (0.246)
<i>Pro_Autonomy×common regime</i>		0.140 (0.196)		0.223 (0.242)
Constant	1.732*** (0.181)	1.550*** (0.312)	2.246*** (0.217)	2.980*** (0.473)
Observations	3017	3017	3017	3017

Robust standard errors in parentheses

***p < 0.01, **p < 0.05, *p < 0.1

Table 12 Does MWTP change when individuals ‘Discover Decentralization’?

Variables	(1) $\Delta MWTP_PIT$ (Def. 1)	(2) $\Delta MWTP_PIT$ (Def. 2)	(3) $\Delta MWTP_VAT$ (Def. 1)	(4) $\Delta MWTP_VAT$ (Def. 2)
<i>Decentralization</i>	0.0237 (0.0476)	0.0241 (0.0436)	0.00811 (0.0354)	0.0111 (0.0298)
Observations	1237	1237	1769	1769
R-squared	0.018	0.022	0.007	0.008

The dependent variable is the difference in the MWTP (before and after the treatment). The sample is restricted to those individuals who initially failed to identify the tax assignment correctly, believing the tax to be more centralized than it is. According to definition 1), the dependent variable is the difference between the MWTP after being provided with the correct information and before, where MWTP runs from zero (null marginal willingness to pay taxes) to three (highest MWTP); in definition 2), the difference only accounts for no variation (0), an increase in MWTP (+ 1) and a decrease in MWTP (− 1). In all regressions, we control for the whole set of personal characteristics (see Table 3), and the (*foral* or common) regime in which the individuals surveyed reside. Robust standard errors in parentheses

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

Acknowledgements We are grateful for comments received from participants at XXXI Encuentro de Economía Pública held in Pamplona (Spain) and at the Workshop on “Local Public Finance for Sustainable Communities” held in Rimini (Italy). We also thank comments and suggestions from anonymous referees and the editor (Federico Revelli). We gratefully acknowledge funding received from PID2021-126652NB-I00 (Spanish Ministry of Science and Innovation) and from AGAUR (Government of Catalonia; Project 2021SGR00355). Salvadori gratefully acknowledges research funding from the Economic and Social Research Council (ESRC) (Grants ES/S00713X/1 and ES/X003973/1), the Fundación Ramón Areces, the Serra Hünter Programme, the Generalitat de Catalunya [2021SGR00571] and the Spanish Agencia Estatal de Investigación (AEI), through the Severo Ochoa Programme for Centres of Excellence in R&D (CEX2019-000915-S), the grant PID2022-137707NB-I00 funded by MICIU/AEI/10.13039/501100011033 and FEDER, UE, and the grant CNS2022-135749.

Data availability Data may be available upon request.

References

- Besley, T., & Case, A. (1995). Incumbent behavior: Vote-seeking, tax-setting, and yardstick competition. *American Economic Review*, 85, 25–45.
- Boadway, R., & Shah, A. (2009). *Fiscal federalism: Principles and practice of multiorder governance*. Cambridge University Press.
- Bosch, N., El-Attar, M., & Vilalta, M. (2024). The relationship between the revenue and the fiscal capacity of the Spanish Autonomous Regions. *Hacienda Pública Española/Review of Public Economics*, 250(3), 3–32.
- Díaz-Serrano, L., & Rodríguez-Pose, A. (2012). Decentralization, subjective well-being and the perception. *Kyklos*, 65, 179–193. <https://doi.org/10.1111/j.1467-6435.2012.00533.x>
- Durán-Cabré, J. M., & Esteller-Moré, A. (2019). Diseño institucional, descentralización y gestión tributaria. In A. Cuenca & S. L. Peñas (Eds.), *El sector público español: Reformas pendientes*. Funcas.
- Durán-Cabré, J. M., & Esteller-Moré, A. (2023). Conocimiento fiscal: Un aspecto clave para la evaluación de políticas públicas. *Ekonomia*, 103, 214–247.
- Durán-Cabré, J. M., & Vilalta Ferrer, M. (2023). La autonomía fiscal de las Comunidades Autónomas. In *Informe Comunidades Autónomas 2022*. Observatorio de Derecho Público, IDP Barcelona.
- Espasa, M., Esteller-Moré, A., & Mora, T. (2017). Is decentralization really welfare enhancing? Empirical evidence from survey data (1994–2011). *Kyklos*, 70, 189–219.

- Foremny, D. (2024). *Tax decentralization, preferences for redistribution, and regional identities*. SSRN Working Paper.
- Gabinete de prospección sociológica. (2011). *Sociómetro Vasco* 44, Gobierno Vasco, Diciembre 2010.
- Golem, S. (2010). Fiscal decentralisation and the size of government: A review of the empirical literature. *Financial Theory and Practice*, 34, 53–69.
- Guerra, A., & Harrington, B. (2022). Regional variation in tax compliance and the role of culture. *Economía Política*, 40, 139–152.
- Güth, W., Levati, M., & Sausgruber, R. (2005). Tax morale and (de-)centralization: An experimental study. *Public Choice*, 125, 171–188.
- Ligthart, J. E., & van Oudheusden, P. (2015). In government we trust: The role of fiscal decentralization. *European Journal of Political Economy*, 37, 116–128.
- Martínez-Vázquez, J., Lago-Peñas, S., & Sacchi, A. (2017). The impact of fiscal decentralization: A survey. *Journal of Economic Surveys*, 31, 1095–1129.
- Monasterio, C. (2010). Federalismo fiscal y Sistema foral. ¿Un concierto desafinado? *Hacienda Pública Española/review of Public Economics*, 192, 59–103.
- Oates, W. E. (1972). *Fiscal federalism*. Harcourt Brace Jovanovich.
- OECD. (2021). *Fiscal federalism 2022: Making decentralisation work*. OECD Publishing.
- OECD. (2023). *OECD fiscal decentralisation database*.
- Qian, Y., & Weingast, B. R. (1997). Federalism as a commitment to preserving market incentives. *Journal of Economic Perspectives*, 11, 83–92.
- Sala, G. (2013). Federalism without adjectives in Spain. *Publius: the Journal of Federalism*, 44(1), 109–134.
- Seabright, P. (1996). Accountability and decentralization in government: An incomplete contracts model. *European Economic Review*, 40, 61–89.
- Slemrod, J. (2002). *Trust in public finance*. NBER working paper 9187.
- Stantcheva, S. (2023). How to run surveys: A guide to creating your own identifying variation and revealing the invisible. *Annual Review of Economics*, 15, 205–234.
- Zubiri, I. (2017). *The economic agreement between the Basque Country and Spain: Principles, characteristics and economic implications*. Ad Concordiam.

Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

Springer Nature or its licensor (e.g. a society or other partner) holds exclusive rights to this article under a publishing agreement with the author(s) or other rightsholder(s); author self-archiving of the accepted manuscript version of this article is solely governed by the terms of such publishing agreement and applicable law.