conseil d'analyse économique

Focus

No 036-2019

November 2019

# Profit Shifting in France: Evidence from Firm-Level Administrative Databases

Sébastien Laffitte[1], Mathieu Parenti[2], Baptiste Souillard[3] and Farid Toubal[4]

Profit shifting estimates vary as they depend on data sources and methodologies (*cf*. Bradbury, Hanappi and Moore, 2018). Still, a growing consensus is emerging about the sizeable effect of profit shifting on both governments' tax revenues and national accounts. Moreover, the differences across studies should rather be considered as a complementarity: macroeconomic and microeconomic approaches should be combined in order to capture the various channels and aspects of profits shifting. In the case of France, we conducted two studies, one on firm-level administrative data and one on firm-level survey data used to construct the balance of payments, to better understand the role of tax havens in multinational firms' behavior. This Focus presents these two studies and their methodologies.

## 1. Estimates of the impact of the presence in a tax haven on the taxation of profits

We use two main sources of information to construct a panel of firms resident in France over the 2009-2016 period:

- The Fare database provides the balance sheet and income statement of all French legal units. Notably, the dataset contains information on income tax, net income, number of employees, tangible and intangible assets;
- The LIFI database informs on the ownership structure of the legal units resident in France. In particular, it allows us to determine the nationality of the firm and the country of location of (some of) its affiliates (with information on the rank of ownership, control rate, etc.). The dataset does not have information on firms from the financial and insurance sectors. We therefore exclude them from the analysis.

(1) ENS Paris-Saclay and CREST.

(2) Université libre de Bruxelles (ULB), ECARES and CEPR.

(3) ULB, ECARES.

(4) ENS Paris-Saclay, CREST and CEPII, Member of the CAE.

Both databases are merged using the unique identifier of the firm. We then consolidate the balance sheets at the level of the group. The database thus consists of French groups, foreign groups and independent companies. We drop companies with less than 10 employees. We further remove the agriculture, forestry and fishing sectors (section A of NACE classification), extractive industries (section B) and public and para-public sectors (sections O-U).

In 2016, our sample represents only 4% of the total number of firms subject to the IS regime (identified by the RIF variable in the Fare file). However, it represents nearly 73% of the amount of the net tax revenue of the corporation from Fare data (€34.0 billion). French groups account for 45% of the number of companies in the sample and contribute to 66% of income taxes. It should be noted that these amounts are different from those mentioned in the accounting summary statements of the General Account (2017) due to the difference in the population of firms included in our analysis but also to the temporality of the tax payments. The accounting declarations of the tax deferred by the company may differ from the tax actually paid for reasons of deferral.

## Table 1. Descriptive statistics (2016)

| Type of business | Number (as a % of total) | Income taxes (as a % of total) |
|---|---|---|
| Independent | 48.88 | 5.45 |
| French groups | 45.29 | 66.10 |
| Foreign groups | 5.83 | 28.45 |
| Total in units/billions | 114,646 | 24.7 |

*Scope*: French companies with more than 10 employees from 2009 to 2016.
*Source*: Fare and LIFI. Calculation of the authors.

The final database indicates for each group holding at least one entity in France, its consolidated accounting information as well as information on its ownership and possible presence in a tax haven (assessed using the Dharmapala-Hines classification, *cf*. Dharmapala and Hines, 2009). In particular, thanks to information on the nationality of the ultimate beneficial owner and the nationality of the legal unit of each group, we identify the group's presence in a tax haven (Table 2). The number of companies with a presence in a tax haven is relatively low for French groups (1.36%). However, these groups represent 39% of total employment and 30.2% of income tax in 2016. More than half of the foreign groups on French territory have a presence in a tax haven (1.97%). These groups represent 9% of total employment and 16.3% of income tax in 2016.

## Table 2. Percentage of number of companies by location (in %, 2016)

| Type of business | Presence in a tax haven | | Total |
|---|---|---|---|
| | No | Yes | |
| Independent | 48.88 | — | 48.88 |
| French groups | 43.93 | 1.36 | 45.29 |
| Foreign groups | 3.86 | 1.97 | 5.83 |
| Total | 96.67 | 3.33 | 100 |

*Scope*: French companies with more than 10 employees from 2009 to 2016.
*Source*: Fare and LIFI. Calculation of the authors.

Profit shifting strategies often imply that the group has a legal entity in a tax haven defined by its low tax rate but also by its degree of opacity with regard to French tax legislation. We can compare the income tax on the profits of different multinational companies resident in France according to their nationality and whether they own a legal entity in a tax haven or not. For this analysis, we eliminate independent companies to facilitate the comparison between groups and quantification of results.

To make this comparison, we carry out an econometric analysis of the tax effects of the presence of different categories of companies in a tax haven. This analysis is conducted at the group level, $i$, for the period $t = 2009\text{-}2016$. Income tax ($I_{it}$) is divided either by employment or by current income before tax ($P_{it}$), in which case it is akin to an average effective tax rate.

We distinguish between French groups ($FRA_{it}$) and foreign groups ($ETR_{it}$). To derive the impact of presence in a tax haven, we interact the status of French and foreign groups with an indicator of presence in tax havens ($TH_{it}$). The estimated equation is as follows:

$$I_{it} = \beta_1(FRA_{it} \times TH_{it}) + \beta_2(ETR_{it} \times TH_{it}) + \beta_3\ Controls_{it} + \varepsilon_{it}$$

These effects are identified by controlling for group size, apparent labour productivity, the share of intangible assets and the capital intensity of companies. We also check for the country of origin effects of the groups by including fixed effects. Macroeconomic shocks and systematic differences across sectors are absorbed by year and 3-digit sector level fixed effects.

## Table 3. Econometric results

| | Employment tax (log) | Average effective tax rate (log) |
|---|---|---|
| French groups x tax haven | – 0.210$^{(***)}$ | – 0.256$^{(***)}$ |
| | (0.028) | (0.024) |
| Foreign groups x tax haven | – 0.092$^{(***)}$ | – 0.172$^{(***)}$ |
| | (0.034) | (0.027) |
| Controls: Total revenue, share of intangible assets, apparent labour productivity, capital intensity, | | |
| Fixed effects: Country of origin of the group, sector x year | | |
| Number of observations | 225,651 | 225,651 |
| Number of companies | 72,662 | 72,662 |
| R2 | 0.355 | 0.039 |

*Reading*: Robust standard errors in brackets. Cluster at the company level.
(***), (**) and (*) significantly different from 0 to 1%, 5% and 10% respectively.
*Scope*: French companies with more than 10 employees from 2009 to 2016.
*Source*: Fare and LIFI. Calculation of the authors.

To quantify tax avoidance, we revalue the taxes of groups in tax havens using the coefficients estimated in the econometric analysis. For regression-based quantification using the average effective tax rate, we calculate annual tax avoidance by applying the following formula:

$$\text{Tax avoidance} = \left( \frac{\frac{Tax}{P} \text{ of } FRA \text{ in } TH}{\left(1 + \hat{\beta}_2\right)} \right) \times P \text{ of } FRA \text{ in } TH - Tax \text{ of } FRA \text{ in } TH$$

The same methodology applies for the quantification based on the employment tax ratio.

## Table 4. Average values for the quantification of effects (2009-2016)

| Type of business | Income taxes (in euros) | Taxes on employees (in euros) | Average tax (in %) | Employment | Current result before taxes (in euros) |
|---|---|---|---|---|---|
| Foreign groups | 4,560,958 | 5.87 | 0.15 | 780,002 | 3.22E + 07 |
| French groups | 1.11E + 07 | 5.04 | 0.08 | 2,202,813 | 1.34E + 08 |

*Scope*: French companies with more than 10 employees from 2009 to 2016.
*Source*: Fare and LIFI. Calculation of the authors.

Combining Tables 3 and 4, we can infer annual tax revenue losses from profit shifting. With the effective tax rate formula, the amount reaches €4.6 billions, which we consider as a conservative estimate (Table 5).

### Table 5. Estimate of the impact of presence in tax haven on corporate income tax

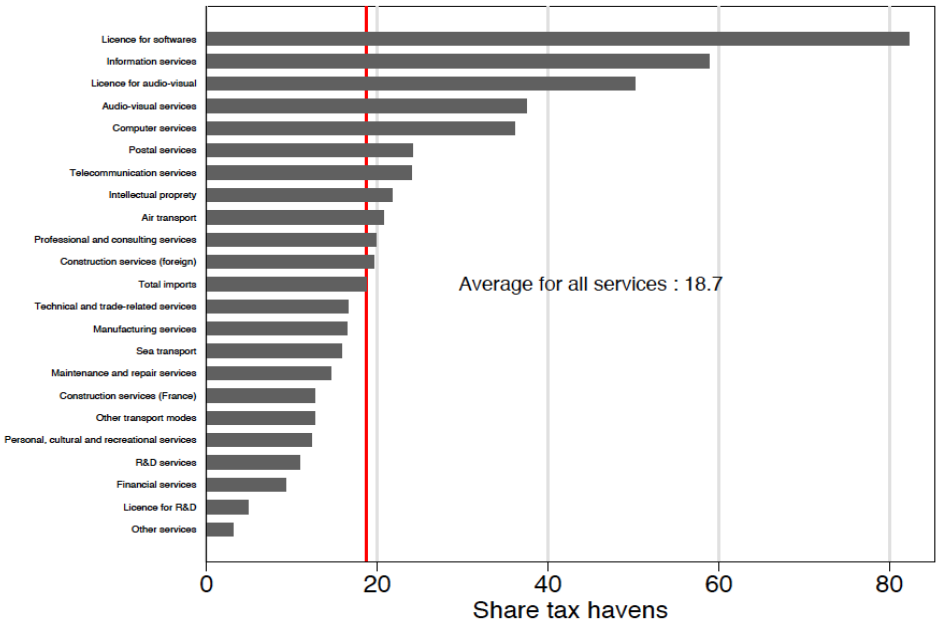
| Type of business | Effective average tax rate (in %) | Annual tax revenue loss (in billions) |
|---|---|---|
| Foreign groups | – 17 | 1.3 |
| French groups | – 26 | 3.3 |
| Total | — | 4.6 |

*Source*: Fare and LIFI. Calculation of the authors.

## 2. Trade in services and tax havens

The second approach consists in an analysis of trade in services of French firms. It shows a strong concentration of trade in services with tax havens, and especially European tax havens. Imports of services of France from tax havens suggest the use of artificial invoicing in tax havens for services provided in France.

### Graphic. Share of service imports from tax havens (2015)




*Source: Balance of Payments (2015), Banque de France. Calculation of the authors.*

Our analyses confirm the high concentration of service imports in a small number of European tax havens (Ireland and Switzerland in particular) and in a small number of large companies. 82% of imports of services related to the right to reproduce or distribute software come from tax havens. Ireland alone accounts for 4/5 of these flows. The largest importers (top 10%) represent about 98.5% of import flows. This concentration is observed in almost all service types. This suggests that the largest, most productive and most profitable firms are the main source of tax avoidance through tax havens.[(5)]

(5) Mispricing of goods concerns few multinational firms in a very small number of tax havens. See Davies, Martin, Parenti and Toubal (2018).

## Table 6. Distribution of imports activities across countries (2014)

| | Shares | | | | Concentration Top 10% importers by destination | |
|---|---|---|---|---|---|---|
| | Imports of services | Tax haven | EU tax haven | CH | All countries | Tax haven |
| Total imports | 100.0 | 18.7 | 11.3 | 5.1 | 73.1 | 90.1 |
| Technical and trade-related services | 27.5 | 16.6 | 8.2 | 6.0 | 75.4 | 89.4 |
| Professional and management consulting services | 9.2 | 19.9 | 14.1 | 3.7 | 64.0 | 80.8 |
| R&D services | 8.3 | 10.9 | 6.5 | 3.4 | 83.5 | 90.8 |
| Intellectual property | 5.7 | 21.7 | 12.4 | 8.8 | 72.6 | 93.6 |
| Telecommunication services | 5.2 | 24.0 | 11.5 | 9.9 | 73.3 | 97.1 |
| Computer services | 4.8 | 36.1 | 30.9 | 4.5 | 52.6 | 91.7 |
| Audiovisual services | 1.7 | 37.4 | 20.7 | 15.6 | 54.2 | 93.5 |
| License for softwares | 0.8 | 82.3 | 82.1 | 0.1 | 14.6 | 98.5 |
| Information services | 0.5 | 58.8 | 5.3 | 53.1 | 27.8 | 92.8 |
| License for audiovisual products | 0.3 | 50.2 | 19.8 | 0.4 | 32.3 | 99.7 |
| Others services | 36.2 | 15.4 | 9.1 | 3.0 | 77.2 | 87.4 |

*Sample*: Insurance services are not in the sample. Other services gathers transports services (24.81% of the aggregate), manufacturing services (4.3% of the aggregate) and other services (7.1% of the aggregate and less than 2.7% each).

*Sources:* DDG and ECEIS, Banque de France. Calculation of the authors.

A detailed description of these practices and their consequences requires the provision of more precise data on trade in services and their matching with the balance sheet data of companies located in France. The exercise performed above only takes into account the information for the largest firms. It is also necessary for firms to provide, as it is already the case in Germany, all balance sheet information on their subsidiaries located abroad and the details of their international transactions in services. This information is currently only available in France by survey and is very fragmented.

# Bibliography


Bradbury D., T. Hanappi and A. Moore (2018): "Estimating the Fiscal Effects of Base Erosion and Profit Shifting: Data Availability and Analytical Issues", *Transnational Corporations*, vol. 25, no 2, Special Issue on Investment and International Taxation.

Dharmapala D. and J.R.Hines Jr (2009): "Which Countries Become Tax Havens?", *Journal of Public Economics*, vol. 93, no 9-10, pp. 1058-1068, October.

Davies R.B., J. Martin, M. Parenti and F. Toubal (2018): "Knocking on Tax Haven's Door: Multinational Firms and Transfer Pricing", *Review of Economics and Statistics*, vol. 100, no 1, pp. 120-134, March.