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Millionaires on the Run? Taxation of the Rich and Induced Mobility: A Literature Review*

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Abstract

The main goal of this paper is to evaluate, from an economics perspective, the growing literature on the possible tax-induced residential mobility of high-income and high-net-worth individuals. This literature is dominated by the estimation of one parameter: migration elasticity in response to changes in net-of-tax income. The considerable heterogeneity of estimations of this elasticity warns against drawing any overall conclusions without considering and evaluating the institutional and economic conditions and methodological options influencing each specific estimation. While keeping this caveat in mind, we offer some final recommendations for public decision-makers who hope to offer differentiating tax policies targeting taxpayers in the top wealth and income bracket or favouring specific professional profiles.

Keywords: Tax mobility, Millionaires, Income tax, Wealth tax, Migration elasticity.

JEL Classification: H21, H24, H73.

1. Introduction

A recent IPSOS survey (IPSOS, 2024), basically polling citizens of the G20 countries, pointed among other things to two fairly well-established economic opinions: a growing perception of high levels of wealth inequality (according to 67% of responses), and equally strong support for raising the taxes of those identified as rich in each country (in this case, supported by 70% of those surveyed).

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In fact, this perception of high inequality is also confirmed by economic research: Alfani (2024) shows that the wealthiest people have been the great beneficiaries of a considerable concentration of wealth which began in the 1980s. In 2010, the top 0.01% richest United States citizens owned 10.8% of the country's total wealth, while in 1980 it was just 2.6%. And the phenomenon is not confined to the US: in 2020, in Europe, the top 1% held 29.4% of wealth; in North America, 34.8%; and if we consider the population of the world as a whole, this share is 44.9% (Shorrocks *et al*., 2021).

The *World Inequality Report 2022*, (Chancel *et al*., 2022) that supplies the most current and comprehensive information available as of 2021 regarding the various facets of inequality worldwide, provides even more recent data for the richest 0.01%: their share of global wealth has been exacerbated during the COVID pandemic, with the sharpest recorded increase in this share occurring precisely since 2020.

In 2024, Brazil, as the latest holder of the G20 presidency, commissioned a report from the economist Gabriel Zucman to evaluate the possibilities of higher taxation of billionaires as one of the available options for reducing this concentration of wealth. This report (Zucman, 2024) proposes a minimum tax of 2% of the total net worth of the 3,000 billionaires estimated to now exist in the world.

An assessment of the desirability of this proposal is outside the scope of this paper, but it does immediately prompt a question: given the lack of worldwide coordination in personal taxation, and given people's growing internal and international mobility, especially those with the highest incomes, is it possible for the wealthiest individuals to be taxed at substantially higher rates, and differently in different jurisdictions? Or, in contrast, would any significant increase in the tax pressure they experience in their habitual places of residence, or a relevant reduction observed in some other jurisdiction, inevitably lead to them changing where they live?

This paper hopes to answer this question. To do this, it offers a critical assessment of the recent and growing literature on two issues that go hand-in-hand: the taxation of high-income/high-net worth individuals, and the mobility it induces.

As we will see, the fundamental product of this empirical literature has been the estimation of response elasticities (response in the form of taxpayers lost/gained after introducing tax reforms focusing on high incomes/net worth or certain professional groups) to variations in the economic capacity observed after tax.

We also want to clarify in this introduction the criterion which defines in practice whether someone is rich in the tax mobility literature. As we will see in more detail, this definition is based on taxpayers' position in the upper percentiles or milliles of the distribution of an economic capacity magnitude: income, net worth, or both. However, as the absolute figures for these magnitudes may not capture the attention of public opinion (at least in the case of moderately wealthy individuals), the literature also talks about the super-rich. This classification of the richest individuals uses the term billionaires, who are, strictly speaking, those with over a billion $ or € in net worth, or alternatively, who appear in the lists of multimillionaires published by prestigious international media (e. g., *Forbes* or *Bilanz*).

In any case, the econometric estimation of the migration response has proliferated markedly in contexts where two circumstances coincide: a notable tax heterogeneity between relatively close jurisdictions (thus making significant taxpayer mobility a possibility); and the existence of government databases enabling the longitudinal monitoring of taxpayers' tax residences, while also precisely identifying their income/wealth, alongside various other personal or socioeconomic variables.

The paper is structured as follows. Section 2 describes some methodological issues, now more or less resolved, which have concerned authors working on the tax mobility problem. Section 3 systematises the results of the empirical mobility literature focusing on personal taxes, whether income tax or wealth tax. We conclude with Section 4 offering some recommendations for public decision-makers in the light of our literature review and its most notable results.

We also offer readers a final annex, by way of a concrete example, characterising economically the high income/net worth individuals in Spain, detailing: (1) their income sources, (2) the income or net worth level they declare, and (3) their recent mobility (within the country), and also commenting on how the relevant literature has explained this migration response.

2. Methodological options in the literature: an assessment

In this section we will select and briefly evaluate the methodological aspects dealt with in the related literature that we believe can determine the scope of the results of different papers, and thus, the possible economic recommendations that can be derived from them.

However, before carrying out this main objective, it is worth addressing an obvious prior question: what are some of the fundamental economic and institutional reasons that could be conditioning the considerable global heterogeneity of tax regimes available to high-income individuals?

Regarding the issue of internal mobility (within a single country), the basic recommendations of Fiscal Federalism offer a direct economic justification for the existence of differentiated tax regimes within subcentral governments, as a response to the particular preferences of the citizens of those territories and in support of the principle of tax responsibility. Following these postulates, the most decentralized countries exhibit significant heterogeneity in their personal taxation, mitigated to a greater or lesser extent by internal rules of coordination and minimum taxation.

And at the international level, it is essential to determine the allocation principle that governs the distribution of personal tax revenues among different countries: either the residence principle applies (taxing worldwide income in the country of tax residence), or the source principle applies (taxing different incomes wherever they originate).

Common practice often leads to the simultaneous application of both principles, with an induced problem of international double taxation that must be corrected through bilateral agreements between the different countries. However, if a strictly pure residence principle

operates between two specific countries, one would always expect increasing international mobility with the difference in the level of taxation between these two countries. This could even lead to a potential induced problem of falsification of true tax residence (using, for example, secondary properties to simulate a permanent presence in the lower-tax country).

2.1. Residential location type model and its later estimation

Any estimation of residential mobility for tax reasons (among others) must begin with a formalised understanding of this decision. Thanks to its success in the literature, we cover here the basic features of the location and relocation model of Moretti and Wilson (2017).

In the case of this model, the basic goal is to explain the internal migration of scientists in US territory from 1976 to 2010.

Individuals are assumed to have chosen to reside in a jurisdiction which has maximised their utility. Logically, companies that hire these professionals, seeking to maximize their profits, may also be motivated in their location decisions by, among other factors, tax factors. Crucially, by the level of corporate taxation observed in each territory. This creates a labor supply and demand, in this case, for scientific personnel hired in one jurisdiction or another.

From the supply point of view, the utility is a function of such variables as individual net-of-tax earnings; the cost of living and local services, infrastructure and economic conditions; and the particular, idiosyncratic preferences they may have for a specific territory.

Thus, the utility of an individual i who has lived in jurisdiction m for one year t and moves in $t+1$ to jurisdiction n is:

$$U_{imnt} = \alpha\, log(1-\tau_{nt}) + \alpha\, log(w_{nt}) + AC_n + PR_{imnt} + M_{mn}, \qquad (1)$$

where α is the marginal utility of income; w_{nt} is the salary before tax in the destination jurisdiction n; τ_{nt} represents personal income tax in the same jurisdiction; AC_n jointly captures the amenities and cost of living in jurisdiction n; PR_{imnt} captures the personal preferences of individual i regarding a given location (variable over time) not explained by the variables introduced earlier (and which have a random behaviour relating to unexpected events such as changes in family structure or in tastes); finally, M_{mn} is disutility when relocating from m to n. The existence of a term like PR_{imnt} turns Moretti and Wilson's framework into a random utility model.

Logically, the individual i who in t was living in m, chooses to migrate to n as long as the utility of living there (net of the cost of relocation) is greater than the utility of remaining in m: $U_{imnt} - U_{immt} > 0$; or greater than the utility they would obtain living in any other possible jurisdiction.

In this way, the gain from relocating is a function of the inter-jurisdiction difference in income, taxes, amenities, moving costs, and in general, any other differential factor affecting the individual's utility.

Since we are interested in the influence of relative tax changes experienced between t and $t+1$ on the individual relocation probability, we have to make some assumptions about how the distribution of the random variable *PR* behaves, and therefore what is the number of individuals located on the margin. For example, if we consider that PR_{imnt} follows an i. i. d. Extreme Value Function Type I distribution, we can express the log odds ratio[1] as follows:

$$log(p_{mnt}/p_{mmt}) = \alpha\,[log(1-\tau_{nt}) - log(1-\tau_{mt})] + \alpha[log(w_{nt}/w_{mt})] + [AC_n - AC_m] - M_{mn}, \quad (2)$$

where p_{mnt}/p_{mmt} is the proportion of the population migrating between m and n in t compared to the proportion of the population remaining in m.

Thus, for example, a tax increase in t in m would mostly affect individuals whose idiosyncratic preferences (*PR*) for this jurisdiction would be weak. In other words, not every tax change is accompanied by a relocation, as for example some taxpayers will have strong preferences for their jurisdiction of residence in t (whatever it may be) and will prefer to absorb the loss of utility.

From the point of view of the demand for professionals, as has been pointed out, there may be a company that wants to hire and that, in maximizing its benefits, in addition to the productive amenities available in a given location n, AC'_n, also takes into account the productivity increases specific to each firm-jurisdiction pair, and therefore, idiosyncratic to each location, (for instance, agglomeration economies, local regulation, existence of clusters, or customer access). Let PI_{jn} be the productivity gain of firm j in locality n. Moretti and Wilson (2017) assume that this variable also follows an i. i. d. Extreme Value Function Type I distribution.

In other words, companies are not equally productive in all locations, so choosing them is another decision to make. If a company relocates from m to n it is because its income in n, I_n, exceed its labor costs, w_n, business taxes, τ'_n, and moving costs, M'_{mn}. In this way, we can express the profit of a company that changes its location from m to n (because in the latter jurisdiction it achieves the greatest relative benefit) through the following expression:

$$logPROFIT_{jmnt} = AC'_n + PI_{jmnt} - log\, w_{nt} + \beta\, log(1-\tau'_{nt}) - M'_{mn} \quad (3)$$

Similar to the expression obtained in (2), we can express the log odds ratio, but now from the demand side, as:

$$log(p'_{mnt}/p'_{mmt}) = \beta\,[log(1-\tau'_{nt}) - log(1-\tau'_{mt})] - [log(w_{nt}/w_{mt})] + [AC'_n - AC'_m] - M'_{mn}, \quad (4)$$

In this case, p'_{mnt} is the percentage of companies that relocate from m to n, and p'_{mmt} the percentage that continues to be located in m.

Thus, expression (2) can be interpreted as the labor supply of individuals currently located in n, and, assuming that each relocated firm hires, in each case, a single scientist, equation

(4) captures the labor demand for these professionals in the same jurisdiction. If we assume that equilibrium requires equalization of labor supply and demand in each jurisdiction and year, equalizing the log odds ratios in (2) and (4) leads to:

$$log(p_{mnt}/p_{mmt}) = \sigma[log(1-\tau_{nt}) - log(1-\tau_{mt})] + \sigma' [log(1-\tau'_{nt}) - log(1-\tau'_{mt})] + \gamma_n + \gamma_m + \gamma_{mn} + \mu_{mnt}, \quad (5)$$

where σ and σ' now reflect the effect of personal taxes on individual and business income, respectively; γ_n and γ_m represent, respectively, the fixed effects of each jurisdiction, n and m (capturing consumption and production amenities specific to each location); γ_{mn} is a vector of the fixed effects of the two jurisdictions m and n (and should reflect the costs of moving between them); and finally, Moretti and Wilson add an error term, μ_{mnt}, so that expression (5) constitutes a basic specification for possible econometric estimates.[2]

Thus, the estimation of the parameters σ and σ' is the key to quantifying migration elasticity e. For individual taxes, as shown in Moretti and Wilson (2017), if we want to calculate the average elasticity of the probability of moving with respect to the net-of-tax rate in m, we can use the following expression:

$$e = E\left[\frac{dlog\, p_{mnt}}{dlog(1-\tau_{mt})}\right] = \sigma(1-p_w), \quad (6)$$

in (6), p_w is the weighted average of p_{mnt} considering all the observations ($m \times n \times t$). The weighting takes into account the frequency (number of individuals) in each observation cell. We derive from this that if p_w is very small, e and σ match.

All the above suggests several considerations of interest. First, that analysts following the above estimation strategy are recognising that tax factors are merely one of the variables determining the (re)location decision. As indicated in the survey in Kleven *et al*. (2020), migration responses seem to also depend crucially on local amenities, on public goods and services and also on agglomeration effects (see also Rubolino and Giammoni, 2023; López-Laborda and Rodrigo, 2022; Rodrigo *et al*., 2024). And a failure to include these factors sufficiently and appropriately leads to overestimations of e.

An immediate empirical question is that it is often difficult for analysts to find variables correctly reflecting hard-to-define factors such as the existence of differential amenities (which wealthy people value very highly), a unique lifestyle, different levels and degrees of urban development, or the appearance of agglomeration economies which encourage improved productivity. The above fact could cause a possible measurement error problem. Often, the only option for capturing this hard-to-measure or non-observable heterogeneity is the introduction of time-varying fixed effects. This option can partly address the issue of obtaining unbiased estimates of the relevant elasticities.

However, hardly any literature has introduced spatial econometrics elements, with the possibility of the specification dealing explicitly with determinants of migration decisions

such as location, distance, the locational inertia of certain investments or high-added value economic sectors, or the interrelations and external spatial economies between certain jurisdictions (spatial dependence and heterogeneity phenomena). A line of research which recognises these interactions, for example, using spatial weighting matrices –LAG (SLM) or error (SEM) type spatial models (Anselin, 1988)– could be promising for a better understanding of the changes in residence of certain high-income taxpayers.

Finally, there are two more econometrics questions that have been treated preventively in the literature. The first is the advisability of recognising a certain structure in μ_{mnt}: the errors in a panel are often correlated both for the year t itself, and over time. To deal with the problem of contemporaneous autocorrelation, analysts usually introduce clustering techniques which consider each home jurisdiction and year, or each destination jurisdiction and year; and to deal with the possible correlation of the error over time, clustering arises for specific pairs of jurisdictions, given that these pairs, in specifications such as (5), would be the cross-section of the panel.

And second, there is quite a lot of discussion about the possible endogeneity problems arising when any factor capturing the difference in tax policies between jurisdictions is introduced as an explanatory variable. For example, one might think that, when progressive tariffs are applied, the relevant tax rates will directly depend on the income earned, which gives rise to a simultaneity problem if the endogenous variable is, for example, the tax base declared in one jurisdiction or another. Alternatively, one might think that the tax rates affecting the wealthiest individuals could be affected by the size of the relative stock of this group of taxpayers residing in a country (a stock that, in some studies, may also appear as the variable to be explained). The usual treatment for the possible endogeneity econometric problems which could arise (i. e., obtaining biased and inconsistent estimates) has been to introduce these tax variables into the specifications with one or more lags.

2.2. Limitations of the data used

Undoubtedly, the proliferation in recent years of applied research on tax mobility has been driven by the increasing availability of microdata, mainly from government or tax agency sources. As well as tax figures, these databases also provide varied demographic information, and their longitudinal perspective lets us monitor the residential situation (locations and relocations) of the taxpayers of interest over various periods.[3]

Before these microdata panels became available, researchers used tax figure statistics at various levels of aggregation, which of course could not capture the same richness of individual heterogeneity for estimating migration responses (mobility patterns also depend largely on a non-observable heterogeneity in personal competencies and skills which can be specified in panel estimations by the inclusion of individual fixed effects).

However, occasionally, whether with aggregate data or individual information, researchers could gather with some precision the possible events and specific destinations of inter-

national emigration caused by domestic tax measures. This requires detailed tax information which can provide the current world locations of all the people who have left a country in a given period, or the support of non-tax-related government data on the migration phenomenon.

But it is unusual to find information on the migrations of top earners in a worldwide or multi-country context, due to the reluctance of national administrations to share information.

Exceptions to this limitations include Muñoz (2021), which was able to construct a rich database of the top 10% earners from 21 European countries by combining information from the *European Labour Force Survey* and other government records, enabling the monitoring of the residential situation of the population of interest in the period 2009-2015; the research of Jakobsen *et al*. (2024) centred on the Danish and Swedish experiences, and also combined different records (from the Swedish government) on assets, business activity and international migration; and Akcigit *et al*. (2016), which used a database covering the period 1996-2008, constructed from the information provided by patent offices in the United States and Europe, making it possible to locate the residence of top inventors (those with the most significant innovations) from eight OECD countries.

However, on other occasions, the information was obtained much more directly: from content published on websites. For example, this was how Kleven *et al*. (2013) monitored the careers of professional footballers in the leading European leagues.

2.3. Determining the taxpayers who will be the research subjects

The international experiences analyzed in the literature affect both taxpayers who are attracted to jurisdictions with relatively low taxes, as well as taxpayer profiles that can benefit from certain preferential tax treatments offered by countries that, on the other hand, maintain higher tax rates for the majority of their residents.

In this last case, when a preferential tax treatment exists in a jurisdiction, it will usually be directed to two taxpayer profiles: (1) taxpayers with relatively high incomes/wealth[4]; (2) certain professional profiles who may be of interest to a country/tax jurisdiction due to their high productivity and/or ability to generate positive externalities in the local economies. This second category usually applies to impatriates, although the Italian case analysed in Basseto and Ippedico (2023) focuses on returning expatriates who are also young university students[5].

Some research papers measure the migration response of taxpayers above a given income/wealth threshold, or in the top percentiles of the income/wealth distribution. And sometimes subjects are classified as wealthy based not on a percentile but on an internationally recognised list of millionaires (e. g., *Forbes 400* or *Bilanz 300*).

Here it should be noted that the characterisation of an individual as having a high income based exclusively on their earnings in a given year can be relatively volatile over time. If we

also recognise the importance of investment income in the annual earnings of the wealthiest people, we can find very wide variations in how long they remain on the rich lists, often appearing and disappearing several times depending on whether they have realised capital gains, or decisions on dividend payouts (often in companies controlled by the same individuals). This volatility is shown, for example, in Scheuer (2020) for the United States.

To put it another way, if a taxpayer's inclusion in the top percentiles depends exclusively on tax information on their income in year t, we could be focusing our analysis on individuals who are not necessarily wealthy over the long term. These latter individuals may have a very different migratory behaviour in response to the observed tax differences, or simply none at all because they internally consider their earnings to be occasional. Thus, it seems logical to perform some kind of analysis of the robustness of migration effects, controlling for more stable variables such as individual wealth (if we have data combining income and individual net worth), or referring to personal income figures obtained via moving averages.

2.4. Choosing and then measuring the relevant tax variable

There is a widespread consensus that the tax rate which really explains a decision to change the place of residence is the average, not the marginal rate. Nevertheless, research using the marginal rate is much more common in the applied literature.

There are two reasons for this choice: (1) the easy availability of information on the maximum statutory marginal tax rates in the different experiences; and (2) the quantitative approximation between average and marginal tax rates when considering high or very high income/wealth tax bases.

In any case, if the analyst chooses to work with marginal tax rates, what tax figures should contribute to their calculation? For Kleven *et al*. (2020), they must take into account all the taxes involved in the tax gap between the labour cost to the company of hiring individual *i* and the determination of the real net salary that individual finally obtains.

In this way, the combined marginal tax rate τ_i actually facing individual *i* is:

$$(1-\tau_i) = \frac{\left(1-\tau_{IT_i}\right)\left(1-\tau_{Pw_i}\right)}{\left(1-\tau_{C_i}\right)\left(1-\tau_{Pf_i}\right)}, \tag{7}$$

where τ_{IT_i} is the taxpayer's marginal income tax rate, τ_{Pw_i} and τ_{Pf_i} are, respectively, the (uncapped) payroll taxes paid by workers and employers (assuming that both of them are calculated on gross amounts), and τ_{C_i} represents the consumption tax.

Leaving any of these tax figures out of consideration would lead to a problem with measuring the possible tax variation observed, and thus, the estimation of e would also be wrong. This will be more important when there are greater divergences between jurisdictions in all the taxes involved in expression (7).

2.5. The relationship between the migration elasticities of income taxes and wealth taxes

As we will see in the next section, at present there are two main types of paper offering specific data for *e*: research on the migration response to income taxes, and research on the migration response to personal wealth taxes. This latter type has proliferated in the most recent empirical literature reviewed.

Thus, when considering values from one or another type of research, the analyst must make some kind of interim calculation to enable the comparison of the different migration responses.

As is well known, an annual wealth tax, with rate *T*, is simply an indirect tax on the income from capital which that asset would provide, assuming a standard rate of return *r*. Therefore, any change in wealth tax will also mean a change in the overall taxation of income from capital, *t*, where *t*:

$$t \approx T/r + t^k, \tag{8}$$

with t^k being the statutory rate that the personal income tax specifically establishes for savings income.

As shown in Jakobsen *et al*. (2024), the relationship between elasticities with respect to the net-of-tax-rate on capital income, e_t, and the net-of-tax on wealth, e_T, is formulated as:

$$e_t = e_T * \frac{dlog(1-T)}{dlog(1-t)}, \tag{9}$$

so that if, for example, the second term on the right side of expression (9) is a small enough amount, the difference between both elasticities could in turn be large.

The main lesson to be drawn from the above is that expression (9) should warn the analyst when making a simple (and almost always wrong) quantitative comparison between elasticities when, for example, one experience refers to an income tax, and the other to a wealth tax.

3. The findings of the empirical literature on tax mobility

A systematic summary of this literature is given in Table 1. Table 1 shows the different authors, the spatial, temporal, and subjective sphere analysed, the main results of the literature, and finally, in isolation due to its special significance in the context of this paper, the possible preferred estimate of tax mobility elasticity calculated in the applied research. Interested readers can find an exhaustive additional evaluation of this empirical research in Kleven *et al*. (2020). Logically, Table 1 includes research published after Kleven *et al*. (2020).[6]

Table 1
RESULTS OF THE LITERATURE ON TAXATION AND INTERNATIONAL MOBILITY

Authors	Geographical area	Period analysed	Group analysed	Variable/tax reform analysed	Results	Migration elasticity w. r. t. net-of-tax-rate (if available)
Advani *et al.*, 2023	UK	2010-2018	Non-doms with long-term residence in the UK.	Tax reform introduced in 2017 which changed the taxation system for some non-doms (tax increase).	The migratory responses of the affected non-doms are negligible. Notable increases in the total income reported by the affected group in the UK.	0.26 (semi-elasticity of the emigration rate of the affected group)
Agrawal and Foremny, 2019	Spain	2005-2014	Top income centile.	IRPF tax differences between regions over time.	High-income taxpayers present high internal mobility.	0.85
Agrawal *et al.*, 2025	Spain	2008-2016	Wealth taxpayers.	2010 abolition of the Wealth Tax in the Madrid region.	Six years after the tax was abolished, the number of wealthy taxpayers in the Madrid region had risen by 7.5%. In the other regions it fell by 1.7%. For these other regions, the induced tax revenue losses were mainly in individual income tax.	0.36
Akcigit *et al.*, 2016	Various OECD countries	1977-2000	Inventors/elite researchers.	Tax differences between countries over time.	Foreign inventors/researchers present high international mobility.	Foreigners = 1 Non-foreigners = 0.03
Akcigit *et al.*, 2022	Various US states	1940-2000	Group of inventors.	Tax differences between states over time.	Notable inter-state mobility among the group of inventors.	Inter-state = 1.23 Intra-state = 0.11
Bakija and Slemrod, 2004	USA	1965-1998	Wealthy retired taxpayers.	Differences in certain taxes applied by US states (inheritance tax, annual income tax, sales tax, and property tax) over time.	State taxes are determining factors in the location decisions of rich elderly taxpayers. However, while significant, the tax effects are not large. The tax cuts do not pay for themselves.	(N.A.)

(Continued)

Authors	Geographical area	Period analysed	Group analysed	Variable/tax reform analysed	Results	Migration elasticity w.r.t. net-of-tax-rate (if available)
Baselgia and Martínez, 2023	Switzerland	1989-2020	Top 0.01% wealth holders.	Tax differences between cantons in the application of a tax regime favouring the super-rich born outside Switzerland.	The abolition of this tax regime in some cantons reduced their stock of foreign super-rich by 30% (in the 5 years after abolition).	(N.A.)
Bassetto and Ippedico, 2023	Italy	2006-2018	Expatriates with higher education born in or after 1969.	Tax reform introduced in 2010 aimed at young Italian expatriates with higher education.	The probability of the group targeted by the special regime returning to Italy increased by 27%.	1.05
Brülhart and Parchet, 2014	Switzerland	1973-2008	Wealthy elderly taxpayers.	Differences in inheritance tax between Swiss cantons over time.	There does not appear to be a significant relationship between the variations seen in fiscal pressure in inheritance taxes and the variations in this tax base among this group.	(N.A.)
Brülhart *et al.*, 2022	Switzerland	2003-2015	Top three deciles of wealth distribution.	Differences in wealth tax between Swiss cantons over time.	A reduction of 1 p.p. in a canton's wealth tax leads to a subsequent cumulative increase of 43% in the tax base (in a 5-year period). 24% of this increase can be explained by tax migration. However, Laffer revenue effects do not appear to exist.	0.43 (semi-elasticity in the wealth tax base)
Conway and Rork, 2006	USA	1970-2000	Elderly taxpayers.	Differences in states' income and inheritance taxes over time arising from measures targeting elderly taxpayers.	The elderly taxpayers appear not to have responded to inter-state tax variations.	(N.A.)
Iacono and Smedsvik, 2023	Norway	2015-2021	Wealth taxpayers.	Reform of wealth tax by the municipality of Bø in 2019.	The reform increased the probability of migrating to Bø from other places in Norway by 0.13%. This increase rose to 1.92% if the taxpayer's net worth was over 10 million NOK.	(N.A.)

(Continued)

Authors	Geographical area	Period analysed	Group analysed	Variable/tax reform analysed	Results	Migration elasticity w.r.t. net-of-tax-rate (if available)
Jakobsen *et al.*, 2024	Denmark and Sweden	Denmark: 1989-2006 Sweden: 1999-2013	Sweden: Top 2% of the wealth distribution. Denmark: Top 1% of the wealth distribution.	Various reforms of wealth tax in both countries: Sweden (2007) and Denmark (1988 and 1996).	The migratory effects induced by the Scandinavian wealth tax do not have a relevant negative impact in terms of employment and added value.	Sweden = -0.17 (semi-elasticity of the emigration flow) Denmark = -0.14 (semi-elasticity of the emigration flow) Denmark = 1.76 (semi-elasticity of the percentage of rich residents in relation to the net-of-tax rate on wealth)
Kalin *et al.*, 2024	Portugal	2009-2022	Pensioners from other European Union countries.	2009 reform allowing tax exemption for foreign source pensions.	Considerable local migration of rich pensioners with higher education coming from European countries with high income tax.	1.5-2.0
Kleven *et al.*, 2013	Several European countries	1995-2008	Elite footballers.	Tax differences between countries over time.	Foreign footballers present high international mobility.	Foreigners = 1 Non-foreigners = 0.15
Kleven *et al.*, 2014	Denmark	1991-2008	Impatriates in the top centile.	Tax differences over time.	High-income impatriates present high mobility (Denmark-rest of the world).	Foreigners = 1.6 Non-foreigners = 0.02
López-Laborda and Rodrigo, 2022	Spain	2006-2012	Top income centile.	IRPF, IP and ISD tax differences between regions over time.	High-income taxpayers present high internal mobility. Madrid is the preferred destination for rich migrants.	1.12*
Martínez, 2022	Switzerland	2006-2016	High-income taxpayers in the canton of Obwalden.	Tax reform introduced in 2006 in Obwalden to attract rich taxpayers.	The percentage of wealthy residents of Obwalden doubled in the period analysed.	1.5-2.0

(Continued)

Authors	Geographical area	Period analysed	Group analysed	Variable/tax reform analysed	Results	Migration elasticity w.r.t. net-of-tax-rate (if available)
Moretti and Wilson, 2017	USA	1976-2010	Top 5% of inventors.	Tax differences between states over time.	Notable inter-state mobility among the group of inventors.	1.8
Moretti and Wilson, 2023	USA	1981-2017	Forbes 400 richest Americans.	Differences in states' inheritance tax over time.	35% of the super-rich group analysed left their state of residence if the state kept its inheritance tax.	0.33 (semi-elasticity of the number of super-rich due to the existence of a state inheritance tax)
Muñoz, 2023	European Union (21 countries)	2009-2015	Top decile income earners.	Tax differences among EU countries.	Migration elasticities vary notably between the member States analysed, and between professions.	Foreigners = 0.7-1.7 Rest = 0.1-0.3
Rauh and Shyu, 2024	California	2000-2020	California's top earners.	Tax reform introduced in 2013 in California which increased the maximum statutory tax rate.	Considerable increase in migration of high-income Californian taxpayers due to the reform.	4-4.6 15.45-15.66
Rodrigo *et al.*, 2024	Spain	2016-2019	Top income/wealth centile.	IRPF, IP and ISD tax differences between regions over time.	Tax factors play an important part when explaining (re)location decisions. In migration to Madrid, the tax variable related to different income tax rates was found to be significant.	0.2*
Rubolino and Giommoni, 2023	Italy	2001-2015	Taxpayers in the top income tax band (>€75,000).	Since 1998, Italian regions and municipalities may establish a surtax on income tax. In 2011 their tax discretionary power was increased.	Migration elasticities differed notably: they are much larger for high-income taxpayers. Migrations respond more to a change in legal tax residence than to effective worker mobility (there does not appear to be an effective change in workplace).	2.2

(Continued)

Authors	Geographical area	Period analysed	Group analysed	Variable/tax reform analysed	Results	Migration elasticity w.r.t. net-of-tax-rate (if available)
Schmidheiny and Slotwinski, 2018	Switzerland	2011-2013	Foreigners below an income threshold.	Variation in the conditions for accessing a specific tax regime.	Rich foreign taxpayers show ample inter-canton mobility.	(N.A.)
Timm *et al.*, 2023	Netherlands	2006-2019	Impatriates with income above a threshold.	Tax reform introduced in 2012 reducing the tax burden for impatriates in the regime.	The new regime was found to be highly effective at attracting qualified impatriates (8,000 additional impatriates).	2.1
Young *et al.*, 2016	USA	1999-2011	Millionaires.	Tax differences between states over time.	Moderate inter-state mobility of the analysed group.	0.1

* This value corresponds to the marginal effect of a percentage increase in the difference between the average IRPF rate of a region against the average rates in the other regions over the probability of migration.

Source: By the author, based on Kleven *et al.* (2020), taking into account updates to the literature.

Before referring specifically to migration elasticity and the effects of a possible comparison of its calculation between the different experiences, there should be a preliminary discussion of various considerations.

First, what specific tax mobility elasticity are we referring to? The concept of elasticity basically determines the percentage variation in a given economic behaviour when another variable of interest –in our case, the net-of-tax income of these wealthy or super-wealthy individuals– changes by one percent. However, the tax mobility literature does not provide a single elasticity, but rather a varied typology which consequently presents various migration responses by taxpayers to the tax changes introduced.

In its most general form, if we use the variable y to represent the migration response and τ to represent a measurement of the tax variable of interest, the elasticity of tax mobility will follow the expression:

$$e_i = \frac{\frac{dy_i}{y_i}}{\frac{d(1-\tau_i)}{1-\tau_i}}, \tag{10}$$

where $1 - \tau_i$ captures the net-of-tax-rate faced by the subset of type-i individuals, and therefore, the tax effect introduced, which in turn affects the net income obtained by the taxpayers.[7]

However, as shown in Table 1, this elasticity, bearing in mind how each investigation defines the variable y –total number of migrating taxpayers, migration rate, or probability of migration– can be read and interpreted in different ways.

At the same time, the appearance in the different specifications of endogenous and explanatory variables, either in logarithms or in levels, can lead to an alternative estimation of elasticities (if the migration endogenous variable and the tax exogenous are captured by logarithms), or semi-elasticities (if the endogenous variable is done in logarithms, and the exogenous in levels).

Table 1 shows that e_i could stand at one end at a practically null value (absence of migration response), and at the other, at a value around 2 (which would show a substantial sensitivity of the migration effect to the variations seen in the applicable taxes).[8]

In which papers do we find the largest values of e_i? First, in experiences where mobility has arisen in countries with regionally decentralised income/wealth taxes (e. g., Switzerland: Schmidheiny and Slotwinsky, 2018, Martínez, 2022, and Baselgia and Martínez, 2023; Italy: Rubolino and Giommoni, 2023; or Spain: Agrawal and Foremny, 2019, López-Laborda and Rodrigo, 2022, and Agrawal *et al*., 2025), and where migration costs are lower due to fewer employment, cultural, or language barriers.

And in countries with a federal tax structure a high-value e_i has also been found when the group analysed is truly specific and with a strong intrinsic mobility, as in the scientists and inventors studied in Moretti and Wilson (2017) and Akcigit *et al*. (2022) for the USA.

Also, when special tax regimes are offered for impatriates in countries where they had previously been rare, making for a relatively large value in the elasticity numerator. This result can be found, for example, in research on experiences in Denmark (Kleven *et al*., 2014), the Netherlands (Timm *et al*., 2022), and Portugal (Kalin *et al*., 2024).

A variant of this type of special tax regimes for impatriates is presented, for example, in the United Kingdom, where it is known as 'non-domiciled' ('non-dom') tax status. British residents who were born outside the United Kingdom, or who have a parent born outside the UK, can benefit from this system. Beneficiaries of this system can opt for deferred taxation in the United Kingdom on the income from their foreign investments (which in practice means their capital income from foreign sources is tax-exempt). A 2017 reform of this system, analysed in Advani *et al*. (2023), which had a different effect on 'non-doms' whose residence in the UK was long-term (lowering their net income) or short-term (for whom the regime did not change), shows a fairly low value for the semi-elasticity of the emigration rate: 0.26. This value contrasts with those found for the tax regimes for foreigners in Table 1.

The key to this difference is probably that, in the British case, as the affected 'non-doms' were those who had been in the country for longer, the economic and social roots they had put down were a relevant factor. These individuals obtained much of their professional earned income in the United Kingdom, were among the wealthiest people in the country, and were spatially concentrated in London and south-east England[9]. Advani *et al*. (2023) also shows that the greatest migration elasticities are found among 'non-doms' without earnings from work in the United Kingdom, in line with the findings of Baselgia and Martínez (2023) for a tax reform in Switzerland which affected wealthy foreigners.

The above comparison of different results for impatriates and 'non-doms' offers an interesting result which is fairly well-established in the literature: the importance of introducing enough non-tax factors in the specifications of residential location models to avoid overestimating e_i.

Taking all the above into account, we have found just one paper where the international scope is relatively broad spatially: Muñoz (2021), on the migrations of high-income individuals (in this case, the top decile income-earners) in 21 European Union countries in the period 2009-2015. It should be noted that this paper finds a substantial heterogeneity in the value of e_i among the different countries considered, and also in the professions of the migrants, with finance industry employees showing the highest mobility between countries.

So, what can we say about the studies which have found values of e_i close to zero? Here, where differentiated values are offered for nationals and foreigners, the elasticity of the nationals tends to be very low (Akcigit *et al*., 2016; Kleven *et al*., 2013; Kleven *et al*., 2014; Muñoz, 2021). We must take into account that one determinant of this result is purely mathematical: the percentage variation of the migration response always starts from an initial base larger than that represented by foreign taxpayers.

This field of papers finding very low migration responses also includes Young *et al*. (2016) for the US case, which shows a negligible response by millionaire taxpayers when

analysing inter-state tax differences over time. Young (2018) points to a key factor to explain this lack of response: the notable economic and emotional connection wealthy and high-income individuals feel towards the specific territories where they live and work.[10]

This last result is also found in Conway and Rork, 2006, taking into account that here the group of interest is elderly taxpayers. The supposition would be that this group is especially interested in planning the transmission of their wealth to the next generation, and therefore, in the possible tax savings arising from the different inheritance taxes in different US states. However, it appears that the location choices of wealthy seniors are relatively inelastic (it is widely documented that migration rates decrease as people get older: e. g., Molloy *et al*., 2011). This scanty migration response to changes in inheritance tax is also shown in Bakija and Slemrod, 2004, and Brülhart and Parchet, 2014.

On the other hand, Moretti and Wilson (2023) provides a result contradicting the previous literature on the different inheritance taxes in different United States territories: according to Forbes' list of the country's 400 largest fortunes, these billionaires do appear to change residence in response to estate tax. Logically, the tax savings for this subset of billionaires are comparatively much greater than for people receiving an average inheritance.

Kalin *et al*. (2024) also finds a substantial migration response for a recent Portuguese experiment designed to attract pensioners from other European countries. Here too, the response is greater for high-income pensioners with higher education levels.

Very briefly, the conclusions to take from this review of the literature on tax mobility is that the value of e_i is highly contextual, and is conditioned by (1) the geographical area and period of time considered; (2) the specific design of the new or reformed tax (there can be major differences as to what is a taxable event, how much the tax targets a specific group, and the size of or changes to the payable amount); (3) whether the tax considered is annual (if the tax is levied frequently, it is easier to offset the economic and non-economic costs of mobility involved in any change of residence); (4) the estimation technique used; (5) whether the tax differences are due to international heterogeneity in the treatment of a group of taxpayers, or to the presence of different tax jurisdictions within a nation; (6) whether there are barriers or obstacles of any kind to hitherto resident/non-resident taxpayers entering or leaving a country; (7) the growth of certain economic sectors where the workers' international mobility has notably increased because they are not dependent on local idiosyncratic characteristics (i. e., 'digital nomads' who use technologies to work remotely and live in several locations throughout the year, such as YouTubers, influencers, programmers, digital artists, and some business owners)[11]; (8) finally, a simple question of mathematics: for example, that the initial figure of the migration variable is relatively large, and therefore, the induced percentage change is relatively small.

In other words, the presence of such different factors in any given study means we should expect a relatively wide range of plausible values for e_i in applied research.

It should also be noted that economic contexts which have offered measurements of e_i are far from general situations affecting a majority of taxpayers, who in turn present fairly

heterogeneous socio-economic profiles (and not as specific as those who have often been used to calculate migration responses). In other words, much more empirical evidence will be needed in the future before analysts can tentatively offer convergent values of e_i.

Finally, other relevant subjects can also be highlighted in the reviewed literature, such as the presence of real or false changes of residence, their consequences for tax revenue, or their effects on figures such as economic activity or employment, which we will reserve for the final discussion of related recommendations for public decision-makers.

4. Lessons to be drawn for public decision-makers

The determination of migration elasticity, *e*, has been a key parameter in the theoretical literature on tax optimisation since the seminal papers of Mirrlees (1982) and Wilson (1982)[12]. A higher value of this parameter means a lower optimal tax rate, so that the first thing to emphasise is that the literature reviewed here is a good tool for calibrating optimal taxation models.

However, the estimates of *e* shown in section 3 of this paper indicate that we are far from a consensus on the value of this parameter. But, at the same time, we can point to some factors which determine whether this value is relatively large or small. And in the latter case, that the migration factor is not a serious obstacle to making personal taxes progressive (Piketty and Saez, 2012).

According to Advani and Tarrant (2023), considering that national experiences with high decentralisation of personal taxes (as in the Spanish and Swiss cases) provide relatively high values of *e* due to a substantial number of internal migrations within the country (these migrations being facilitated by a lack of the cultural, language, legal or employment barriers often seen in international moves), a tax policy which hopes to reduce a migration response must first pay attention to tax design issues. Thus, they should regulate broad-based taxes with rules for harmonisation between territories which avoid aggressive tax competition phenomena (for example, by establishing minimum tax rates[13], or cancelling rebates and exemptions that enable the de facto elimination of a tax in a territory).

And a second tax issue to attend to in this same strictly national sphere, here relating to tax enforcement, is to clarify whether a large percentage of migrations between jurisdictions in countries like Spain can be explained by real or false changes of residence[14]. In these cases, taxpayers could take advantage of, for example, the ownership of various properties in different regions of Spain, which could be used when required as their main residence (a criterion mentioned in Spanish law to determine if someone is a resident of a given region)[15].

The foregoing points to two future challenges for state tax authorities: the need for increased monitoring when these changes of residence take place, especially if associated with substantial tax savings, and the need to coordinate and collaborate with sub-central tax authorities to design and carry out inspection plans[16] targeting this type of fraud.[17]

On the other hand, Section 3 of this paper also shows that the other block of research where high values of e appear analyses national experiences establishing or maintaining specific preferential regimes of taxation for newly domiciled taxpayers. The initial goal of such regimes is to attract profiles of potential interest to local/national economies for their ability to generate positive externalities (qualified workers or professionals such as researchers or scientists who can contribute to improved productivity in the jurisdiction), or simply because they may interest high-income, high-net-worth taxpayers who would increase the future tax bases of the host countries.

As they evolve, these regimes have been increasingly aggressive (granting larger and longer-term tax reductions and covering more income sources) and have led to tax optimisation strategies among the taxpayers benefiting from them, especially when they enable worldwide incomes to be covered by preferential schemes. As for the impact of these regimes on revenue, based on Godar *et al*. (2021), and assuming a conservative estimate, they are calculated to represent an annual loss of 4.5 billion euros for the public coffers, currently affecting nearly 200,000 taxpayers.

In any case, whether via preferential regimes or by offering lower taxes for the wealthiest taxpayers, it seems that public decision-makers judging the desirability of granting these tax advantages would find it useful to evaluate if, in practice, the non-fiscal externalities (mainly possible job creation due to these taxpayers having more disposable income)[18] and fiscal externalities (extra tax revenue due to immigration) caused by these measures have been a counterweight to their costs in terms of distribution and tax collection.

It is also interesting to note that in general, the reviewed literature indicates that where evaluated, the tax systems offering these reductions have been operating to the left of the Laffer curve. Even the highest estimated elasticities do not imply Laffer revenue effects: the tax revenues generated from an increase in the tax rates overcome the loss of revenues caused by the behavioural effects.[19]

So, if the international proliferation of various special tax regimes and reforms mentioned above have generally contributed to reducing the progressivity of income and wealth taxes and public revenue, and to especially favouring multimillionaires, without any evidence of gains from the induced trickle-down effects, what could be the best way to undo what has been done and increase the annual tax effort of wealthy taxpayers?

We know from recent data in Alstadsæter *et al*. (2024) that offshore tax evasion has fallen considerably (by two-thirds, according to the paper) thanks to the increasing use of the automatic exchange of bank information. And if our knowledge of hoarded wealth around the world can gradually be improved, then (and only then) can proposals like Zucman's (2024), mentioned in the introduction, occupy a place in the public debate. We will recall that this economist proposes a coordinated worldwide minimum tax on billionaires equivalent to 2% of their wealth per year. Zucman (2024) estimates that this measure would provide an annual revenue of approximately 250 billion dollars. He also recommends that this minimum tax should be flexible as to the instruments adopted so that each country can choose the methods it deems most appropriate to its national context.[20]

As a corollary to all the above, the recommendation for national administrations seems to be clear: obtaining more tax revenue from their wealthiest taxpayers will be a goal achieved internationally, or not at all. It is not enough to improve the design of current domestic taxes in an attempt to reduce internally the possible behavioural responses of national fortunes There must also be a coordinated effort, with the active and necessary participation of the world's leading economies, to shed light on the global economic capacity of the ultra-rich wherever they may be located, and to politically empower effective minimum tax standards for individuals.

Annex

Characterisation of high income and net worth in Spain based on information in the *Panel de Hogares* (INE-AEAT-IEF, 2016-2021). Discussion on their tax mobility in the light of related empirical literature

The *Panel de Hogares* (Household Panel) used in this section is a set of microdata based on a joint project by three Spanish bodies: the National Statistics Institute (Instituto Nacional de Estadística, INE), the Tax Agency (Agencia Estatal de Administración Tributaria, AEAT), and the Institute of Fiscal Studies (Instituto de Estudios Fiscales), and provides a representative sample of households with informative variables including income and wealth, for which longitudinal information is available.

The panel has three stratification criteria. It is stratified spatially by the Spanish Autonomous Communities in the common tax system (all of them except the Basque Country and Navarre, which have their own regional funding system); by type of household (10 household types); and finally, by different gross income brackets (8 brackets). The first year of the panel (2016) includes a selection of 772,000 Spanish households.

In Spain, the Autonomous Communities with a common system largely handle their own finances. They collect most taxes through "ceded taxes", taxes established and regulated by the central government with the revenue going entirely or partly to the regional governments. More specifically, for Personal Income Tax (IRPF) and VAT, regional governments receive 50% of the revenue, but the central government manages these. Regional governments can adjust IRPF tax rates and some deductions, but they cannot legislate on VAT. For another group of taxes, such as Wealth Tax (IP) and Inheritance and Gift Tax (ISD), regional governments get 100% of the revenue, and have extensive control over tax rates, bonuses, and deductions.

Taking all the above into account, our major contribution here is to try to characterize the richest taxpayers (top 1% and top 0.1%) in Spain, considering both net income and wealth, as declared in their IRPF and IP returns[21]. We analyse their sources of income and the structure of their wealth, their geographic distribution, some demographic features, and the changes in both variables between 2016 and 2021, and whether the same individuals remain at the very top of the distribution over time.

Looking first at the composition of income (Table A1), while the average profile of a personal income taxpayer is someone who basically grows their income based on earnings from work (representing 81.33% of their tax base in 2016 and 80.21% in 2021), and whose income essentially does not derive from the "savings tax base" -movable capital and capital gains (approximately 94% of their tax base is explained by the "general tax base", i.e., the sum of earnings from work, as an employee or self-employed, and in the Spanish case, also from collecting rent on properties), in the case of the top 1%, only about half of their income is from salary (52.28% in 2016 and 45.28% in 2021), and savings income presents a notable weight in their total tax base (30.05% in 2016 and 35.19% in 2021).

Table A1
TAXPAYERS IN THE TOP 1% AND TOP 0.1% OF INCOME DECLARED IN IRPF RETURNS. COMPARISON WITH AVERAGE TAX DATA OF CERTAIN DIMENSIONS. FISCAL YEARS 2016 AND 2021

	2016						2021					
	Top 1%	% of IRPF TB	Top 0.1%	% of IRPF TB	Average declared values (for total taxpayer population)	% of IRPF TB	Top 1%	% of IRPF TB	Top 0.1%	% of IRPF TB	Average values of taxpayer population	% of IRPF TB
Income and quotas declared in the IRPF return (average data in €) and other data												
Net employment income	120,897	52.28%	342,440	37.33%	17,406	81.33%	121,104	45,28%	353,572	33.36%	18,847	80.21%
Net income from movable capital	37,761	16.33%	235,430	25.66%	781	3.65%	35,343	13.22%	175,005	16.51%	611	2.60%
Net income from real estate capital	3,895	1.68%	7,113	0.78%	389	1.82%	3,598	1.35%	5,043	0.48%	459	1.95%
Net income from economic activities in direct estimation	31,186	13.49%	111,467	12.15%	1,240	5.79%	42,936	16.05%	142,598	13.46%	1,570	6.68%
Net income from economic activities in objective estimation	40	0.02%	33	0.00%	241	1.12%	48	0.02%	1	0.00%	191	0.81%
Net income from economic activities in objective estimation (farming and forestry)	138	0.06%	86	0.01%	171	0.80%	267	0.10%	34	0.00%	137	0.58%
Positive balance in capital gains and losses (belonging to the savings tax base)	34,382	14.87%	210,822	22.98%	626	2.93%	63,524	23.75%	384,610	36.29%	1,128	4.80%
General tax base	162,117	70.10%	486,775	53.06%	20,067	93.77%	173,719	64.96%	519,808	49.05%	21,877	93.10%
Savings tax base	69,493	30.05%	433,910	47.30%	1,336	6.24%	94,115	35.19%	542,603	51.20%	1,620	6.89%
Tax base (TB)	231,255		917,449		21,401		267,435		1,059,789		23,498	
Total state tax payable	38,101		152,059		1,855		45,374		185,431		2,265	
Total regional tax payable	37,939		151,686		1,875		45,194		180,268		2,269	
Total increased net tax payable	75,265		301,857		3,538		89,860		363,497		4,387	
Age (years)	55		55		50		57		57		52	
Single (%)	10.56%		10.58%		28.83%		15.23%		11.64%		31.68%	
Married (%)	77.97%		77.77%		57.10%		69.80%		73.09%		52.02%	
Widowed (%)	2.75%		2.95%		5.93%		7.20%		3.39%		6.69%	
Divorced (%)	8.72%		8.70%		8.14%		7.77%		11.88%		9.61%	
Men (%)	75.41%		77.38%		54.65%		72.07%		76.37%		53.77%	
Number of children with tax deduction entitlement	0.96		1.14		0.62		0.90		0.98		0.58	

Source: By the author based on *Panel de Hogares* (INE-AEAT-IEF, 2016-2021).

This last characterisation is accentuated for the top 0.1%: for this group, salary earnings explain 37.33% of their income in 2016 and 33.36% in 2021, while their savings tax base in 2016 represented 47.30% of their aggregate income, and are their main source of income in 2021 at 51.20%. And for this same sub-set of wealthy individuals, on average, their tax contribution is approximately 85 times that of a personal income tax payer in 2016, and 84 times in 2021. This last figure is an apt illustration of the importance of analysing and understanding the possible incentives for tax mobility offered by the spatial differences in progressive income tax rates.

Moreover, the group of rich people identified in IRPF income tax are aged around 55-57, usually married, male (three out of four wealthy individuals are men), and also declare approximately one child or grandchild as a dependent.

Turning to wealthy individuals according to net worth (using the average data from Form 714 of the annual Wealth Tax filing) there are several characteristic features which can be consulted in Table A2.

First, the extraordinary importance of shareholdings (on and off the official stock markets): for the top 1%, this type of financial asset represents three quarters of their declared tax, and for the top 0.1%, its weight is 87.34% in 2016 and 89.64% in 2021. For the average taxpayer[22], the above assets represented 47.58% of their net wealth in 2016, and 50.31% in 2021.

Second, arising from this, in relative terms, the portion of fixed property assets of wealthy Spaniards is notably less than for the average income tax payer. For this last case, real estate ("urban" and "rural" properties) explains 29.46% of their tax base in 2016 and 27.10% in 2021. These figures are, respectively, 7.81% and 7.34% for the top 1%, and 2.5% and 6.44% for the top 0.1%.

Third, although these taxpayers as a whole make intensive use of significant exemptions on wealth in the tax (on average, exempted assets represent 68.55% of the tax base in 2016, and 66.53% in 2021), in 2016, we see how the wealthiest 0.1% declared a considerable volume of exempted assets, mainly through companies directed and controlled by family groups not traded on money markets (this type of asset represented 77.27% of the tax base); this practice (the subject of a great deal of tax planning for decades) also appears to be adopted by the wealthiest taxpayers in 2021, although now considering the top 1%.

Fourth, again focusing the comparison on the top 0.1%, with average data, their tax contribution in 2016 ('tax payable') is 54 times higher than the average taxpayer's, a figure which falls to 23 times in 2021. As a tentative hypothesis for this reduction, we can conjecture that possibly the ultra-wealthy population which has gradually concentrated in the Madrid region (which has de facto suppressed this tax since 2008), while legally required to file returns based on the volume of their net wealth, nevertheless does so with zero tax payable. Agrawal *et al*. (2025) gathers empirical evidence supporting this hypothesis.

Fifth and last, high-net-worth individuals are aged around 64-67, most often state they are married, are almost equally divided between men and women, and have practically no dependants (according to the IRPF definition of this type of family responsibilities).

Table A2
TAXPAYERS IN THE TOP 1% AND TOP 0.1% OF WEALTH. COMPARISON WITH AVERAGE DATA OF CERTAIN DIMENSIONS. FISCAL YEARS 2016 AND 2021

	2016						2021					
Equity declared in the Impuesto sobre el Patrimonio (IP) return (average data in €) and other data	**Top 1%**	**% of IP TB**	**Top 0.1%**	**% of IP TB**	**Average values of the population**	**% of IP TB**	**Top 1%**	**% of IP TB**	**Top 0.1%**	**% of IP TB**	**Average values of the population**	**% of IP TB**
Urban property	2,157,017	7.44%	2,356,950	2.26%	504,987	28.69%	2,375,488	7.13%	6,370,742	6.27%	493,497	26.08%
Rural property	121,088	0.42%	247,041	0.24%	13,554	0.77%	70,225	0.21%	174,447	0.17%	19,200	1.01%
Non-exempt equity related to economic activities	80,628	0.28%	344,578	0.33%	9,577	0.54%	86,074	0.26%	95,728	0.09%	9,703	0.51%
Exempt equity related to economic activities	17,659	0.06%	8,867	0.01%	38,525	2.19%	98,077	0.29%	874,132	0.86%	45,368	2.40%
Deposits in bank accounts	2,530,338	8.72%	5,100,269	4.89%	263,881	14.99%	3,504,945	10.53%	5,811,089	5.72%	300,352	15.87%
Securities representing the transfer of own capital to third parties	1,227,246	4.23%	2,798,942	2.68%	68,181	3.87%	919,141	2.76%	845,232	0.83%	49,874	2.64%
Non-exempt securities representing participation in the equity of entities (traded on organized markets)	12,419,471	42.82%	52,768,928	50.59%	534,849	30.39%	19,681,575	59.10%	67,941,219	66.87%	676,578	35.76%
Non-exempt securities representing participation in the equity of entities (not traded on organized markets)	9,350,516	32.24%	38,323,863	36.74%	302,646	17.19%	6,483,909	19.47%	23,133,269	22.77%	275,262	14.55%
Exempt securities representing participation in the equity of entities (traded on organized markets)	888,868	3.06%	4,251,652	4.08%	78,796	4.48%	1,313,200	3.94%	3,698,278	3.64%	75,682	4.00%
Exempt securities representing participation in the equity of entities (not traded on organized markets)	17,163,368	59.18%	80,591,742	77.27%	1,127,822	64.08%	22,977,780	69.00%	60,619,153	59.66%	1,137,629	60.13%
Total non-exempt assets and rights	29,954,997	103.28%	106,400,000	102.01%	1,834,715	104.24%	35,321,124	106.07%	109,200,000	107.48%	1,983,525	104.84%
Deductible debts	951,690	3.28%	2,063,187	1.98%	76,986	4.37%	2,021,538	6.07%	7,621,208	7.50%	98,952	5.23%
Exempt assets and rights	18,052,236	62.24%	84,843,394	81.35%	1,206,618	68.55%	24,389,056	73.24%	65,191,564	64.16%	1,258,678	66.53%

(Continued)

Equity declared in the Impuesto sobre el Patrimonio (IP) return (average data in €) and other data	2016						2021					
	Top 1%	% of IP TB	Top 0.1%	% of IP TB	Average values of the population	% of IP TB	Top 1%	% of IP TB	Top 0.1%	% of IP TB	Average values of the population	% of IP TB
Tax base (TB)	29,003,307		104,300,000		1,760,089		33,299,587		101,600,000		1,892,014	
Total tax payable	662,592		2,710,303		14,956		917,075		3,211,820		19,626	
Regional bonuses	201,078		895,237		3,947		393,531		865,837		6,199	
Amount payable	81,529		274,047		5,096		68,830		124,505		5,361	
Effective average rate (Total tax payable/Tax base, average dimensions)	2.28%		2.60%		0.85%		2.75%		3.16%		1.04%	
Final effective average rate (Total amount payable/ Tax base, average dimensions)	0.28%		0.26%		0.29%		0.21%		0.12%		0.28%	
Equity considering property registry data and informational tax forms (average data, in €)	27,803,344		107,300,000		1,787,786		54,351,866		143,800,000		2,196,034	
Age (years)	65		64		44		67		66		44	
Single (%)	17.77%		14.50%		24.69%		17.69%		14.89%		28.25%	
Married (%)	58.23%		63.26%		63.24%		53.27%		56.52%		57.12%	
Widowed (%)	14.56%		9.10%		5.08%		19.29%		18.91%		5.96%	
Divorced (%)	9.44%		13.14%		6.99%		9.75%		9.68%		8.67%	
Men (%)	48.38%		50.27%		48.83%		49.38%		53.47%		48.86%	
Number of children with tax deduction entitlement	0.31		0.43		0.65		0.28		0.41		0.59	

Source: By the author based on *Panel de Hogares* (INE-AEAT-IEF, 2016-2021).

The next question is, where (in the common tax system regions) do Spain's wealthiest live? Table A3 shows that, looking at the variable of income declared in IRPF returns, and focusing only on 2021 information, more than half the top 1% are concentrated in Madrid (28.81% of the top 1%) and Catalonia (28.75%). But if we shift focus to the top 0.1%, the differential behaviour changes: 45.13% of this sub-group lives in Madrid, while Catalonia is again second on the list, but a distant second, with just 24.6%. To put it another way, as in many other countries, there is a regional concentration of high-income individuals in Spain which is accentuated for the ultra-wealthy (especially if compared with the relative percentages of population that correspond to Catalonia and Madrid on the national total: in 2021, 17.28% and 15.24%, respectively).

This spatial concentration is repeated for the variable wealth (in this case, for its greater regional reliability, we use another statistic the panel offers: the wealth monitored by the Administration through various records and informational tax returns). Also for 2021, 58.31% of the top 1% is located in Madrid and Catalonia; for the top 0.1% this figure is 68.59%, although again behaviour differentiates between Madrid (home to 41.90% of the group) and Catalonia (home to 26.69%).

Table A3
GEOGRAPHICAL LOCATION OF HIGH INCOMES AND HIGH WEALTH IN SPAIN (2016 AND 2021). TERRITORY IN COMMON TAX SYSTEM

Variable: income (TB declared in the IRPF-2016)

	Regional percentage of total Spanish population (2016), except Basque Country, Navarre, Ceuta and Melilla	**Regional percentage of total top 1% taxpayers**	**Regional percentage of total top 0,1% taxpayers**
Andalucía	19.31%	7.37%	3.4%
Aragón	3.02%	2.92%	1.05%
Asturias	2.37%	1.29%	0.89%
Baleares	2.64%	3.23%	2.77%
Canarias	4.95%	2.78%	2.2%
Cantabria	1.34%	0.75%	0.2%
Castilla y León	5.59%	3.29%	1.71%
Castilla-La Mancha	4.69%	1.55%	1.2%
Cataluña	17.09%	25.51%	17.5%
Extremadura	2.47%	1.23%	0.18%
Galicia	6.22%	2.71%	3.45%
Madrid	14.87%	33.67%	52.81%
Murcia	3.38%	2.29%	1.81%
La Rioja	0.72%	0.62%	0.49%
Com. Valenciana	11.33%	10.33%	9.95%

(Continued)

Variable: income (TB declared in the IRPF-2021)

	Regional percentage of total Spanish population (2021), except Basque Country, Navarre, Ceuta and Melilla	Regional percentage of total top 1% taxpayers	Regional percentage of total top 0,1% taxpayers
Andalucía	19.17%	9.05%	5.61%
Aragón	2.96%	2.45%	1.7%
Asturias	2.26%	1.33%	0.68%
Baleares	2.75%	3.82%	4.19%
Canarias	5.07%	3.44%	1.59%
Cantabria	1.32%	1.04%	0.75%
Castilla y León	5.35%	3.61%	2.57%
Castilla-La Mancha	4.61%	1.8%	1.43%
Cataluña	17.28%	28.75%	24.6%
Extremadura	2.37%	0.86%	0.25%
Galicia	6.06%	2.66%	1.82%
Madrid	15.24%	28.81%	45.13%
Murcia	3.43%	1.93%	1.25%
La Rioja	0.71%	0.56%	0.59%
Com. Valenciana	11.42%	9.56%	7.66%

Variable: wealth (registered wealth-2016)

	Regional percentage of total Spanish population (2016), except Basque Country, Navarre, Ceuta and Melilla	Regional percentage of total top 1% taxpayers	Regional percentage of total top 0,1% taxpayers
Andalucía	19.31%	7.71%	4.62%
Aragón	3.02%	4.68%	4.77%
Asturias	2.37%	0.79%	0.92%
Baleares	2.64%	3.36%	2.74%
Canarias	4.95%	3.44%	2.83%
Cantabria	1.34%	0.87%	0.67%
Castilla y León	5.59%	3.33%	1.91%
Castilla-La Mancha	4.69%	2.59%	1.23%
Cataluña	17.09%	23.62%	24.43%
Extremadura	2.47%	1.08%	0.66%
Galicia	6.22%	2.74%	1.1%
Madrid	14.87%	33.2%	42.59%
Murcia	3.38%	2.04%	1.21%
La Rioja	0.72%	0.91%	1.48%
Com. Valenciana	11.33%	9.05%	8.14%

(Continued)

Variable: wealth (registered wealth-2021)

	Regional percentage of total Spanish population (2021), except Basque Country, Navarre, Ceuta and Melilla	Regional percentage of total top 1% taxpayers	Regional percentage of total top 0,1% taxpayers
Andalucía	19.17%	6.71%	6.31%
Aragón	2.96%	4.13%	3.26%
Asturias	2.26%	0.83%	0.59%
Baleares	2.75%	3.13%	2.65%
Canarias	5.07%	2.74%	2.33%
Cantabria	1.32%	0.78%	0.66%
Castilla y León	5.35%	4.18%	1.88%
Castilla-La Mancha	4.61%	1.78%	1.09%
Cataluña	17.28%	25.8%	26.69%
Extremadura	2.37%	0.78%	0.09%
Galicia	6.06%	3.64%	1.82%
Madrid	15.24%	32.51%	41.9%
Murcia	3.43%	1.93%	1.28%
La Rioja	0.71%	1.02%	1.00%
Com. Valenciana	11.42%	9.76%	8.2%

Source: By the author based on *Panel de Hogares* (INE-AEAT-IEF, 2016-2021).

Table A4 offers other valuable information as to whether economic capacity measured in terms of income or wealth is more useful for identifying the wealthiest within a country or jurisdiction.

The variable income, for example, could be a more volatile magnitude than wealth, and individuals identified as rich in the IRPF might only be so briefly, as large numbers of taxpayers may enter or leave this group from year to year.

For this reason, the table offers the probability that an individual *i* located, alternatively, in the top 10%/1%/0.1% of the income/net worth distribution in 2016 will still be classified in the same group in 2021. As a variant, in the last column, this classification is made less strict, and the taxpayer merely needs to be in the top decile of each distribution.

As expected, wealthy status is more permanent for those whose wealth is based on asset ownership rather than income. Of the income group, 69.05% are still in the top decile after 5 years. And only 45.05% of those in the top 0.1% in 2016 are still there in 2021. Looking at the figures declared in Wealth Tax returns, 86.5% remain in the top decile, and for the top 0.1% this percentage is 78.87%.

Besides, the probability of being in the top 1% or top 0.1% in 2016 and still being in the top decile in 2021 is always higher than 90%. Taking into account natural attrition between

the two periods considered (due to deaths or migration, for example), the above figures indicate that the probability of being characterised as a high or very high net worth individual in a given year increases if that person appeared as such in the previous year: wealth is a (very) persistent characteristic.

Finally, this section gathers some tax mobility figures for high-income taxpayers in Spain moving between the different Autonomous Communities in the common tax system, offered in a recent paper by Rodrigo *et al*. (2024), in this case referring to the years 2016 and 2019.

Table A4
PROBABILITY THAT TAXPAYERS IN THE TOP 10%, 1% AND 0.1% IN 2016 REMAIN THERE IN 2021

	Probability of belonging to the same group in 2021	Probability of remaining in the top 10% in 2021
IRPF- Declared income		
Taxpayers in top 10% (according to IRPF TB 2016)	69.05%	69.05%
Taxpayers in top 1% (according to IRPF TB 2016)	53.18%	81.21%
Taxpayers in top 0.1% (according to IRPF TB 2016)	45.05%	87.94%
Impuesto sobre el Patrimonio (IP) - declared net wealth		
Taxpayers in top 10% (according to IP TB 2016)	86.5%	86.5%
Taxpayers in top 1% (according to IP TB 2016)	72.73%	91.59%
Taxpayers in top 0.1% (according to IP TB 2016)	78.87%	100%

Source: By the author based on *Panel de Hogares* (INE-AEAT-IEF, 2016-2021).

The statistical information in that paper was also obtained from the *Panel de Hogares* (INE-AEAT-IEF, 2016-2019), and its analysis focused on individuals who, thanks to either of the two magnitudes (income/wealth), were in the top centile in 2016. Later, the authors check whether in the latest period of the panel, 2019, the individuals in this group were still in the same region where they were resident in 2016, or if they had moved to a different one.

Rodrigo *et al*. (2024) shows that Madrid is the main destination of wealthy taxpayers who change regions, as 42.44% of such migrations are to the Madrid region. In fact, Madrid, Galicia, Cantabria, and Extremadura are the only regions to present a positive migration balance in the period for the top 1%. In absolute terms, the panel, with population data, detects 6,018 changes of residence among the richest taxpayers (strictly resident in the common tax system regions with regional funding, or in Ceuta and Melilla).

Another interesting data point from Rodrigo *et al*. (2024) shows that, on average, with 2019 data, migrant taxpayers present higher sums in the IRPF, both in each of the income sources making up the tax base (except for income from property and from economic activities in "objective assessment"), and in the tax base itself (both general and savings income) and in the tax payable and self-assessment results. In other words, within the high-income group, the taxpayers changing residence between 2016 and 2019 declared even higher incomes.

As seen in Table 1, a set of papers focuses on researching internal mobility in the Spanish case in recent years. We summarise some of their main results below.

Rodrigo *et al*. (2024) indicates that the joint presence of certain tax factors, a differential economic attraction, and some personal characteristics have contributed to increasing the probability of migration among certain groups of taxpayers resident in Spain. However, the relative contribution of each group of factors is variable, depending on the group of taxpayers studied: (1) business owners and professionals; (2) company executives/directors; and finally, (3) taxpayers in the top level of income distribution and/or personal wealth. In particular, when analysing the taxpayers in the top income centiles, tax factors become especially relevant for explaining (re)location decisions. Notably, looking at the group migrating to Madrid, the tax variable related to different income tax rates is significant.

Indeed, in Spain, as noted above, one of the most heated debates arising from regional tax differences is about the wealthy who migrate from Catalonia to Madrid. Related to this, Agrawal and Foremny (2019) indicate that if Madrid's average tax rate is 0.75% lower than in Catalonia, the probability that a high-income individual changes residence from Catalonia to Madrid increases by 2.25%.

Finally, Agrawal *et al*. (2025) investigates the effect of decentralising Wealth Tax on the mobility of taxpayers between Autonomous Communities, and the consequences for revenue and the concentration of wealth, using the *Panel de declarantes de IRPF*, 1999-2015, and *Panel de declarantes de IP*, 2002-2007, statistics on income tax and wealth tax published by Spain's Institute of Fiscal Studies and Tax Agency. The population of interest for the analysis are IRPF income tax payers whose wealth in 2010 was high enough to require them to pay the IP wealth tax (in the hypothetical case that the IP had not been paid in full in 2010), who were monitored throughout the period 2005-2015.

Differences-in-differences models were used to estimate the effect of the change in the stock of IP taxpayers in Madrid from 2011 to 2015 in relation to the other regions. This estimate reveals a relative increase of 10% in the stock of IP taxpayers from 2011 to 2015, while there was hardly any change before decentralisation. In absolute terms, the number of IP taxpayers claiming Madrid as their tax residence increased by 6,000 from 2011 to 2015, while the other regions experienced an average decrease of 375 taxpayers.

Relating to this discussion, a paper by IvieLab (2020) analysed in detail the growing ability of the Madrid region to attract Spanish human capital, offering as explanation the

combination of three factors: the existence of a very wide range of specialised educational options, the leading role of knowledge-based sectors in the region, and Madrid's excellent transport links to the rest of the country. If we add to this the fact that the decision-making centres of the public sector are concentrated in Madrid, as are the de facto headquarters of the largest Spanish companies, and that this region's tax regime offers the most generous tax advantages for the wealthiest taxpayers, the most obvious conclusion is that multiple factors are stimulating the increasing arrivals of specialist (and well-remunerated) human capital to the Madrid region.

Notes

1. We recall that the odds ratio is a statistical measure used to assess the strength of association between an exposure and an outcome. It compares the odds of the outcome occurring in individuals with the exposure to the odds of it occurring in those without the exposure. In the framework revised, the log odds ratio turns out to be linear in the difference in origin and destination utility levels if the term PR_{imnt} follows and Extreme Value Type I distribution.

2. The above specification (5) can be enriched with additional controls which add time-varying jurisdictional fixed effects, either of each jurisdiction one by one, or of pairs of specific jurisdictions.

3. The *Panel de Hogares 2016-2021* (Household Panel, INE-AEAT-IEF) available for the Spanish experience, and providing the statistical evidence described in the Annex of this paper, is a good example of these databases.

4. Among others, and as an example, the British non-dom system offers, in practice, a differential and advantageous treatment for many millionaires: the beneficiaries of this system often have some of the highest incomes in the United Kingdom (Advani *et al*. 2023).

5. And, as can be seen in Section 3, there is research on professional sectors which are especially mobile, within a country or internationally, such as footballers (Kleven *et al*., 2013) or scientists (Akcigit *et al*., 2016 and 2022, and Moretti and Wilson, 2017).

6. The IEB Report 2/2023 also offers a recent revision of the literature on individuals' tax mobility.

7. As an example, if the rate of a tax on a given individual in the group of interest i goes from 30% to 30.7%, and thus, their net-of-tax-rate is reduced by 1% $(=0.693-0.7)/0.7)$, and assuming a unit value of e_i, we would expect the migration response (for example, rich taxpayers leaving a jurisdiction) to also change by 1%.

8. Although the research of Rauh and Shyu (2024), which refers to a Californian reform of personal income tax (with significant increases in the maximum marginal tax rates), offers elasticity values as high as 15.66. It is true that this very extreme value is unique in the international comparison; also, the database used was especially rich, including longitudinal government information (2000-2014) from the universe of Californian taxpayers, and their research began with a broader characterisation of migration events than other papers (among other issues, their methodology identified more changes of tax residence).

9. 29% of the group of 'non-doms' affected by the reform were in the top 0.1% of the UK income distribution. This group usually works in the United Kingdom in professional sectors linked to law, consultancy, or finance (Advani *et al*., 2023).

10. The following argument is particularly relevant: 'By definition, elites are at the top of their game. They have become very successful in the place where they live: In many cases, they have become deeply embedded insiders, rich not only in income but also in personal connections and social capital. Often, they are late-career professionals and past the age or life-cycle stage when one is likely to move. They have ascended to the top of the income hierarchy, which pushes them into a high tax bracket but also signals high-level insider status. The incentive for such individuals to move elsewhere is unclear, at best.' Young, 2018, p.16.

11. A useful characterisation and taxonomy of these digital nomads can be consulted in Cook (2023).

12. Interesting reviews of some novel aspects of the theory of optimal taxation can be found in Boadway (2012) or in Kaplow (2024).

13. There is a recent case in Spain of an ex post establishment of a minimum tax within the scope of the Wealth Tax (IP). Faced with increasing regional tax competition, which in practice led to the elimination of the IP in some territories, particularly Madrid, the Spanish central government decided to introduce in 2022 a new individual wealth tax called *Impuesto Temporal de Solidaridad de las Grandes Fortunas*. De facto, this meant establishing a national minimum tax on the country's largest fortunes (with net assets greater than €3.7 million).

14. In Spain, in a recent survey of economists specialising in tax advice conducted by Economistas-Consejo General-REAF (2023), 51.3% of those surveyed thought that the majority of changes in tax residence to other regions were false.

15. Criterion set forth in Article 72.1.1 of Law 35/2006, of 28 November, on Personal Income Tax (IRPF), and partially amending the laws on Corporate Income Tax (IS), Non-Resident Income Tax (IRNR), and Wealth Tax (IP).

16. For example, in Spain, a priority line of action in the most recent annual state tax plan, *Planes Anuales de Control Tributario y Aduanero de la Agencia Estatal de Administración Tributaria*, is to combat false changes of tax residence within the country (in the directive on 'Monitoring substantial net worth'). The 2024 plan states that 'In 2023 monitoring actions were coordinated with regional tax authorities and will continue in 2024, intended to monitor and regularise the internal delocalisation behaviour of high-net-worth taxpayers who falsely claim a tax residence in a tax territory other than their real residence, with the sole purpose of improperly reducing their direct tax payments. These situations affect both state and regional taxes, requiring both government levels to coordinate to eradicate these problematic practices.' (Agencia Estatal de Administración Tributaria, 2024.)

17. In the specific field of optimal tax theory, Esteller-Moré and Galmarini (2023) discusses the new challenge that fake residences pose for tax authorities, a problem aggravated by the phenomenon of 'digital nomads' and the post-pandemic growth of remote working.

18. In this regard, Jakobsen *et al*. (2024) indicates that while the Swedish experience showed that the existence of a wealth tax in Sweden (until it was finally eliminated in 2007) had significant effects on the rate of emigration to other countries, its economic effects were only modest: an increase of 1 p. p. in the rate of wealth tax meant a maximum fall of 0.03% in total employment and 0.1% in the added value generated. The same negligible effect on local employment can be seen in Martínez (2022) for the Swiss canton of Obwalden and its 2006 introduction of a tax regime favouring wealthy taxpayers. Thus, the empirical evidence seems to show that the trickle-down effects of wealth migration actually exist but are fairly small.

19. For example, sticking to the Spanish case, Agrawal and Foremny (2018) shows that the loss of revenue (from IRPF, Spanish income tax) caused by the mechanical effects of lowering taxes in the region of Madrid is notably greater than the possible increase in public income generated by induced migration of taxpayers from the rest of Spain (or the possible induced increase in labour supply). And Agrawal and Foremny (2019) show that the Spanish regions which lower their regional IRPF tax rates also reduce their overall revenue from that tax. Similar results for other international experiences can be found in Jakobsen *et al*. (2024), Martínez (2022), Muñoz (2021), and Rubolino and Giommoni (2023).

20. And for this common standard to gradually be introduced internationally, Zucman (2024) also suggests reinforcing exit taxes (taxes which appear when taxpayers leave a country where they had been resident) and establishing a 'tax collector of last resort' mechanism, as already happens in the coordinated minimum tax on multinational groups

21. To properly interpret the taxpayer population actually reflected in these tops 1% and 0.1%, it's worth noting that IRPF and IP are two taxes where the filing obligation, established by the rules for each tax, is very different. More specifically, based on 2022 figures, the IRPF was filed by 22,898,072 taxpayers (just under half of the total Spanish population). However, the IP was filed by only 230,365 taxpayers.

22. In Spanish territories in the common tax system, the obligation to file a tax return of this type is defined by two alternative criteria. Individuals (1) whose tax quota, determined according to the regulations of this tax and after any deductions or rebates which may apply, shows tax payable or (2) to whom this does not apply, but where the value of their assets or rights, determined according to the regulations of the tax, is found to be over 2,000,000 euros, are required to file in this way. It must be borne in mind that in practice, the first criterion is conditional on the existence of an additional minimum exempted amount set by each region, which reaches a value of 700,000 euros.

References

Advani, A., Burgherr D. and Summers, A. (2023), "Taxation and migration by the super-rich", *Warwick Economics Research Papers*, no. 1427.

Advani, A. and Tarrant, H. (2023), "Behavioural responses to a wealth tax", *Fiscal Studies*, 42: 509-537.

Agencia Estatal de Administración Tributaria, AEAT, (2024), Resolución de 21 de febrero de 2024, de la Dirección General de la Agencia Estatal de Administración Tributaria, por la que se aprueban las directrices generales del Plan Anual de Control Tributario y Aduanero de 2024, Boletín Oficial del Estado, Number 53, February 29, 2024, (available in: https://www.boe.es/buscar/act.php?id=-BOE-A-2024-3876).

Agrawal, D.R. and Foremny, D. (2018), "Relocation of the rich: migration in response to top tax rate changes from Spanish reforms", *Review of Economics and Statistics*, 101(2).

Agrawal, D.R. and Foremny, D. (2019), "El efecto de los impuestos regionales sobre la movilidad de los altos contribuyentes', *Info IEF*, 31.

Agrawal, D.R., Foremny, D. and Martínez Toledano, C. (2025), 'Wealth Tax Mobility and Tax Coordination', *American Economic Journal: Applied Economics*, forthcoming.

Akcigit, U., Baslandze, S. and Stantcheva, S. (2016), "Taxation and the international mobility of inventors", *American Economic Review*, 106(10): 2930-2981.

Akcigit, U., Grigsby, J., Nicholas, T. and Stantcheva, S. (2022), "Taxation and innovation in the twentieth century", *The Quarterly Journal of Economics*, 137(1): 329-385.

Alfani, G. (2024), *As Gods Among Men: A History of the Rich in the West*, Princeton and Oxford: Princeton University Press.

Alstadsæter, A., Godar,, S., Nicolaides, P. and Zucman, G. (coords.) (2024), *EU Tax Observatory - Global Tax Evasion Report 2024*.

Alstadsæter, A., Johannesen, N., and Zucman, G. (2019), "Tax evasion and inequality", *American Economic Review*, 109(6): 2073-103.

Anselin, L. (1988), *Spatial econometrics: Methods and models*, Dordrecht: Kluwer Academic Press.

Bakija, J., and Slemrod, J. (2004), "Do the rich flee from high state taxes? Evidence from federal estate tax returns'', *National Bureau of Economic Research Working Paper*, 10645.

Baselgia, E. and Martínez, I.Z. (2023), "Tracking and taxing the super-rich: insights from Swiss rich lists", *KOF Swiss Economic Institute Working Paper*, 501.

Bassetto, J and Ippedico, G. (2023), "Can tax incentives bring brains back? Returnees tax schemes and high-skilled migration in Italy", *CESIFO Working Paper*, 10271.

Boadway, R. (2012), "Recent Advances in Optimal Income Taxation", *Hacienda Pública Española/ Review of Public Economics*, 200(1-2012): 15-39.

Brülhart, M. and Parchet, R. (2014), "Alleged tax competition: The mysterious death of bequest taxes", *Journal of Public Economics*, 111: 63-78.

Brülhart, M., Gruber, J., Krapf, M. and Schmidheiny, K. (2022), "Behavioral responses to wealth taxes: evidence from Switzerland", *American Economic Journal: Economic Policy*, 14(4): 111-150.

Chancel, L., Piketty, T., Saez, E. and Zucman, G. (2022), *World Inequality Report 2022*, World Inequality Lab.

Conway. K. and Rork, J.C. (2006), "State 'Death' Taxes and Elderly Migration - The Chicken or the Egg?", *National Tax Journal*, Vol. LIX(1): 97-128.

Cook, D. (2023), "What is a digital nomad? Definition and taxonomy in the era of mainstream remote work", *World Leisure Journal*, 65: 256-275.

Economistas-Consejo General-REAF (2023), *La opinión de los economistas asesores fiscales sobre nuestro sistema tributario*, 4.ª ed., Madrid.

Esteller-Moré, A. and Galmarini, U. (2023), "Optimal Tax Administration Responses to Fake Mobility and Underreporting", *IEB Working Paper*, 3.

Godar, S., Flamant, E. and Gaspard, R. (2021), "New Forms of Tax Competition in the European Union. An Empirical Investigation", *EU Tax Observatory Report*, 3.

Iacono, R. and Smedsvik, B. (2023), "Behavioral responses to wealth taxation: evidence from a Norwegian reform", *LSE International Inequalities Institute Working Paper*, 130.

IEB Report (2023), "Mobility and Personal Taxes", 2, Barcelona.

Instituto de Estudios Fiscales (2023), "Panel de Hogares: Ejercicio 2021", *Documentos de Trabajo*, 6/2023, Instituto de Estudios Fiscales.

IPSOS (2024), *What Worries the World?*, August 2024, Wave 199.

IvieLab (2020), *Madrid: capitalidad, economía del conocimiento y competencia fiscal*, Valencia.

Jakobsen, K., Kleven. H., Kolsrud, J., Landais, C. and Muñoz, M. (2024), "Taxing Top Wealth: Migration Responses and Their Aggregate Economic Implications", *NBER Working Paper*, 32153.

Kaplow, L. (2024), "Optimal Income Taxation", *Journal of Economic Literature*, 62(2): 637-738.

Kalin, S., Levy. A. and Muñoz, M. (2024), "Pensioners Without Borders: Agglomeration and the Migration Response to Taxation", *NBER Working Paper*, 32890.

Kleven, H.J., Landais, C. and Saez, E. (2013), "Taxation and international migration of superstars: evidence from the European football market", *American Economic Review*, 103(5): 1892-1924.

Kleven, H.J., Landais, C., Saez, E. and Schultz, E. (2014), "Migration and wage effects of taxing top earners: evidence from the foreigners' tax scheme in Denmark", *The Quarterly Journal of Economics*, 129(1), 333-378.

Kleven, H.J., Landais, C., Muñoz, M. and Stantcheva, S. (2020), "Taxation and migration: evidence and policy implications," *Journal of Economic Perspectives*, 34(2): 119-142.

López-Laborda, J. and Rodrigo, F. (2022), "Mobility of top income taxpayers in response to regional differences in personal taxes: Evidence from Spain", *Economics: The Open-Access, Open-Assessment e-Journal*, 16: 152-169.

Martínez, I.Z. (2022), "Mobility responses to the establishment of a residential tax haven: evidence from Switzerland", *Journal of Urban Economics*, 129: 103441.

Mirrlees, J. (1982), "Migration and Optimal Income Taxes", *Journal of Public Economics*, 18: 319-341.

Molloy, R., Smith, C.L. and Abigail Wozniak, A. (2011), "Internal Migration in the United States", *Journal of Economic Perspectives*, 25(3): 173-96

Moretti, E. and Wilson, D.J. (2017), "The effect of state taxes on the geographical location of top earners: evidence from star scientists", *American Economic Review*, 107(7): 1858-1903.

Moretti, E, and Wilson, D.J. (2023), "Taxing billionaires: estate taxes and the geographical location of the ultra-wealthy", *American Economic Journal: Economic Policy*, 15(2): 424-466.

Muñoz, M. (2021), "Do European Top Earners React to Labour Taxation Through Migration?", *Paris School of Economics Working Paper*, 2021-35.

Piketty, T. and Saez, E. (2013), "Optimal Labor Income Taxation", in Auerbach, A. J., Chetty, R., Feldstein, M. and Saez, E. (eds.), *Handbook of Public Economics*, Volume 5, Chapter 7, 391-474, Amsterdam: Elsevier.

Rauh, J. and Shyu, R. (2024), "Behavioral Responses to State Income Taxation of High Earners: Evidence from California", *American Economic Journal: Economic Policy*, 16(1): 34-86.

Rodrigo, F., Barberán, M.A. and Trueba, C. (2024), "Migraciones interregionales en España de determinados perfiles de contribuyentes en el período 2006-2019: el papel de las variaciones autonómicas en la imposición sobre la renta y la riqueza", *Papeles de Trabajo*, 2/2024, Instituto de Estudios Fiscales.

Rubolino, E. and Giommoni, T. (2023), "Taxation and mobility: Evidence from tax decentralization in Italy", *CESifo Working Paper*, 10655.

Scheuer, F. (2020), "Taxing the superrich: Challenges of a fair tax system", *UBS Center Public Paper*, November 2020.

Schmidheiny, K. and Slotwinski, M. (2018), "Tax-induced mobility: evidence from a foreigners' tax scheme in Switzerland", *Journal of Public Economics*, 167: 293-324.

Shorrocks, A., Davies, J. Lluberas, R. and Waldenström, D. (2021), *Global Wealth Databook* (2021), Zurich: UBS.

Timm, L., Giuliodori, M. and Muller, P. (2022), "Tax incentives for high skilled migrants: evidence from a preferential tax scheme in the Netherlands", *068/V Tinbergen Institute Discussion Paper*.

Wilson, J.D. (1982), "Optimal Lineal Income Taxation in the Presence of Emigration", *Journal of Public Economics*, 18: 363-379.

Young, C., Varner, C., Lurie, I. and Prisinzano, R. (2016), "Millionaire migration and the taxation of the elite: evidence from administrative data", *American Sociological Review*, 81(3): 421-446.

Young, C. (2018), *The Myth of Millionaire Tax Flight*, Stanford: Stanford University Press.

Zucman, G. (2024), "A blueprint for a coordinated minimum effective taxation standard for ultra-high-net-worth individuals", *EU TAX Observatory Report Commissioned by the Brazilian G20 presidency*.

Resumen

El objetivo fundamental de este trabajo es realizar una valoración económica de la creciente literatura sobre la posible movilidad residencial de las rentas y patrimonios altos inducida por motivos fiscales. En esta literatura, resulta determinante la estimación de un parámetro: la elasticidad migratoria ante los cambios en la renta neta de impuestos. La considerable heterogeneidad mostrada por los trabajos aplicados a la hora de estimar esta elasticidad nos previene de realizar lecturas y conclusiones globales que no consideren y valoren los condicionantes institucionales y económicos y las opciones metodológicas que influyen en cada estimación concreta. Sin perder de vista este presupuesto, se ofrecen algunas recomendaciones finales para el decisor público que pretenda ofrecer una fiscalidad diferencial focalizada en los contribuyentes ubicados en la parte superior de la distribución de rentas y patrimonios o en favor de perfiles profesionales específicos.

Palabras clave: movilidad fiscal, millonarios, imposición sobre la renta, imposición sobre la riqueza, elasticidad migratoria.

Clasificación JEL: H21, H24, H73.