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HELLO, GOODBYE: DO LOWER INCOME TAXES ATTRACT  
FOREIGN FIRM MANAGERS?

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# Hello, goodbye: Do lower income taxes attract foreign firm managers?\*

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## Abstract

This paper examines to what extent personal taxes on earned and capital income influence the location choice of firm managers. The analysis is based on a large panel dataset including detailed information on income taxes and firm managers in 63 countries. Subsequently, an event study and different choice models are employed to estimate how an increase in the income tax rate translates into a change in the location choice of firm managers. The results suggest significant and negative tax effects.

**Keywords:** Income taxation, top income earners

**JEL classification:** C25, H24, H26

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# 1 Introduction

The recent surge in income inequality (e.g., Piketty, 2015) has fueled new discussions about top income taxation. While higher income taxes could tackle income inequality, opponents suggest that especially top income earners might simply relocate to countries with lower tax rates. This would be a major concern since relatively few top income earners account for the bulk of tax revenue. For example, the top 1% income earners account for 22% of income tax revenue in Germany (Bundesministerium der Finanzen, 2017) and even 39% in the US (York, 2018). Indeed, there are substantial differences in the top income tax rates between neighboring countries, where reciprocal entry restrictions do not exist. For example, the top tax differentials between Sweden and Norway, Portugal and Spain, and France and Germany amount to about 15 percentage points in 2015. At the same time, migration costs for top income earners have fallen dramatically over the last decades (OECD, 2011). Lehmann et al. (2014) show that under such circumstances, the optimal tax rate exhibits negative marginal tax rates at the very top to account for the tax-induced emigration of top income earners. However, reducing the top income tax rate to counteract such emigration could reduce state revenue and undermine redistributive social policies (Mirrlees, 1982).

Despite these differences in personal income taxes, reports of mass emigration of top income earners from high to low-tax countries have mostly stayed away. Gérard Depardieu serves as one of the few prominent examples of wealthy individuals who changed their country of residence in response to a tax change. The actor moved from France to Russia in 2013 in response to significant tax increases (The Guardian, 2013). Still, it remains unclear to what extent tax differences induce migration of top income earners.

Figure 1 shows how the top income tax differential and cross-country migration rate of firm managers between the UK and its low-tax crown dependencies Guernsey, Isle of Man and Jersey evolved over time. What we see is that, as the tax rate increases in the UK relative to Guernsey and Jersey, migration of firm managers increases in the following periods. For the Isle of Man, we see a sharp decline in the migration rate as the relative

tax rate decreased slightly. However, the figure does also suggest that there is a wide range of additional factors influencing the migration flow of firm managers and it remains unclear how much we can attribute to tax changes.

— Figure 1 about here —

While there is some earlier work on the topic (see, e.g., Kirchgässner and Pommerehne, 1996), the effect of income taxes on the location decision of top income earners has only gained increased attention in recent years. Kleven, Landais, and Saez (2013) use data on European football players and find the net-of-tax rate elasticity of the number of foreign players in football clubs to be close to one. Kleven, Landais, Saez, and Schultz (2014) exploit the preferential foreigners’ tax scheme in Denmark.<sup>1</sup> They find very high migration elasticities of top income earners (between 1.5 and 2). Akcigit et al. (2016), as well as Moretti and Wilson (2017), use data on highly skilled individuals with, again, very similar results. While Akcigit et al. (2016) use international data on inventors, Moretti and Wilson (2017) look at the migration of star scientists within the US.

In contrast to these findings, Young et al. (2016) track how millionaires in the US respond to millionaire taxes over a period of 13 years and do only find small effects. They propose a so-called “transitory millionaire” hypothesis which states that top income earners are highly mobile and in search for lower tax places, and an “elite embeddedness” hypothesis which suggests that top income earners are strongly tied to places where they achieved exceptional success. Their finding of a very small tax effect suggests that the second hypothesis is more relevant than the first.

This paper contributes to this literature in several ways. First, I base the analysis on a rich dataset called *BoardEx* that contains detailed information on firm managers. Analyzing the behavior of firm managers in the context of top income earners is highly relevant. As this paper will show, the average income of firm managers is not only a multiple of the average income covering all workers. Firm managers do also generate significant amounts of capital

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<sup>1</sup>Under this scheme, top income earners are taxed at a preferential flat rate for up to three years.

income (e.g., dividends), which is a typical feature of top income earners (for an empirical analysis, see, e.g., Piketty and Zucman, 2014; Alvaredo et al., 2017).

The second contribution is based on the novel income tax data which I take from Eklund and Wamser (2019). This dataset includes tax rates for 165 different countries and covers, among others, taxes on earned income, interest, dividends, capital gains, and royalty income. While the size of the included countries is valuable by itself, the major advantage is based on the range of tax rates that are covered. Therewith, I am able to estimate the tax effect based on the entire range of income taxes, instead of only focusing on the earned income tax. This will increase the understanding of how top income earners respond to changes in the tax legislation.

Finally, this paper provides extensive summary statistics about the migration pattern of firm managers and how these are associated with changes in the personal income tax. Due to the panel structure of the paper, these are not only based on cross-sectional correlations but also on dynamic changes in the tax rates over time. Furthermore, the effect of income taxes on a manager's country location choice is estimated using different discrete choice models. Also, in one choice model specification, I allow for heterogeneous tax responses across managers because it is ex-ante unclear if all managers share the same distaste for income taxes.

The empirical analysis reveals a statistically significant negative effect of income taxes on the location choice of managers. This finding is robust to the inclusion of taxes on capital income. While the negative effect of income taxes on the location choice is significant, other factors like nationality or distance between countries are found to be important as well.

The paper proceeds as follows: the next section describes the institutional backgrounds of income taxation and the effect of taxes on the location choice of top income earners. The data is presented in Section 3; Section 4 provides an event study. Section 5 discusses the econometric approach, which is followed by a presentation of the results in Section 6. Section 7 concludes.

## 2 The location decision of firm managers

The aim of this study is to provide further evidence on the effect of income taxes on the location decision of top income earners. This chapter outlines how income is taxed in most countries. Furthermore, it includes a stylized model on how taxes may influence firm managers' location decision.

Most countries tax income by means of a progressive tax schedule. While a certain amount of income is usually tax exempt, every additional unit of income is taxed at increasing marginal tax rates up to a certain upper bound. The largest marginal income tax rate, which I call top income tax rate ( $TITR$ ), is levied on every unit of income above this threshold, which I denote by  $TITRB$ .

In most countries, this threshold is very low which is why I expect top income earners to focus primarily on the  $TITR$ . However, I also provide specifications in my empirical analysis where I include the tax burden on income below the  $TITRB$  by measuring the average income tax rate ( $AITR$ ) exactly at the  $TITRB$ .

Since taxes reduce disposable income, individuals might strategically choose their country of residence in order to lower their tax burden. This tax avoidance strategy seems to be especially present among top income earners (like firm managers), as they face a particularly high tax burden under a progressive tax regime. In this context, it is important to note that the mobility of top income earners has significantly increased over the last years (OECD, 2011). Hence, firm managers will find it easier to adjust their location decision in response to a tax change.

For illustrative reasons, consider the following stylized model on the location choice of firm managers. Assume a firm manager  $i$  with utility  $U_i$  resides in country  $j = 1, \dots, J$ .<sup>2</sup> I postulate that

$$U_{ij} = U_i(I_{ij}^N) \text{ with } \frac{\partial U_i}{\partial I_{ij}^N} > 0 \quad \forall j. \quad (1)$$

Here,  $I_{ij}^N$  indicates net income of firm manager  $i$  in country  $j$  with  $I_{ij}^N =$

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<sup>2</sup>For notational simplicity, I omit the time index.

$I_{ij}^G - T_j(I_{ij}^G)$  and  $\frac{\partial T_j}{\partial I_{ij}^G} > 0 \forall j$ , where  $I_{ij}^G$  denotes gross earnings of  $i$  and  $T_j(I_{ij}^G)$  the tax schedule in country  $j$ . Hence, firm managers ultimately care about their net income which is determined by gross income and the income tax schedule (as argued above,  $T_j(I_{ij}^G) \approx TITR_j \cdot I_{ij}^G$  for top income earners). Following Equation (1), an increase in the tax burden of manager  $i$  leads to a direct loss in utility:

$$\frac{\partial U_{ij}}{\partial T_j} = \frac{\partial U_{ij}}{\partial I_{ij}^N} \frac{\partial I_{ij}^N}{\partial T_j} = \frac{\partial U_{ij}}{\partial I_{ij}^N} (-1) < 0 \forall j. \quad (2)$$

If a change in the tax rate leads to a situation where at least one country  $k = 1, \dots, J$  with  $k \neq j$  exists such that  $U_{ik} - U_{ij} > \delta_{ijk}$  with moving costs<sup>3</sup>  $\delta_{ijk}$ , it will be optimal for firm manager  $i$  to leave the current country of residence  $j$ .<sup>4</sup>

It could be assumed that gross income  $I_{ij}^G$  is influenced by country-specific characteristics  $\Psi_j$  since these characteristics determine (among others) the economic success of firms:  $I_{ij}^G = I_{ij}^G(\Psi_j)$ . This assumption implies that firm managers do not necessarily leave the current home country if there exists a country with lower taxes since the characteristics of the home country might lead to extraordinary high income. Hence, countries might tax these excessive rents without provoking outflows of firm managers.

Note how I use gross income to introduce further country characteristics as determinants of firm managers' location choice. As country characteristics are assumed to be captured by gross income, managers ultimately only care about earnings in this simple setting. In the econometric analysis, however, I will include additional variables which control for country distances and the potential income of firm managers, among others. Since the income of managers is linked to the success of the firms they work for, I expect managers to prefer countries that also are optimal from the perspective of

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<sup>3</sup>Moving costs may consist of monetary costs like airline tickets, or non-monetary costs like cultural and linguistic differences. Furthermore, the moving costs may consist of costs related to finding a new circle of friends or leaving cherished colleagues.

<sup>4</sup>Note that in this simple model, it is assumed that solely differences in potential country-specific income determine the difference  $U_{ik} - U_{ij}$ . However, in the econometric analysis I include a large range of further country-specific characteristics that might influence the location choice of managers.

firms. Therefore, I will use control variables mainly known from the literature on the location decision of firms. This reasoning is similar to the argument of Borjas (1989) who argues that workers migrate to countries where their return on human capital is maximized.<sup>5</sup>

In this context it is important to note that Ruf and Schmider (2018) investigate the tax incidence of top income earners, using the same manager dataset as I do. They find that if the marginal top income tax rate is increased by 10 percentage points, gross income increases by 11.57%.<sup>6</sup> This finding suggests that the economic tax incidence on firm managers is smaller than the economic tax burden as some parts of the tax burden are borne by the firms. As this most likely depends on firm- and manager-specific characteristics, this serves as a further rationale for using the so-called “random-coefficient” model in the econometric analysis.

Following these results, we could model gross income as  $I_{ij}^G = I_{ij}^G(T_j)$  with  $\frac{\partial I_{ij}^G}{\partial T_j} > 0$ . If this relationship between gross income and income taxes would indeed be present, this could act as a counterweight to the negative effect of taxes on net income  $I_{ij}^N$ , as modeled in Equation (2). The mechanical effect of an increase in income taxes  $T_j$  on net income  $I_{ij}^N$ <sup>7</sup> would partly be balanced by an increase in gross income  $I_{ij}^G$ . Under these circumstances, managers might be less responsive to tax changes.

To sum it up, it is ex-ante unclear if there is a tax effect on the location decision of firm managers. While taxes reduce firm managers’ utility by mechanically reducing net income, a manager’s gross income might increase in response to a tax increase because firms also bear parts of the tax burden. Since the positive effect of income taxes on gross income is larger for top income earners, as described in Ruf and Schmider (2018), the total tax effect will therefore presumably be smaller in absolute terms for managers with a

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<sup>5</sup>Also, note that anecdotal evidence suggests that top income earners are very cosmopolitan, heading for metropolises like London and Paris or beach-clubs in Florida during weekends. This reduces the effect of the country choice of employment on leisure activities.

<sup>6</sup>Note that this result does not imply overshifting since one unit is in percentage points while the other only is in percent.

<sup>7</sup>Recall that  $I_{ij}^N = I_{ij}^G - T_j(I_{ij}^G)$ .



larger income.

### 3 Data

The analysis of the effect of income taxes on the location choice of firm managers is based on the *BoardEx* dataset which includes information on listed companies in a large number of different countries. The data is supplied by the eponymous firm which provides business intelligence service on corporate governance and boardroom processes. I do not only observe detailed characteristics of firm managers in the data<sup>8</sup> but also on the firm itself, like revenue or market capitalization. Personal income tax measures are taken from Eklund and Wamser (2019). Furthermore, I use several country-specific control variables like GDP, population-weighted country distances, or indicators measuring the openness of a country, which I take from the World Bank, the Heritage Foundation and CEPII. A detailed description of the variables and their sources, as well as summary statistics, can be found in Tables 1 and 2.

After combining all datasets, I end up with 57,354 different managers which I observe on average in 4.8 years over the eight years period between 2006 and 2013 (i.e., 276,405 manager-year observations). Most managers are male (90.11%), and the average age is 54.84 years. The youngest manager is 19 and the oldest 103 years old.<sup>9</sup> I observe firms in 63 different countries (see Figure 2), while the managers hold nationalities from 110 different countries.

— Table 1 about here —

— Table 2 about here —

— Figure 2 about here —

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<sup>8</sup>To be more specific, these firm managers are defined as board members and senior executives in the dataset.

<sup>9</sup>Note that in 2009, I observe a manager called Peter Redhead who is born 1995 and hence only 13 years old. However, according to further research, Peter Redhead is born 1965. Since the similarity of these both numbers makes a typo very likely, I do not include this observation.

As indicated in the introduction, I use data on firm managers to answer questions that are related to top income earners. The purpose of the following discussion is to present different statistics that firm managers indeed are top income earners. These statistics will also underline the introductory statements that capital incomes indeed are a key income source for top income earners.

The income measure ( $INCOME_i$ <sup>10</sup>) consists of four different components as provided by *BoardEx*: direct compensations<sup>11</sup>, share-based compensations<sup>12</sup>, defined contribution pension plans (DCP), and other compensations.<sup>13</sup> Table 3 provides summary statistics of the share of the different components of total income. Considering all firm managers, direct compensations make up two-thirds of total income on average while share-based compensations amount to a little bit more than a fourth. However, if I only include firm managers with income above USD 1 million, the proportion of share-based compensations increases to 51.1%, while the proportion of direct compensations falls to 41.54%. Hence, especially at the top, a substantial share of firm managers' income is capital income. These numbers are striking and provide strong evidence for why it is essential not only to consider ordinary income taxes on earned income but also taxes on capital income if the location decision of top income earners is to be estimated.

— Table 3 about here —

Managers working in the US earn by far the highest wages, as indicated in Table 4. If firm managers are sorted by income in the year 2013, the first eight observations are all US-American. Georg L. Chapman from Health Care Reit Inc., the manager with the highest income, earned a total of USD 592 million. By contrast, the income of the top non-US manager (Robert W. Dudley from

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<sup>10</sup>I express all monetary values in USD using exchange rates as of the first of June of the respective year.

<sup>11</sup>Cash based compensations like salary and bonus payments.

<sup>12</sup>Equity linked compensations like shares, options (estimated value using the Black-Scholes formula) and long-term incentive plans (LTIP). For the calculation, it is assumed that the manager receives the largest possible payment according to the LTIP.

<sup>13</sup>Other cash benefits like relocation costs and fringe benefits.

BP Plc) is roughly a seventh of the income of George L. Chapman. As for the other managers at the top, total income consists practically only of share-based compensations.

The average income of the managers in the US equals USD 1.19 million while it is equal to USD 0.48 million for non-US managers. For the OECD, the number is USD 0.77 million and for the EU USD 0.51 million. Compared to the EU, the average income is only slightly larger in the UK (USD 0.52 million). While the average income is USD 0.72 million in 2006 for all managers, it increased to USD 1.09 million in 2013. I find the largest average income in the tobacco (USD 1.52 million), aerospace and defense (USD 1.24 million) and food production and processing (USD 1.24 million) industries. While these numbers are impressive in itself, note that the average income in 2013 of all workers (thus, not only firm managers) amounted to USD 58,400 and USD 43,200 in the US and the UK, respectively (OECD, 2018). Hence, firm managers earn on average 20 times as much as the average worker in the US.

Summarizing, I may conclude that firm managers indeed are top income earners with large compensation packages. Furthermore, the composition of firm managers' income, which includes large shares of capital income, suggests that firm managers are not only affected by earned income but also by capital income taxes. These findings are robust to different industries and regions of the world.

— Table 4 about here —

Next, I present some first key findings on the migration behavior of firm managers.

For the analysis of the number of cross-country moves, I only keep managers which I observe for more than one year. Furthermore, there are 10,822 managers which I observe multiple times in the same year since they hold positions in several firms. In these cases, I assume that the country of residence of the manager is the same as the country of the firm where the highest income is earned. Hence, I keep the observation with the highest income. This results in a total of 211,463 observations based on 46,887 managers. There

are 3,169 transnational job changes in the dataset, based on 2,244 managers. Figure 3 depicts the number of immigrants and emigrants per country.

— Figure 3 about here —

The UK and the US are the largest source (803 and 581 exits) and destination (778 and 472 entries) countries. I observe the largest bilateral migration flows from the US to the UK as well as from the UK to the US, from the US to Ireland and from the UK to Guernsey. Several countries which often are referred to as tax havens appear in the top ten of the largest migration flows (the UK to Ireland, Isle of Man, as well as to Jersey).

While I expect that relocations of managers are mainly based on intrinsic motivations (like higher net income) and hence lead to a change of the firms where they work, one could also think of cases where managers are relocated within firms by request of the employer. If I would find such intra-firm relocations to be common in the data, this could pose a threat to the empirical analysis as the location choice is not primarily based on preferences of the manager. Therefore, I merge the manager dataset with the *ORBIS* dataset which is provided by Bureau van Dijk. Using the *ORBIS* dataset allows me to identify the global ultimate owner of firms, i.e., the last level of ownership which is not owned by a further firm. For illustrative reasons, assume a manager works for the automotive manufacturer Rolls Royce which is owned by the BMW Group. Further assume that the BMW Group owns a second automotive manufacturer called Mini which in turn owns John Cooper Works, a racing car manufacturer. If now the BMW Group decides that the skills of the manager working for Rolls Royce are needed in the firm John Cooper Works and therefore relocates the manager to this firm, *ORBIS* provides the information needed to identify this movement as intra-firm (due to the mutual global ultimate owner).

After merging the *BoardEx* and *ORBIS* datasets, 75% (123,806) of the manager observations are successfully associated with a firm in *ORBIS*. Within this group, I observe the global ultimate owner in 14% (17,535) of the cases. Among all cross-country movements within this subgroup, not a single one is intra-firm (i.e., both firms involved did not share the same global

ultimate owner). Hence, I may conclude that intra-firm relocations at least do not play a significant role for firm managers. While I base this conclusion on a limited subsample, the striking result of zero intra-firm relocations in the subsample provides ample evidence that such relocations might rather be present below the management level.

The tax data includes the top marginal tax rates on income accruing from earned income ( $TITR_j$ ), dividend income ( $DTR_j$ ), capital gains ( $CGTR_j$ ) and interest income ( $ITR_j$ ).<sup>14</sup> These measures include uncapped social security contributions, where applicable.

On average, the countries in the dataset levy a  $TITR_j$  of 36.53%, the tax rates on capital income ( $DTR_j$ ,  $CGTR_j$ ,  $ITR_j$ , and  $RTR_j$ ) are considerably smaller (21.88%, 17.24%, 24.3%, and 24.42%, respectively). The average of all tax measures decreased between 2006 and 2013, as depicted in Table 5.

Over the sample period, I find not only large cross-country variations but also large within-country variations of the tax rates over the time dimension. Figure 4 depicts how the tax rate evolved over time for a sample of countries.

— Table 5 about here —

— Figure 4 about here —

Comparing the tax rate of firm managers before and after a movement, I find that managers experience for all tax rates, except the  $DTR_j$ , on average a reduction of about 1 percentage points after the move, the  $DTR_j$  increased only slightly by 0.1 percentage points. While this change in the tax rate is rather modest, I find that the average tax differential is less advantageous in the years before the movement (except for the  $ITR_j$ ). For example, the  $TITR_j$  would on average have been 0.74 percentage points larger in the destination country if the manager would have moved five years before the movement while it was 1.21 percentage points lower in the actual year of movement. I observe a slightly larger number of movements into tax jurisdictions with higher rather than lower rates.

<sup>14</sup>Recall that I define all variables in Table 1. Here, the abbreviations refer to the top income tax rate ( $TITR_j$ ), the dividend income tax rate ( $DTR_j$ ), the capital gains tax rate ( $CGTR_j$ ) and the interest income tax rate ( $ITR_j$ ).

Besides the different tax rates, I control for a variety of additional factors that might determine the location choice of firm managers in the empirical estimations. Since moving is costly, managers might prefer to stay in the current host country. Similarly, managers might prefer their country of nationality over other countries even if these countries have lower tax rates. To account for these patterns, I include the variables  $HOME_{ij}$  and  $HOMENAT_{ij}$  which indicate if the former country of residence is equal to the country that might be chosen in the next period (i.e., no movement) and if the potential country of residence is the manager’s country of nationality.

Furthermore, I include the log of GDP per capita,  $IGDPPC_j$  to account for productivity. The log of GDP,  $IGDP_j$ , and GDP growth,  $GROWTH_j$ , account for the size and dynamics of country  $j$ . The institutional framework in country  $j$  is controlled for by  $CORRUPT_j$  and  $PROPERTY_j$ , where a higher value indicates less corruption and stronger property rights.

To account for differences between the current country of residence  $j$  and the potential next country of residence, I include the following variables:  $COLONY_j$  indicates if the countries share a colonial past to control for cultural similarity,  $LDIST_j$  is the log population weighted distance.  $CONTIG_j$  and  $COMLANG_j$  indicate if the two countries share a common border or a common language, respectively.

Further country-specific controls are the average manager compensation ( $AVGINC_j$ )<sup>15</sup>, aggregated firm assets ( $ASSETS_j$ )<sup>16</sup> and a variable which indicates if worldwide income or only domestic income is taxed ( $TAXWW_j$ ). The choice of control variables largely follows the literature on the location choice of firms, as discussed in section 2.

Recall that I provide descriptions and the sources, as well as summary statistics of all variables in Tables 1 and 2.

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<sup>15</sup> $AVGINC_j$  is calculated as the country-specific average manager income in the *BordeEx* dataset.

<sup>16</sup> $ASSETS_j$  is calculated as the aggregated firm assets.

## 4 Event study

As a first piece of evidence, I present an event study to examine the timing of the effect of a tax change on the location decision of firm managers. I follow the methodology of Simon (2016) which also has been used recently by Fuest et al. (2018). The main idea is to use a vector  $\sum_{m=-M}^M e_m$  of dichotomous indicators which indicate if a reform happened  $m$  periods before or after the current period. Furthermore, the same control variables as in the estimations of the discrete choice models (as discussed in Section 6) are included. I am mainly interested in the question if managers potentially anticipate tax changes and hence relocate before tax reforms take effect. For example, managers could in principle anticipate an increase in the tax rate due to proposals of the government to increase the tax rate some years later. Alternatively, managers might need some adjustment time such that we would mainly observe movements after tax reforms.

Figure 5 presents the results of the event study. The left-hand side panel depicts the results of a decrease in the  $TITR_j$  on the probability to move. While I would expect a negative effect, I virtually do not find any significant effect at all, neither before nor after a reform. The same is true for the right-hand side panel where I would expect a positive effect in response to a tax increase. While I find some positive and statistically significant effects here, they are still vanishingly low. These effects are located in the period of the tax change and the second period after the tax change<sup>17</sup>.

— Figure 5 about here —

These results remain tiny and mostly insignificant if I require the tax change to exceed, among others, 1 or 5 percentage points to be counted as a reform, or if I adjust the number of time dummies  $e_m$  before and after the reform. If I consider the other tax rates ( $DTR_j$ ,  $CGTR_j$ ,  $ITR_j$ ), the size of the estimated coefficients are of a negligible size or even statistically

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<sup>17</sup>Note that in the discrete choice models (discussed subsequently), I identify the effect that is located in the period of the tax change.

insignificant as well. These first results hint at a, at most, minor effect of tax changes on the location decision of managers.

While the event study provides first evidence on the effect of taxes on the location choice of firm managers, I will consider the effect in greater detail using discrete choice models. These methods are introduced and discussed in the following.

## 5 Econometric approach

In order to model the discrete location choice of firm managers, I employ a model from the class of discrete choice models for the analysis. Since it is ex-ante very likely to expect heterogeneous tax responses, depending on manager- and firm-specific characteristics, I resort to the mixed logit model, which is also known as the “random coefficient” model. In particular, it is reasonable to expect heterogeneity in the distaste for taxes among managers. The main idea is to allow for individual-specific parameters: Instead of estimating one single parameter, it is assumed that the parameters follow a specific distribution. The mixed logit model then estimates the defining parameters of this distribution (e.g., for the case of the normal distribution, these parameters would be the mean and the standard deviation). See Train (2009) for a more in-depth discussion, Greene and Hensher (2003) provide a review of the mixed logit model.

Also note that if heterogeneous tax responses would be present, the assumption of independence of irrelevant alternatives (IIA<sup>18</sup>) would be violated, which is crucial for the often used conditional logit model, but not for the mixed logit model<sup>19</sup>. Since the dataset is large, the computational requirements for the mixed logit model are immense. Therefore, where the results of

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<sup>18</sup>In short, it states that if a certain alternative is chosen among a set  $S$  of different alternatives, this alternative also has to be chosen in the set of alternatives  $A$  if  $A$  is a subset of  $S$ . In other words, if non-chosen alternatives are added or removed from the choice set, this may not change the choice decision of the individual (see, e.g., Ray, 1973; Wooldridge, 2010).

<sup>19</sup>Note also that the mixed logit model is a fully general model, i.e. it nests the conditional logit model.



the mixed logit provide evidence against heterogeneity, I return to the much simpler conditional logit model to test further specifications, since the mixed logit does not provide any further advantages over the conditional logit model in this context, and evidence against heterogeneity implies evidence in favor of the IIA assumption (Train, 2009).

Importantly, the mixed logit model does also account for the time dimension of the dataset. More specifically, I observe several choices of the same manager, these choices are thus not independent. This problem is solved in the mixed logit model by the individual-specific parameters which capture the common effect among choices from the same individual.

## 6 Results

This section presents the results of the choice models in the first part. This is followed by back-of-the-envelope calculations and the results of the robustness checks.

### 6.1 Results discrete choice models

The results of the mixed logit estimation are depicted in Table 6. As discussed above, I allow for individual-specific parameters of the  $TITR_j$ . The mean and standard deviation of the estimated normal distribution of the parameter of the  $TITR_j$  are reported at the bottom of the table. As expected, I find a negative and highly significant effect of the  $TITR_j$  on the probability of firm managers to locate in a specific country. However, looking at the estimated standard deviation, we see that it is very small relative to the mean value and, furthermore, it is highly insignificant.<sup>20</sup> This result suggests that the distribution of the tax parameter is almost degenerate and that the manager-specific tax-parameters are not significantly different from each other. This is a first important and interesting result as it implies that

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<sup>20</sup>Note that, due to technical reasons, the standard deviation is reported to be negative. However, the sign should be assumed to be positive when interpreting this parameter.

there is no evidence in favor of heterogeneous tax-responses along manager- and firm-specific characteristics.

As argued above, I therefore resort to the much simpler conditional logit model in the next specifications where I compare the effect of the different income taxes, since there is no additional advantage of the mixed logit model over the conditional logit model in this context.

— Table 6 about here —

— Table 7 about here —

I report the results of the conditional logit model estimations with the different tax rates in Table 7. All income taxes exhibit negative effects on the location probability of firm managers. This effect is highly significant for the  $TITR_j$ ,  $CGTR_j$ , and  $RTR_j$  but insignificant for the  $DTR_j$  and  $ITR_j$ . The result of the  $TITR_j$  implies an elasticity of about 0.1 for an average country with a  $TITR$  of 30%. Hence, if countries increase taxes on earned and royalty income, as well as on capital gains, the probability of managers to locate there decreases. As it may be expected, larger  $lGDP_j$  and  $lGDPPC_j$  increase the location probability, while the effect of  $GROWTH_j$  is small and barely significant (it is negative, though). The estimates of  $HOM E_{ij}$  are significantly positive which suggests that managers prefer to stay in the country where they already lived in the period before, i.e., that managers are not perfectly mobile and experience relocation costs. Similarly, the results of  $HOMENAT_{ij}$  show that managers prefer their country of nationality over other countries, ceteris paribus. The effect of the  $AVGINV_j$  is very small and barely significant. There is no significant effect on the location probability if a country shares a common border with the country where the manager resides hitherto. In contrast, similar languages or a common colonial history have positive and significant effects on the probability of managers to immigrate. Sensibly, a larger distance between countries reduces significantly the probability to relocate.

## 6.2 Robustness checks

This section provides some robustness checks; the results are presented in Table 8. In a first step, I restrict the analysis to firm managers that are employed at large firms in terms of market capitalization (market capitalization larger than USD 100 million, column (1)) or revenue (revenue larger than USD 50 million, column (2)). While the effect of the  $TITR_j$  remains negative, it is now insignificant. As discussed above, firms are expected to bear a large part of the economic tax burden. Since larger firms might be in a more intense competition for firm managers because they demand higher skill levels and compete to a higher degree for managers in an international context, these firms might be willing to bear a larger share of the tax burden. Hence, I expect managers in these firms to care even less for income taxes, which is in line with what the results suggest.

— Table 8 about here —

In column (3), I include the  $TITR_j$  and the  $DTR_j$  simultaneously. Here, only the  $TITR_j$  is significant which suggests that the tax rate on earned income is more important compared to the tax on dividend income. Because I have shown above that managers earn a substantive share of their total income with equity-based compensation, this might be puzzling. However, if managers retain their dividend payments for reinvestment, under certain conditions, their income may subsequently be taxes with the  $CGTR_j$ . Since this tax usually is lower than the  $DTR_j$ , firm managers might be more sensitive to the  $CGTR_j$ . Column (4) explores this by including both taxes (i.e., the  $CGTR_j$  and the  $DTR_j$ ). Consistently, the coefficient of the  $CGTR_j$  is much more negative (and highly significant) compared to the  $DTR_j$ . Note that in a specification where the  $TITR_j$  and the  $CGTR_j$  are included jointly, both tax rates are significantly negative.

As discussed in Section 2, I do not expect the tax rate which applies to incomes below the  $TITRB_j$  to play a significant role for top income earners (i.e., no effect of the progressivity of the tax schedule). I test this presumption

by including the average income tax rate below the  $TITRB_j$  ( $AITR_j$ ).<sup>21</sup> Column (5) provides the results. They suggest that the  $AITR_j$  does not play a significant role in the location decision of firm managers. As the  $TITR_j$  in most cases already steps in for incomes at intermediate levels, it is not surprising to find insignificant results for the  $AITR_j$  when we look at top income earners, as it reflects characteristics of the lower part of the tax schedule.

## 7 Conclusion

This study analyzes how income taxes influence the location decision of top income earners and may be summarized as follows: First, the analysis is based on panel data that includes firm managers and different income tax rates for a wide range of different countries. The data shows that firm managers easily belong to the group of top income earners, not only due to their large earned incomes, but also because they generate large amounts of capital incomes.

Second, based on summary statistics and different estimation methods, I find that there is indeed a negative effect of taxes on the probability of firm managers to choose a specific country. Third, I do not only observe vibrant migration flows between high and low-tax countries, but I do also find negative and significant tax effects using different discrete choice models. This effect is not only negative for earned income taxes but also for different capital income taxes. Furthermore, the results suggest that all firm managers share the same degree of distaste for higher income taxes.

Three important implications follow directly from these results. Proposals to raise top income taxes to reduce income inequality are often dismissed on the grounds that this would lead to an increase in the emigration rate of top income earners. As they contribute a large share of total tax revenue, higher taxes could in effect lead to a decrease in transfers available for lower income earners. While the results of this study support the hypothesis of a

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<sup>21</sup>As already discussed, I calculate the tax rate which applies exactly at the point where the top income tax rate ( $TITR_j$ ) steps in, i.e., I calculate the tax rate at the point  $TITRB_j$ .

negative effect of higher taxes on the location choice probability, they also suggest that this effect is relatively small, though (at least for intermediate tax changes where the elasticity equals about 0.1). Therewith, this study sheds more light on the potential cost a government has to bear if it decides to counteract income inequality by an increase in income taxes.

Moreover, the results show that capital income taxes indeed determine the location choice of firm managers significantly. While the debate has so far mainly been centered around taxes on earned income, this study underlines that all income taxes should be looked at if top income earners are considered.

Finally, the findings suggest that countries compete for top income earners since firm managers are sensitive to changes in the tax rates. Indeed, several countries have already implemented advantageous tax legislation which aims at attracting foreign high-skilled workers. These include tax allowances or relatively low flat taxes. As income taxes constitute the most important source of tax revenue, countries could prevent this tax competition induced reduction in top income taxes by starting to agree upon minimum standards concerning income taxation. While there have been many efforts to implement minimum standards in the context of corporate taxation (e.g., the BEPS initiative of the OECD), this has been mostly neglected in the case of income taxes until today.

However, there are several limitations of this study which could be improved by future research. Obviously, the group of top income earners does not only consist of firm managers. Assembling data on other groups would undoubtedly increase our understanding of the behavior of top income earners altogether.

Also, information on the location of the wealth of top income earners would be advantageous. If the residence of the top income earner and the country where the top income earner's wealth is located are in different countries, this could be easily exploited to reduce income taxes by means of countries like Malta where corresponding loopholes exist in the tax legislation. As this could pose a threat to the identification strategy of this paper, gaining more insights on this issue would constitute a large benefit.

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# Appendix

## A Tables

Table 1: Description of variables used

<b>Variable</b>	<b>Description</b>	<b>Source</b>
$TITR_j$	Top income tax rate	Eklund and Wamser (2019)
$DTR_j$	Dividend income tax rate	Eklund and Wamser (2019)
$CGTR_j$	Capital gains tax rate	Eklund and Wamser (2019)
$ITR_j$	Interest income tax rate	Eklund and Wamser (2019)
$RTR_j$	Royalty income tax rate	Eklund and Wamser (2019)
$lGDP_j$	Log GDP	World Bank
$lGDP_{PC_j}$	Log GDP per capita	World Bank
$GROWTH_j$	GDP growth	World Bank
$CONT_{jk}$	=1 if countries share common border	CEPII
$LANG_{jk}$	=1 if countries share common language	CEPII
$COLONY_{jk}$	=1 if countries share colonial history	CEPII
$lDIST_{jk}$	Log population weighted country distance	CEPII
$HOM E_{ij}$	=1 if same country of residence as before	
$HOMENAT_{ij}$	=1 if country is manager's country of nationality	

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*Continued on next page*



Table 1 – *Continued from previous page*

$INCOME_i$	Income of firm manager	<i>BoardEx</i>
$AVGINC_j$	Average manager income per country	<i>BoardEx</i>
$ASSETS_j$	Measure of the aggregated firm assets in a country	Bureau van Dijk ( <i>ORBIS</i> )
$TAXWW_j$	Indicates if worldwide income is taxed	Eklund and Wamser (2019)
$CORRUPT_j$	Measure of corruption	Heritage Foundation
$PROPERTY_j$	Measures property rights	Heritage Foundation
$INVEST_j$	Measures freedom of investment flows	Heritage Foundation
$FINANCE_j$	Measures freedom of capital markets	Heritage Foundation

*Notes:* Table 1 provides a description and the sources of the variables used, where  $i$  refers to manager  $i$  and  $j$  refers to country  $j$ .

Table 2: Summary statistics

<b>Variable</b>	<b>Mean</b>	<b>Std. Dev.</b>	<b>Min.</b>	<b>Max.</b>	<b>N</b>
<i>TITR<sub>j</sub></i>	0.447	0.085	0	0.73	211,463
<i>DTR<sub>j</sub></i>	0.278	0.133	0	0.58	211,463
<i>CGTR<sub>j</sub></i>	0.298	0.13	0	0.61	211,463
<i>ITR<sub>j</sub></i>	0.393	0.103	0	0.59	211,463
<i>RTR<sub>j</sub></i>	0.397	0.11	0	0.59	211,463
<i>lGDP<sub>j</sub></i>	28.9	1.367	21.761	30.41	206,687
<i>lGDPPC<sub>j</sub></i>	10.652	0.228	7.681	11.705	206,687
<i>GROWTH<sub>j</sub></i>	0.715	0.669	-5.791	2.872	206,687
<i>CONT<sub>jk</sub></i>	0.003	0.059	0	1	164,530
<i>LANG<sub>jk</sub></i>	0.008	0.09	0	1	164,530
<i>COLONY<sub>jk</sub></i>	0.006	0.076	0	1	164,530
<i>lDIST<sub>jk</sub></i>	6.241	1.154	2.134	9.827	164,530
<i>HOME<sub>ij</sub></i>	0.763	0.425	0	1	211,463
<i>HOMENAT<sub>ij</sub></i>	0.569	0.495	0	1	211,463
<i>INCOME<sub>i</sub></i>	913.628	7,310.931	0	1,427,225.125	204,354
<i>AVGINC<sub>j</sub></i>	911.199	593.918	0	5,272.259	211,357
<i>ASSETS<sub>j</sub></i>	8.633bn	10.573bn	12,842.2	24.491bn	207,470
<i>TAXWW<sub>j</sub></i>	0.009	0.094	0	1	211,463
<i>CORRUPT<sub>j</sub></i>	76.534	9.586	16	97	206,455
<i>PROPERTY<sub>j</sub></i>	85.606	10.031	20	95	206,455
<i>INVEST<sub>j</sub></i>	79.459	11.448	20	95	206,455
<i>FINANCE<sub>j</sub></i>	77.214	11.701	30	90	206,455

*Notes:* Table 2 provides summary statistics of the variables used. Note that firm managers are the unit of observation. For country averages of the tax rates see Table 5. Billions are denoted by bn.

Table 3: Average composition of total income

	Direct	Equity	DCP	Other	Obs.
All observations	67.496%	26.878%	0.852%	4.773%	210,838
<i>INCOME</i> >USD 1 million	41.54%	51.101%	2.676%	4.681%	26,968

*Notes:* Table 3 gives the average share of the different income components of total income. Total income consists of direct compensations (Direct), share-based compensations (Equity), defined contribution pension plans (DCP) and other compensations (Other). The first row includes the total sample, the second only managers with income above 1 million USD.

Table 4: Highest-paid managers 2013

Company	Manager	Total Income (USD 1000)	Direct (USD 1000)	Equity (USD 1000)	DCP (USD 1000)	Other (USD 1000)	Country	Rank
<i>All managers</i>								
Health Care Reit Inc	George L. Chapman	591,917	876	590,831	13	197	USA	1
Smucker(J.M.)Co	Richard Kim Smucker	443,964	938	442,936	0	90	USA	2
Salesforce.Com Inc	Marc R. Benioff	218,964	1,000	217,029	0	935	USA	3
Smucker(J.M.)Co	Vincent C. Byrd	192,761	633	192,106	0	22	USA	4
Oracle Corp	Lawrence Joseph Ellison	133,871	1	132,324	5	1,541	USA	5
Smucker(J.M.)Co	Timothy Paul Smucker	100,082	627	99,386	0	69	USA	6
Oracle Corp	Mark Vincent Hurd	95,374	950	94,402	5	17	USA	7
Oracle Corp	Safra Ada Catz	95,372	950	94,402	5	15	USA	8
BP Plc	Robert W. Dudley	86,701	3,807	82,809	0	84	GBR	9
Hewlett-Packard (Hp) Co	Margaret Cushing Whitman	67,230	0	66,955	0	275	USA	10
<i>Only non-US managers</i>								
BP Plc	Robert (Bob) W. Dudley	86,701	3,807	82,809	0	84	GBR	1
Seagate Technology Plc	Stephen (Steve) J. Luczo	34,610	1,041	33,565	0	4	IRL	2
Aberdeen Asset Mgmt. Plc	Martin James Gilbert	28,755	2,516	26,236	0	3	GBR	3
Aberdeen Asset Mgmt. Plc	Hugh Young	28,748	2,290	26,236	0	221	GBR	4
Persimmon Plc	Jeffrey (Jeff) Fairburn	25,383	2,097	23,115	127	44	GBR	5
Roche Hldg Ag	Doctor Severin Schwan	23,686	4,264	18,840	581	0	CHE	6
Delphi Automotive Plc	Rodney O'Neal	21,964	1,616	20,319	17	12	GBR	7
Eaton Corp Plc	Alexander (Sandy) Cutler	21,625	1,135	20,365	9	116	IRL	8
Te Connectivity Ltd	Thomas (Tom) J. Lynch	21,421	1,041	20,144	12	225	CHE	9
Nxp Semiconductors N V	Richard (Rick) L. Clemmer	19,828	1,492	16,198	773	1,365	NLD	10

Notes: Table 4 lists the best paid managers I observe in the dataset for the year 2013. Total income consists of direct compensations (Direct), share based compensations (Equity), defined contribution pension plans (DCP) and other compensations (Other). The managers are ranked by income (Rank).

Table 5: Average income tax rates

<i>Tax measure</i>	<i>Average</i>	<i>Average 2006</i>	<i>Average 2013</i>
<i>TITR<sub>j</sub></i>	36.529%	37.442%	36.389%
<i>DTR<sub>j</sub></i>	21.875%	22.962%	21.750%
<i>CGTR<sub>j</sub></i>	17.237%	18.192%	16.833%
<i>ITR<sub>j</sub></i>	24.294%	25.692%	23.972%
<i>RTR<sub>j</sub></i>	24.424%	26.125%	22.167%

*Notes:* Table 5 provides summary statistics of the average income tax rates of the different countries.

Table 6: Results mixed logit

$IGDP_j$	0.573*** (0.017)	$HOMENAT_{ij}$	1.657*** (0.030)
$IGDPPC_j$	0.247*** (0.063)	$HOME_{ij}$	5.177*** (0.069)
$GROWTH_j$	-0.030 (0.020)	$TAXWW_j$	-1.052*** (0.144)
$HOMENAT_{ij}$	1.657*** (0.048)	$CORRUPT_j$	-0.005* (0.003)
$AVGINC_{jk}$	-0.000*** (0.000)	$PROPERTY_j$	0.014*** (0.004)
$CONT_{jk}$	-0.372*** (0.079)	$INVEST_j$	0.010*** (0.002)
$LANG_{jk}$	0.806*** (0.065)	$FINANCE_j$	0.015*** (0.002)
$COLONY_{jk}$	0.733*** (0.063)		
	<i>Mean</i>		<i>Standard deviation</i>
$TITR_j$	-1.015*** (0.237)		-0.005 (0.335)
<i>Obs.</i>	3,974,608		

*Notes:* Table 6 gives the results of the mixed logit specification where I estimate the probability to choose a country with different controls and the tax variable  $TITR_j$ . I allow for individual-specific heterogeneity of the tax parameter. The estimation is based on the Newton-Raphson optimization procedure, and 500 Halton draws. Standard errors in parenthesis.  
\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

Table 7: Results conditional logit

	(1) $TITR_j$	(2) $DTR_j$	(3) $CGTR_j$	(4) $ITR_j$	(5) $RTR_j$
<b>TAX</b>	-0.613*** (0.238)	-0.067 (0.175)	-0.414*** (0.148)	-0.085 (0.196)	-0.947*** (0.153)
$IGDP_j$	0.421*** (0.0191)	0.414*** (0.019)	0.433*** (0.020)	0.418*** (0.021)	0.480*** (0.022)
$IGDPPC_j$	0.680*** (0.067)	0.692*** (0.068)	0.681*** (0.068)	0.694*** (0.068)	0.756*** (0.068)
$GROWTH_j$	-0.042** (0.020)	-0.034* (0.020)	-0.038* (0.0120)	-0.033* (0.020)	-0.024 (0.020)
$AVGINC_j$	0.000* (0.000)	0.000** (0.000)	0.000** (0.000)	0.000** (0.000)	-0.000 (0.000)
$HOME_{ij}$	5.484*** (0.073)	5.495*** (0.073)	5.503*** (0.072)	5.497*** (0.072)	5.473*** (0.073)
$HOMENAT_{ij}$	1.598*** (0.048)	1.591*** (0.048)	1.596*** (0.048)	1.592*** (0.048)	1.608*** (0.048)
$CONT_{jk}$	-0.124 (0.080)	-0.116 (0.080)	-0.110 (0.080)	-0.114 (0.079)	-0.132* (0.079)
$LANG_{jk}$	0.771*** (0.064)	0.770*** (0.064)	0.764*** (0.064)	0.770*** (0.064)	0.786*** (0.064)
$COLONY_{jk}$	0.625*** (0.062)	0.620*** (0.062)	0.621*** (0.062)	0.620*** (0.062)	0.619*** (0.0620)
$IDIST_{jk}$	-0.554*** (0.031)	-0.547*** (0.031)	-0.544*** (0.031)	-0.546*** (0.031)	-0.557*** (0.031)
$ASSET_j$	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)
$TAXWW_j$	-0.956*** (0.138)	-0.825*** (0.135)	-0.881*** (0.128)	-0.830*** (0.137)	-1.076*** (0.133)
$CORRUPT_j$	-0.016*** (0.003)	-0.017*** (0.003)	-0.018*** (0.003)	-0.017*** (0.003)	-0.016*** (0.003)
$PROPERTY_j$	0.022*** (0.004)	0.023*** (0.004)	0.024*** (0.004)	0.023*** (0.004)	0.024*** (0.004)
$INVEST_j$	-0.003 (0.002)	-0.005** (0.002)	-0.005** (0.002)	-0.005** (0.002)	-0.005*** (0.002)
$FINANCE_j$	0.009*** (0.002)	0.009*** (0.002)	0.009*** (0.002)	0.009*** (0.002)	0.009*** (0.002)
<i>Obs.</i>	3,917,434	3,917,434	3,917,434	3,917,434	3,917,434
<i>Pseudo R<sup>2</sup></i>	0.9672	0.9672	0.9672	0.9672	0.9673

*Notes:* Table 7 gives the results of the conditional logit specification where I estimate the probability to choose a country with different controls and the tax variables  $TITR_j$ ,  $DTR_j$ ,  $CGTR_j$ ,  $ITR_j$ ,  $RTR_j$ . Standard errors in parenthesis. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ . Note that the number of observations is significantly larger than the number of managers as each alternative in the choice set in the data constitutes an observation.

Table 8: Results robustness checks

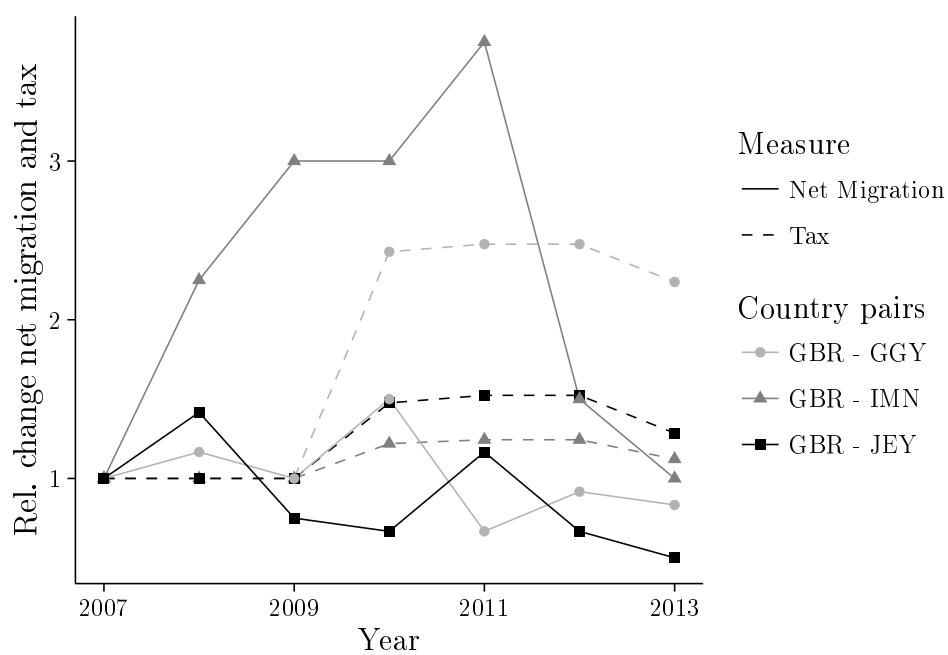
	(1)	(2)	(3)	(4)	(5)
$TITR_j$	-0.333 (0.265)	-0.240 (0.269)	-0.707*** (0.264)		
$DTR_j$			0.160 (0.195)	-0.090 (0.175)	
$CGTR_j$				-0.418*** (0.148)	
$AITR_j$					0.295 (0.261)
$IGDP_j$	0.428*** (0.022)	0.419*** (0.023)	0.424*** (0.020)	0.433*** (0.020)	0.407*** (0.020)
$IGDPPC_j$	0.848*** (0.079)	0.940*** (0.081)	0.688*** (0.068)	0.675*** (0.069)	0.691*** (0.068)
$GROWTH_j$	-0.056** (0.022)	-0.049** (0.023)	-0.040* (0.021)	-0.041** (0.020)	-0.030 (0.020)
$AVGINC_j$	0.001*** (0.0000)	0.001*** (0.000)	0.001* (0.000)	0.001** (0.000)	0.001** (0.000)
$HOM E_{ij}$	5.104*** (0.086)	5.210*** (0.088)	5.487*** (0.073)	5.499*** (0.073)	5.499*** (0.072)
$HOMENAT_{ij}$	1.663*** (0.053)	1.663*** (0.054)	1.600*** (0.048)	1.596*** (0.048)	1.588*** (0.048)
$CONT_{jk}$	-0.354*** (0.092)	-0.310*** (0.094)	-0.118 (0.080)	-0.114 (0.080)	-0.113 (0.079)
$LANG_{jk}$	0.851*** (0.073)	0.853*** (0.074)	0.770*** (0.064)	0.765*** (0.064)	0.768*** (0.064)
$COLONY_{jk}$	0.541*** (0.072)	0.577*** (0.073)	0.626*** (0.062)	0.621*** (0.062)	0.618*** (0.062)
$IDIST_{jk}$	-0.671*** (0.038)	-0.624*** (0.038)	-0.553*** (0.031)	-0.545*** (0.031)	-0.544*** (0.031)
$ASSET_j$	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)
$TAXWW_j$	-1.119*** (0.182)	-1.316*** (0.187)	-0.935*** (0.140)	-0.907*** (0.138)	-0.758*** (0.133)
$CORRUPT_j$	-0.015*** (0.004)	-0.013*** (0.004)	-0.015*** (0.003)	-0.018*** (0.003)	-0.017*** (0.003)
$PROPERTY_j$	0.019*** (0.004)	0.017*** (0.004)	0.021*** (0.004)	0.025*** (0.004)	0.022*** (0.004)
$INVEST_j$	-0.008*** (0.002)	-0.007*** (0.002)	-0.003 (0.002)	-0.005** (0.002)	-0.005** (0.002)
$FINANCE_j$	0.008*** (0.003)	0.004 (0.003)	0.009*** (0.002)	0.009*** (0.002)	0.010*** (0.002)
<i>Obs.</i>	2,803,341	2,741,338	3,917,434	3,917,434	3,917,434
<i>Pseudo R<sup>2</sup></i>	0.9653	0.9654	0.9672	0.9672	0.9672

*Notes:* Table 8 provides the results of the different robustness checks. (1) only includes firms with a market capitalization larger than USD 100 million, (2) only firms with revenues of at least USD 50 million. (3) - (5) include alternative specifications with respect to the tax rates:  $TITR_j$  and  $DTR_j$ ,  $DTR_j$  and  $CGTR_j$  as well as the  $AITR_j$ . \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .



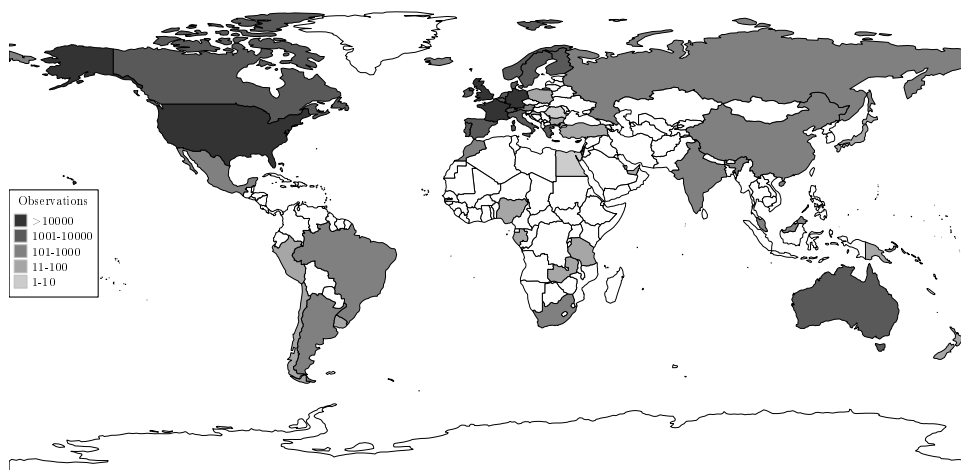
## B Figures

Figure 1: Income taxes and net manager migration



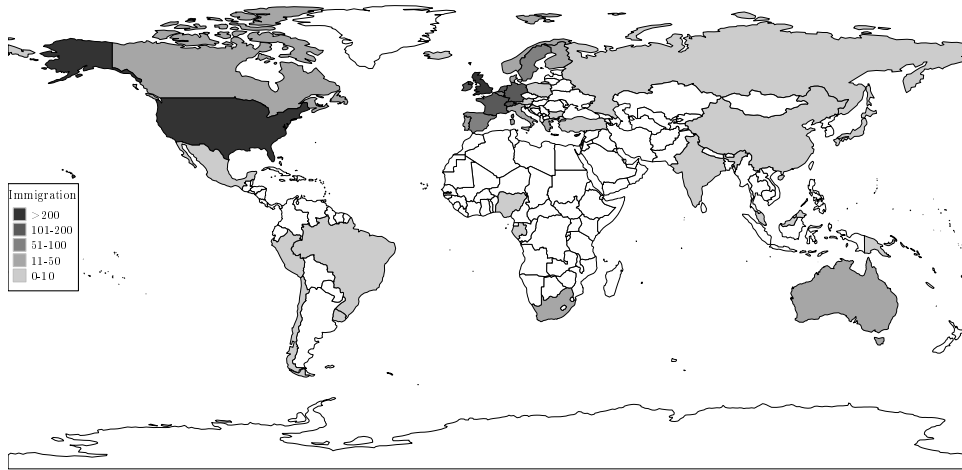
*Notes:* This graph depicts the change of the difference of the top income tax rate and the difference in the net migration flow of firm managers for the country pairs UK (GBR) - Guernsey (GGY), UK (GBR) - Isle of Man (IMN) and UK (GBR) - Jersey (JEY). The tax rate differentials and the migration rate are normalized to one in 2007. An increase in the tax measure indicates a relative tax increase in the UK, compared to the other country.

Figure 2: Observations across countries

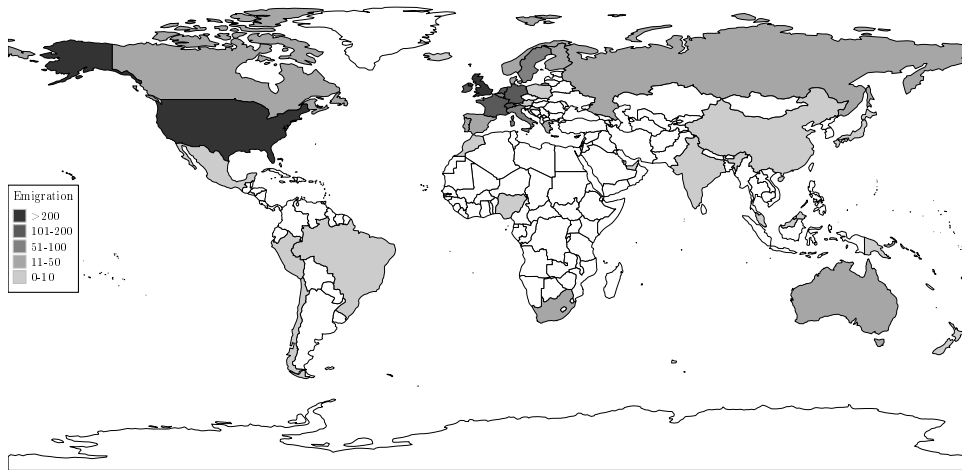


*Notes:* This graph depicts the worldwide distribution of the manager-year observations in the dataset.

Figure 3: Manager migration by country



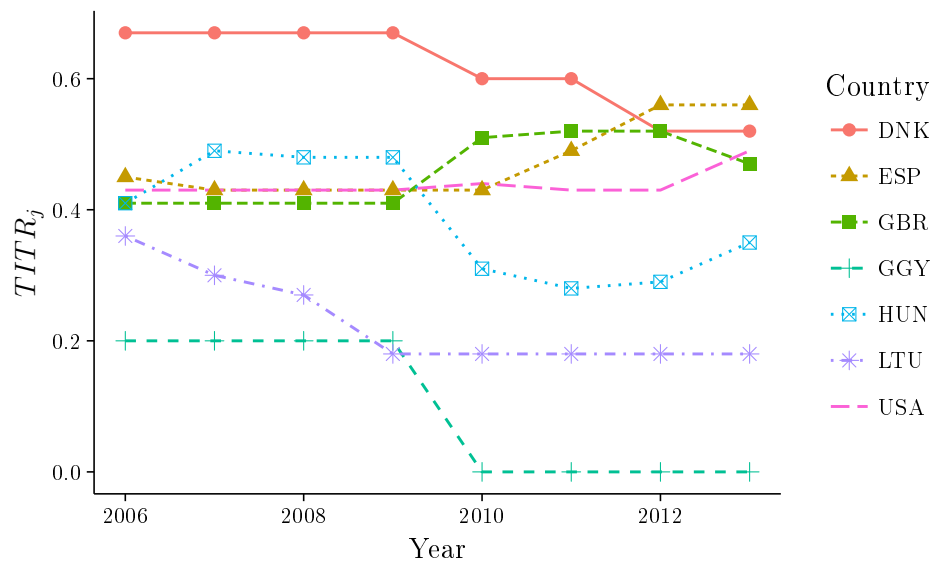
(a) Immigration



(b) Emigration

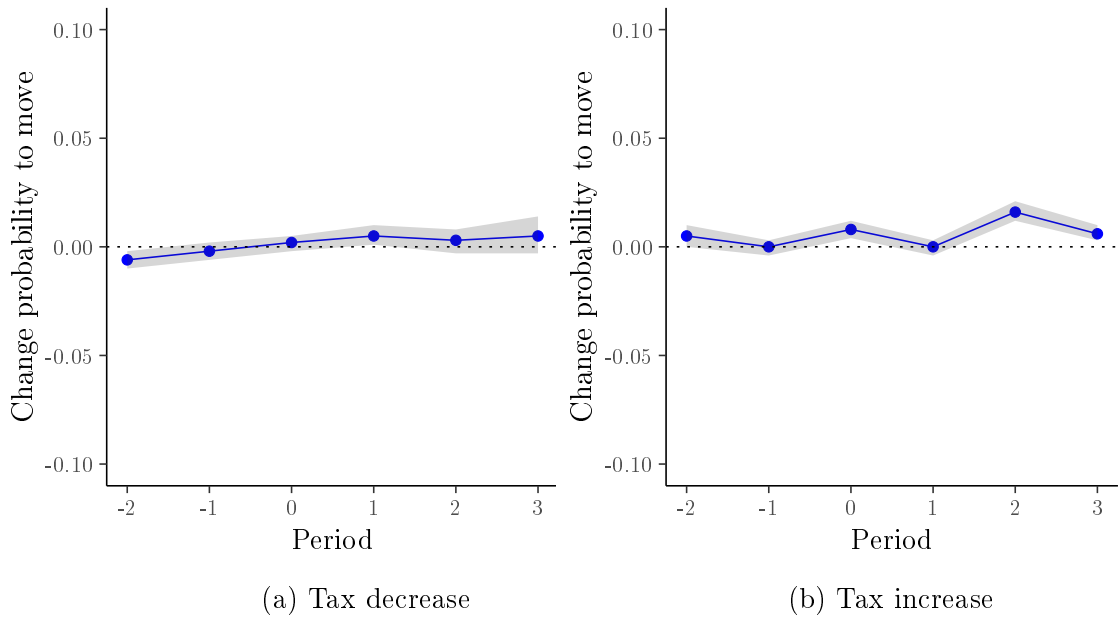
*Notes:* This graph depicts the number of total immigration (a) and emigration (b) of managers per country as observed in the dataset.

Figure 4: Variation of  $TITR_j$  by country



*Notes:* This graph depicts the change of the  $TITR_j$  over time for Denmark (DNK), Spain(ESP), the UK (GBR), Guernsey (GGY), Hungary (HUN), Lithuania (LTU) and the US (USA).

Figure 5: Event study



*Notes:* This graph depicts the results of the event study based on a linear probability model where I include dummies indicating a change in the  $TITR_j$  in  $t-2, t-1, \dots, t+3$  and the same country controls I use in the choice models. The gray area depicts the 95% confidence interval. The left-hand side shows the effect of a tax decrease in period 0 and the right-hand side of a tax increase in period 0 on the probability of managers to leave the country.