Reforms and Dynamics of Income
Evidence Using New Panel Data

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1 Introduction

The years between 2011 and 2015 have witnessed a lot of tax reforms in France. Among them, the harmonization of the taxation of capital and labor and the top tax rate at 75% stand out. These are experiments that can teach us valuable lessons about underlying primitives and behavioral responses of agents, which are useful not only for France but also for other economics. In many or even most countries, the questions of whether to tax capital income the same way as labor income and how high the top tax rates should be are hotly debated. As a quasi-laboratory, the French experience can shed light on these issues. Over this period, the effective tax rates on capital income and labor income were increased for top earners.

In order to evaluate these reforms, we make use of a newly constructed panel data of the universe of French tax returns between 2011 and 2015 to study the responses of people to tax reforms on capital and labor income. Together with the companion paper on tax reforms, the current paper is a first step of a broader research project on innovation. The new available data will allow us to study the impact of tax reforms on the innovation behavior, as well as to look into models of optimal taxation that include innovation with its risk and externality dimensions. In this context, the scope of starting to look into the evolution of income for a broader population during this period rich in reforms before focusing on innovators is straightforward. Moreover, this preliminary research studies allow us to certify the validity of this newly constructed panel data.

In this paper, we start by describing the reforms that took place over this period and the data. We then turn to event studies for different types of income around the times of the reform which illustrate clearly the breaks in the time series of capital or labor incomes, especially among the top incomes. In particular, for the event studies of the top tax rate on labor income at 75% we replicate the results of Guillot (2019) using the new exhaustive panel dataset. We also study the rise in foreign bank account operations and life insurance contracts over this period and show that the rise in their number is mostly driven by top earners.

The final part of the paper performs a detailed joint estimation of the elasticities of incomes to labor and (several types of) capital income taxes. To do so, we construct for each agent a predicted tax change for each type of income and for each year, which is the tax rates he would face had the

composition of his or her income not changed, but the tax code changed as it did. This predicted tax change is then used to instrument the actual tax changes faced by different agents. There are several key advantages to our setting for this estimation: first, we have exhaustive population-wide tax returns which ensures a lot of variation in the effective tax rates on capital and labor income. Second, at the same income level, agents will face different tax rates because of their pre-existing composition of income (say, the share of their income that is in the form of dividend income, versus capital gains, versus labor income). We can thus estimate elasticities to labor and capital income taxes even controlling for total income (and many other individual characteristics).

The preliminary results in the event studies show that dividends and total capital income fell sharply for the top income group after 2012. For labor income, the top earners who were subject to the top 75% tax rate saw their labor income fall until the tax was abolished again two years later. There is also a marked reduction in the number of taxpayers that fall above the top tax rate threshold during the same time (and a corresponding increase in their number after the tax is repealed).

2 Tax reforms

Many reforms were implemented during the 2011-2015 period. Most of these reforms were endorsed and implemented by president Francois Hollande. These tax changes can be classified in several types of measures. Firstly, some of the tax reforms were directly targeted at the overall income of households through several changes of the progressive personal income tax schedule. To name only some of these changes: *(i)* an additional top tax bracket at 45% was added in 2012, *(ii)* the ceiling of the benefit from the income splitting mechanism was progressively reduced, *(iii)* the ceiling for tax benefits was reduced as well and *(iv)* the 5.5% tax bracket was removed from the progressive scale. Generally, these measures led to significant increases of the marginal tax rate of top income households. Secondly, the objective of the new president was to align the taxation of capital income on that of labor income. This translated into a significant reduction of the types of income that could be tax at a flat tax rate. Thus, dividends, interest and capital-gains started to taxed through the progressive income tax scale in 2013. Moreover, a tax of 75% on labor income above 1M€per year was introduced in 2013. Finally, other reforms of the taxation firms were implemented: an exceptional contribution to the corporate tax, contribution on distributed income and capping of the deductibility of interests. It is worth point out that these measures had potentially an impact on the amount of dividends firms distributed during this period.

Other reforms, were implemented or voted (and implemented afterwards) by the previous gouvernments. Two mains measures stand out. Firstly, an exit tax started to be implemented as of March 3^{rd} 2011. Thus, the transfer of the tax domicile outside France leads to the taxation of unrealized capital gains or capital gains that, previously, benefited from a tax deferral[1]. Secondy,

[1]For the former, only households that have been tax residants in France for at least 6 years in the last 10 years are concerned. For the latter, the taxation is automatic and there is no tax residency condition.

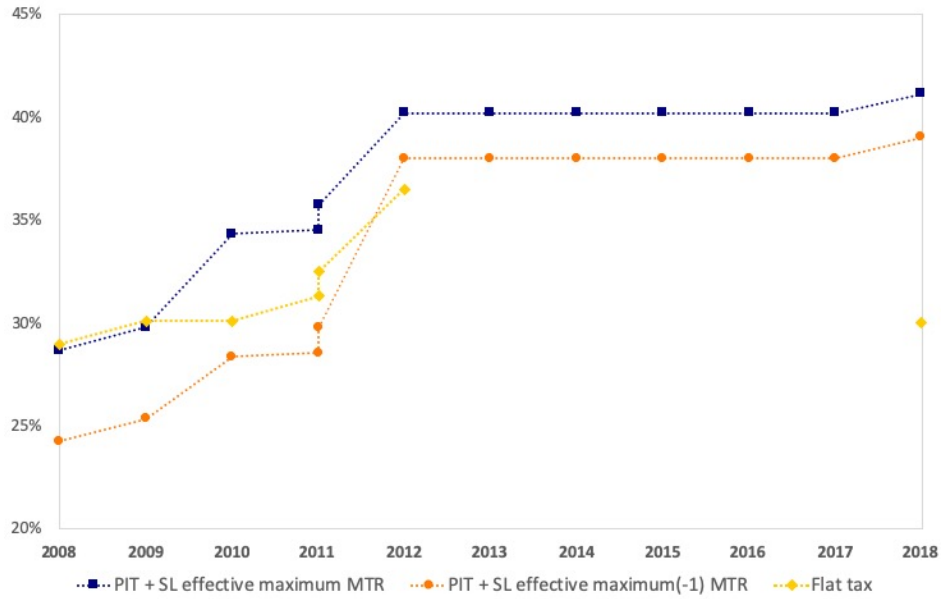
the tax shield system for households (*bouclier fiscal)* was abolished in 2013[2]. Before 2013, the total amount of direct tax payed by a fiscal household during the year when the income was earned or the following year (as for personal income tax and social levies), as well as other taxes as the wealth tax and local taxes could not exceed 50% of the income ofr that year. After 2013, the mechanism is abolished following a infringment procedure by the European Commission as only French fiscal residants could benefit from it. The change was voted at the end of 2011 and started to be implement in 2013 given the way the capping was computed. But, at the same the capping of the wealth tax was introduced.

2.1 Capital income reforms

Dividends

Taxation of dividends, or more generally income from variable-yield securities was modified several times since 1994. The particularity of dividends is that they are distributed in general after the corporation tax was payed. In order to avoid a possible double taxation issue of dividends, special mechanisms are generally put in place. Before 2005, this issue was accounted for through a tax credit (*avoir fiscal*). In 2005, the system was abolished and replaced with a direct taxation of the amount of dividends after a taxable base allowance of 50% and a family deduction. In 2006, the allowance was reduced to 40% and the family deduction increased.

FIGURE 1: Marginal tax rates according to the type of taxation



Notes: The flat tax value takes also into account social levies.

The first significant reform intervened in 2008 with the creation of a flat-rate regime (*Prél'evement forfaitaire libératoire*) of 18% applicable at the option of the taxpayer that was progressively in-

[2]But, it was voted in 2011

creased. In 2013, the second important reform was implemented leading the dividends to be taxed through the progressive income tax scale after applying the 40% deduction allowance. However, the flat-rate levy (*Prél'evement forfaitaire obligatoire-PFO*) was maintained. The related tax liability is payed at source at reimbursed the following year through a tax credit system. It is worth noting here that one of the objective of this mechanism was to encourage households to declare all their dividends income in order to be reimbursed of the flat-rate tax liability collected at source.

Bonds

Bonds or more generally income from fixed-income securities have almost always had the two possible regimes : *(i)* taxation through the progressive income tax schedule and *(ii)* a flat-rate withholding tax. The flat-rate was modified several times over the last 20 years. It was drastically reduced at the time of the free movement of capital from 25% to 17%, then it was raised to 19% in 2010-11, to be increased to 24% in 2012. The reform of 2013 introduced as for dividends a non-discharging mandatory withholding tax collected at source and reimbursed the following year.

Capital gains

For capital gains it is useful to make the distinction between capital gains realised by private individuals and business capital gains. Capital gains earned by individuals: before 2013, they were subject to a flat-rate taxation without the possibility of opting for standard PIT scale. There was en exoneration threshold, but no specific allowance deduction. For business capital gains, a distinction is drawn for tax purposes between long-term and short-temr capital gains (or losses). Generally, short-term capital gains are included in the business profit that is taxed through the progressive income tax scale, while long-term capital gains are taxed at a flat-rate. After 2013, taxation of capital gains was greatly reformed as these gains are systematically taxed at the progressive rate of the PIT scale. However, allowances for the duration of ownership have been introduced. In 2014, the allowance deduction mechanism was reinforced for specific transaction as investments in startups or the sale by a company executive of his shares at his retirements. It is interesting to point out here that the latter is frequently used by top income households. Finally, capital gains on property are subject to similar tax regimes.

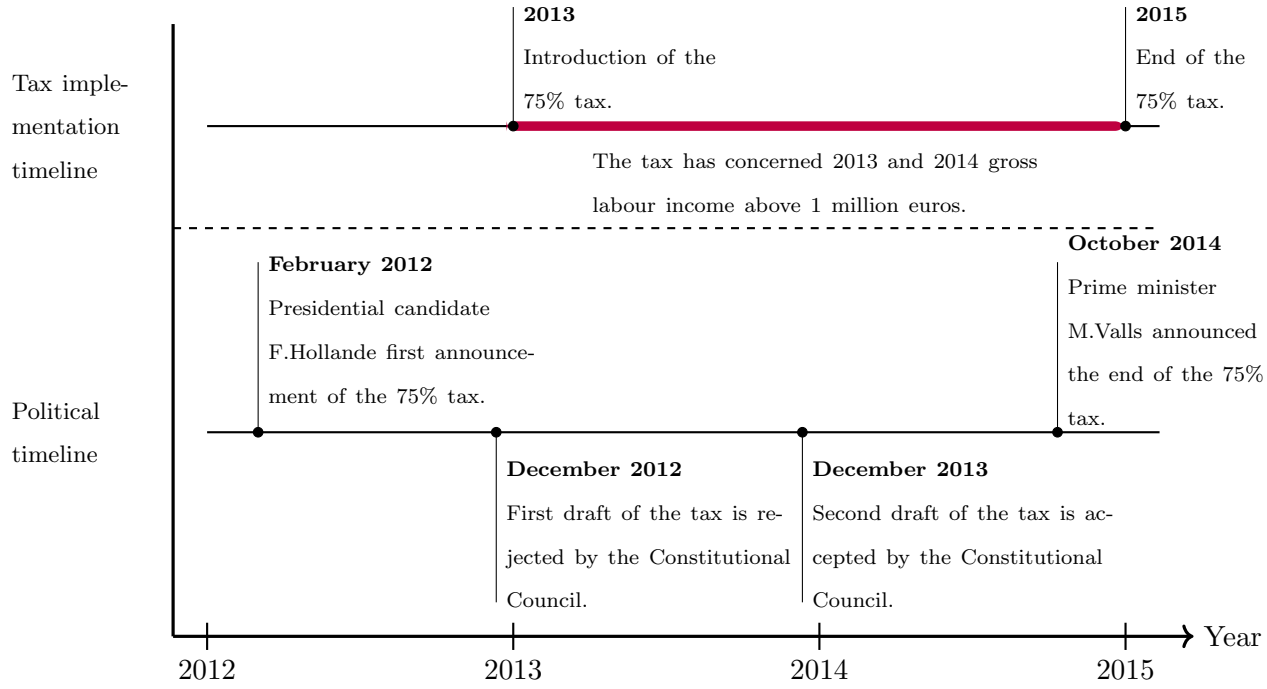
2.2 Top 75% Tax rate Reform

A flagship tax measure was the tax on high labor incomes. The measure was announced in 2012 by the then presidential candidate, Francois Hollande, with the objective to introduce a 75% tax on labor incomes above 1 M€per year. After several changes, the measure was implement in 2013, but disappeared in 2015. The Figure 2 shows the precise implementation timeline of the 75% tax on labor income. The tax was intented to be paid by firms that undertake activities in France and have at least one individual remuneration[3], denoted *gross labor income* hereinafter, larger than 1

[3]The firms could either be subject to the personal income tax of the corporate tax.

million €per year. The main tax rate is 50% on the share of gross income above 1 million €. When adding social contributions, the overall tax rate is closer to 75%[4].

FIGURE 2: Timeline of the implementation of the 75% tax



3 Data

We use data from national income tax records covering the period 2011-2015, which refers to the year in which the income is earned[5]. Our panel dataset is constructed using data of the full French population filling a personal income tax retunr from the General Directorate of Public Finance[6]. The coverage is high because filling an income tax record is mandatory in France, even when households are not taxed. This data contains detailed information on all incomes reported by households. It also contains socioeconomic variables on individuals such as gender, age, marital status, actual location and birth place. Two major contributions of this paper are (1) to tranform these household-level income tax returns to individual-level data, and (2) to transform these cross-section data to an individual-level panel[7].

Our benchmark sample consist of all individuals who are French fiscal resident and do not experience a change in their marital status. We restrict our analysis to these individuals as we can compute a coherent definition of income for them[8]. We only consider taxpayers and not dependants

[4]Note that the total amount of the tax cannot exceed 5% of the firm's turnover.

[5]During our time period, France had an income tax system where incomes earned in year T where taxed in year $T+1$, at the household level.

[6]*Direction Générale des Finances Publiques*

[7]The data is made available through the CASD - *Centre sécurisé d'acc'èss aux données.*

[8]Non fiscal residents have extraterritorial incomes we have not access to. Individuals changing their marital status

such as children. There are approximately 36 millions unique households for 48 millions unique taxpayers each year.

4 Event studies

4.1 Capital income reforms

Subsection 2.1 presents the changes of the taxation of capital income in 2013. All types of capital income (dividends, bonds and capital gains) to the introduction of the progressive taxation through the income tax schedule. Nonetheless, dividends, were the most likely to react to the tax change given the fact that the flat taxation was optional before 2013. The criteria households should have used when choosing the flat rate or the progressive taxation are established in Appendix A-2.1. The main criterion was the marginal tax rate. More precisely, the flat rate taxation was advantageous only for households that had a marginal tax rate larger than 30%. The difficulty is what marginal tax rate should be taken into account as a sufficiently large amount of dividends could have led households moving to a superior tax bracket. Thus, we should a counterfactual marginal tax rate, that is the marginal tax rate the households would have been subject to if the dividends were directly taxed through the progressive personal income tax scale.

In this subsection we look at the evolution of different types of income for groups of households defined on their counterfactual situation. Ideally, we would have liked to have a taxable income equivalent that takes into account dividends taxed at a flat rate, but also the other types of income that change the type of taxation in 2013. At this stage, we use the fiscal income as a proxy. We define then groups of households according to their: *(i)* income group computed on the fiscal income by the number of shares or *(ii)* tax bracket (*ie.* marginal tax rate[9]). Households are then fixed in their 2012 group. Figure 3 shows the evolutions for income groups and Figure 4 for tax brackets[10].

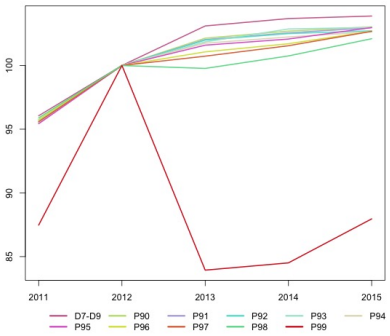
have to make two declarations for each part of the year corresponding to a distinct marital status. The personal income tax schedule is then applied on each declaration separatly and the corresponding amount of taxes are aggregate for the entire year, making it difficult to define coherent income measures.

[9]The marginal tax rate is computed without taking into account the capping of the splitting mechanism and, also, the exceptionnal contribution on top incomes.

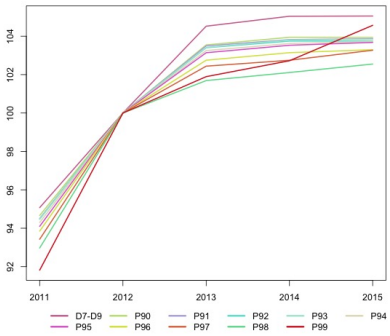
[10]Low income households are taken out of the figures as the data for these groups is noisy and, very often, not characteristic of the overall evolution. The Figures A-4 and A-5 show the evolutions for all the defined groups.

FIGURE 3: Event study capital income tax reform (by income groups and base year 2012)

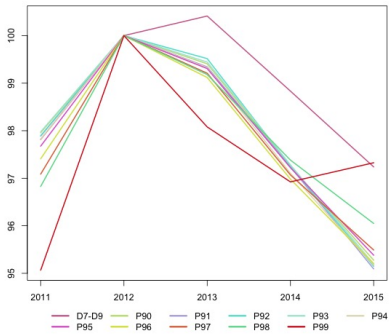
(a) Fiscal income



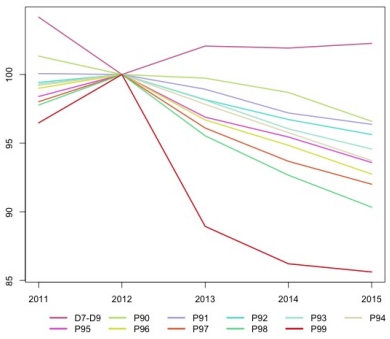
(b) Taxable income



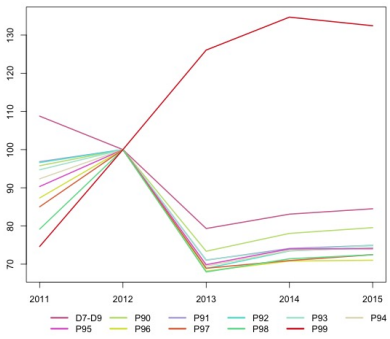
(c) Total earnings



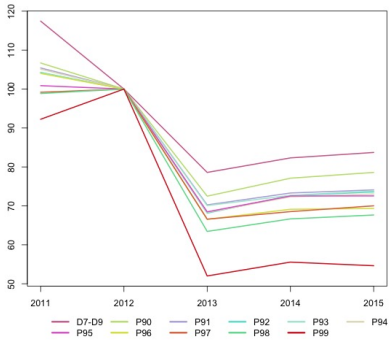
(d) Self-employment income



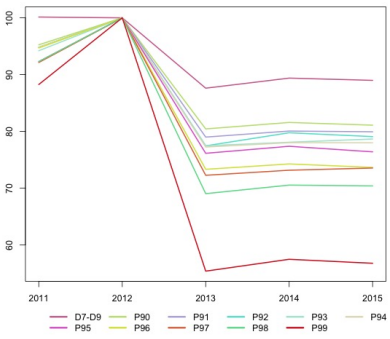
(e) Dividends (2dc)



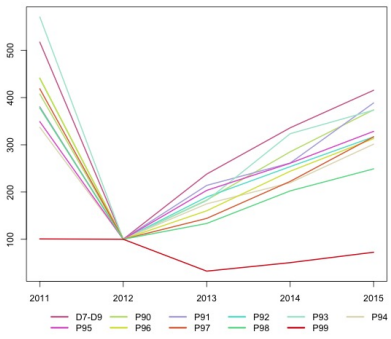
(f) Dividends eligible to the flat tax



(g) Capital income



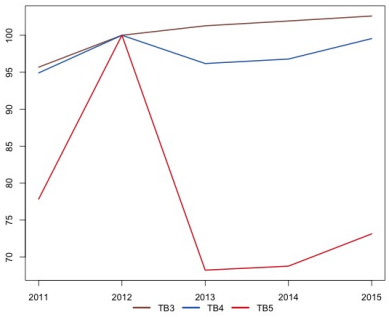
(h) Capital gains



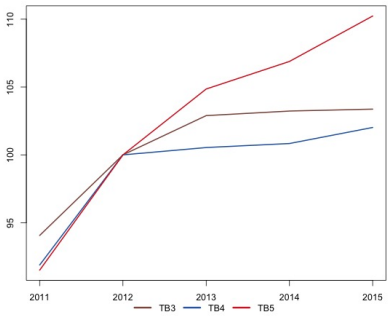
Notes: The Figure shows the evolutions of differents types of income by fixing households in their 2012 income group. The income groups are defined using the fiscal income by the number of shares without taking into account the null values. The income variables considered are: (a) the fiscal income which is a good proxy for total income, (b) taxable income which is the income that is taxed through the porgressive income tax schedule, (c) Total earnings that includes standard earnings and wages and other type of compensations as capital gains considered by the fiscal administration as wages and taxed as such, (d) Self-employment income in the standard regime (ie. without limits on the turnover or the total household income), (e) Dividends that are in principle eligible to the flat taxation (before 2013), but are taxed through the progressive schedule (they are declared in the box 2dc of the tax return), (f) Dividends eligible to the flat taxation regarless of how they are taxed, (g) Capital income that includes all type of income from dividends, bonds or life-insurance contracts and (h) Capital gains that were concerned by the tax reform (ie. that were subject to the progressive taxation after 2013).

FIGURE 4: Event study capital income tax reform (by tax bracket and base year 2012)

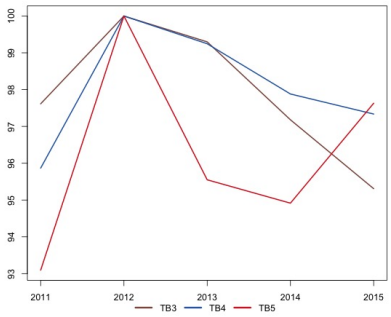
(a) Fiscal income



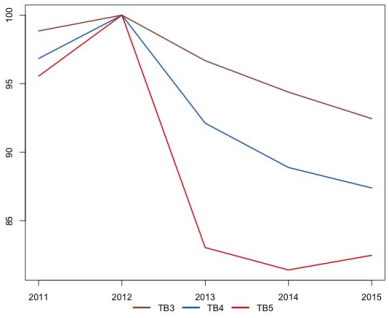
(b) Taxable income



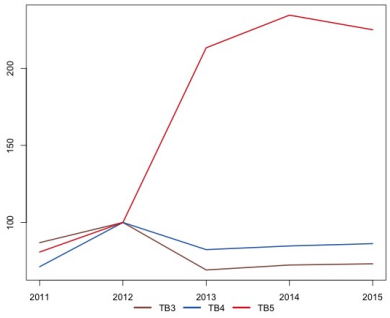
(c) Total earnings



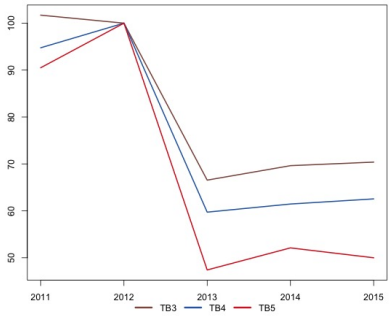
(d) Self-employment income



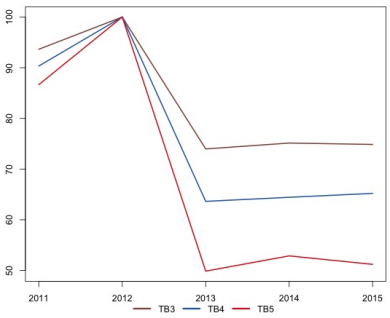
(e) Dividends (2dc)



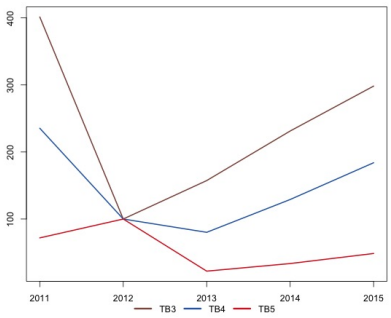
(f) Dividends eligible to the flat tax



(g) Capital income



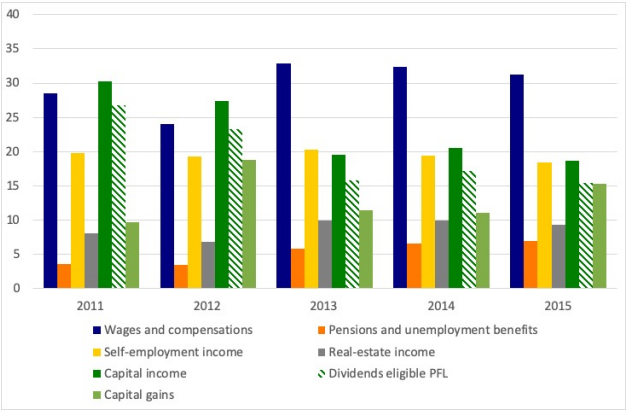
(h) Capital gains



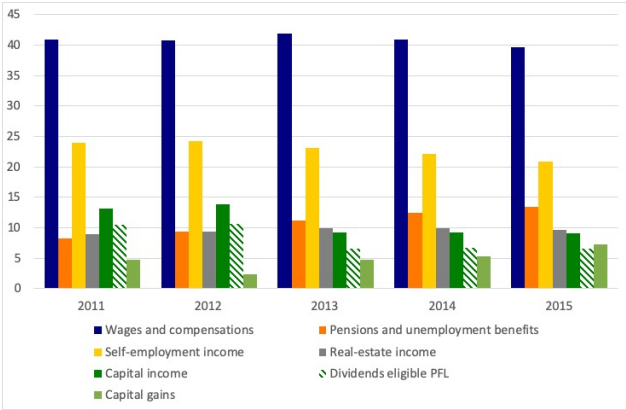
Notes:The Figure shows the evolutions of differents types of income by fixing households in their 2012 tax bracket. The tax brackets are defined using the fiscal income by the number of shares. The capping mechanism, which could increase the marginal tax rate for some households, is not taken into account. For more details regarding the income variables considered see Notes to Figures 3.

FIGURE 5: Evolutions of the income composition by tax bracket groups

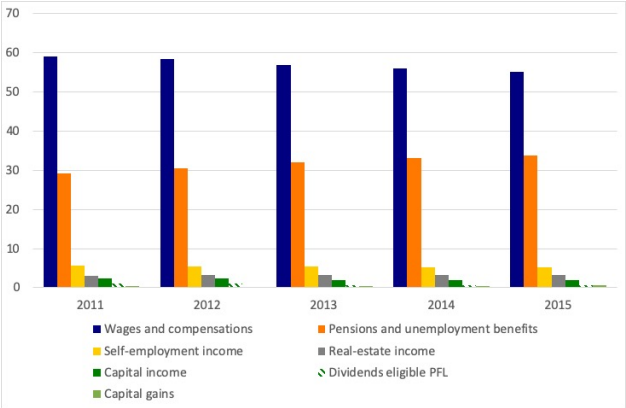
(a) Tax bracket 5



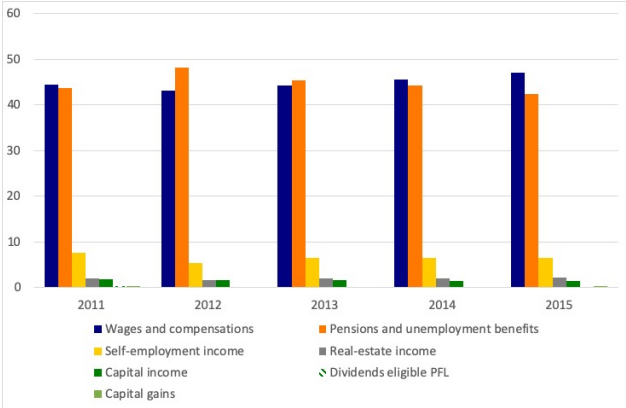
(b) Tax bracket 4



(c) Tax brackets 1 to 3



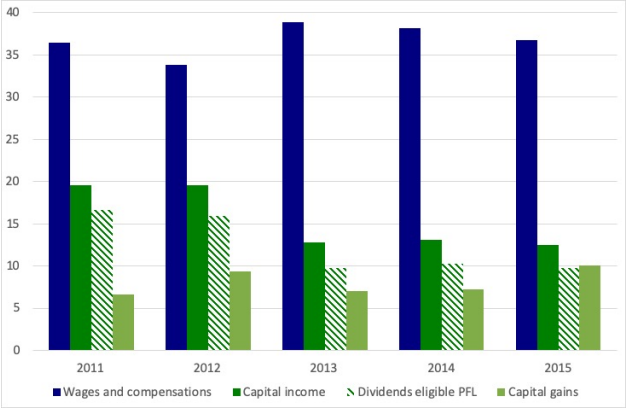
(d) Tax bracket 0



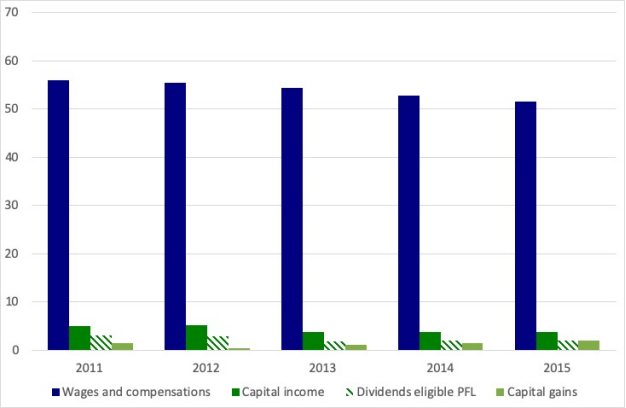
Notes: The Figure shows how the structure of income changes for different groups defined by their 2012 tax bracket. For example, Figure 5a shows how the shares of different types of income change over the period for households that were in 2012 in the last bracket. The tax brackets are defined as in Figure 5 by using the fiscal income by number of shares. For a detailed presentations of the different income variables, see Appendix **??**.

FIGURE 6: Evolutions of the income composition by income groups

(a) P99



(b) P90-P98



Notes: The Figure shows how the structure of income changes for different groups defined by their 2012 income group. The income groups are defined using the fiscal income by number of shares without taking into account the null values. For a detailed presentations of the different income variables, see Appendix **??**.

4.2 Top 75% Tax rate Reform exploiting the panel[11]

The gross income is used to define the eligibility to the tax. This labor income aggregate is larger than earnings, and includes several other compensations[12]. Moreover, the gross labor income is different from the taxable income, itself different from the net-to-pay income (that taxpayers actually earn). Figure 7 summarizes the different definitions.

For the event studies, we use a restrictive definition, yet sufficient, of the gross labor income. It only includes wages and compensations ($revs_{wage}$ in the appendix on income aggregates). Since we only have the taxable wage, we had to invert the social contributions tax schedule to recover the gross labor income. For the sake of simplicity we took at this stage the social contributions tax schedule for an executive (*cadre*). Note that when an individual has two tax records in a given year (after the death of her/his spouse for example), we sum her/his wages. Finally, use a panel dataset at the individual level[13].

[11] In this section we replicate the results of Guillot (2019) using the exhaustive panel dataset

[12] The income aggregate used to compute the eligibility to the tax includes: (i) wages and compensations (*salaires et traitements*, (ii) attendance fees (*jetons de présence*, *(iii)* pensions, supplements and compensations related to retirement (*pensions, compléments de retraite, allocations ou avantages assimilés attribués en raison du départ à la retraite*, *(iv)* monetary incentives plans and employee savings plans (*intéressement, participation et épargne salariale*, *(v)* subscription options, purchase shares, free shares and stock-options (*options de souscription ou d'achat d'actions, attributions d'actions gratuites (AGA) et bons de souscription de parts de créateur d'entreprise (BSPCE)*) and *(v)* reimbursement of individual remunerations to other entities (*remboursement á des entités des éléments de rémunération*).

[13] It contains about 99% of the initial observations from the cross-section dataset.

FIGURE 7: Definitions of the different labor income aggregates

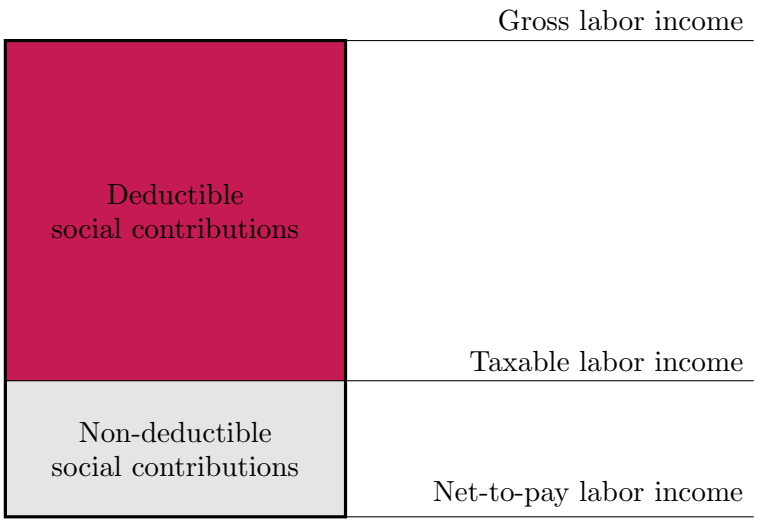
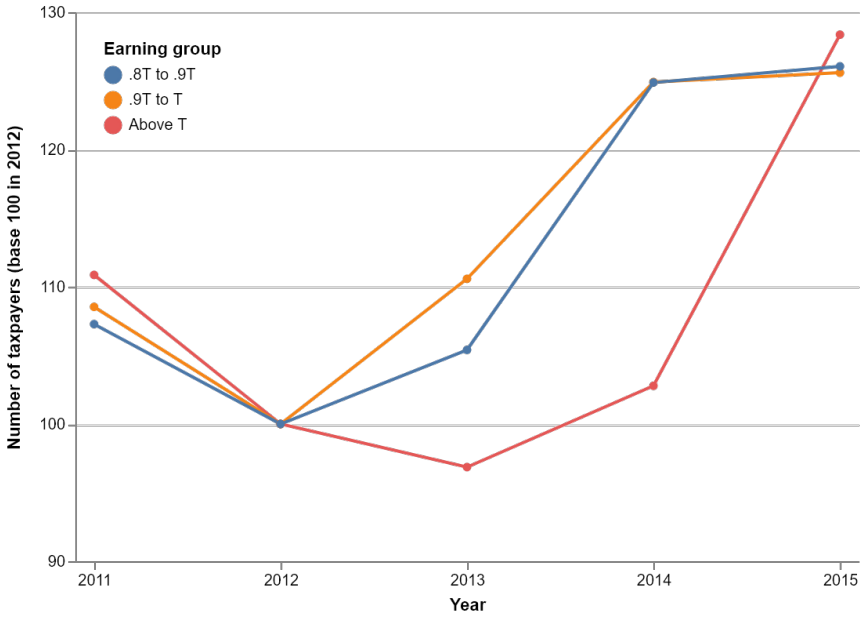


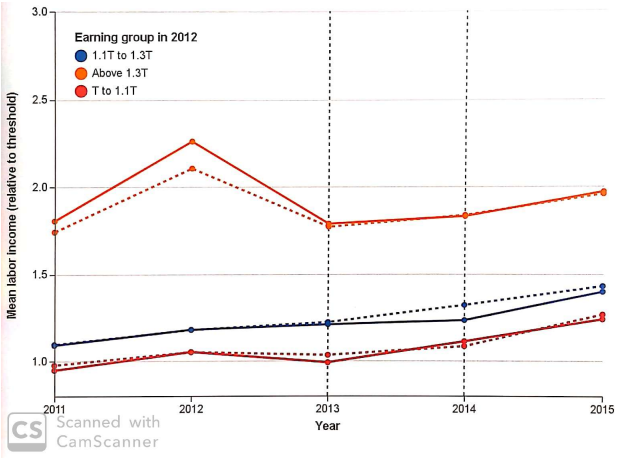
FIGURE 8: Evolution of of the number of taxpayers by earning group



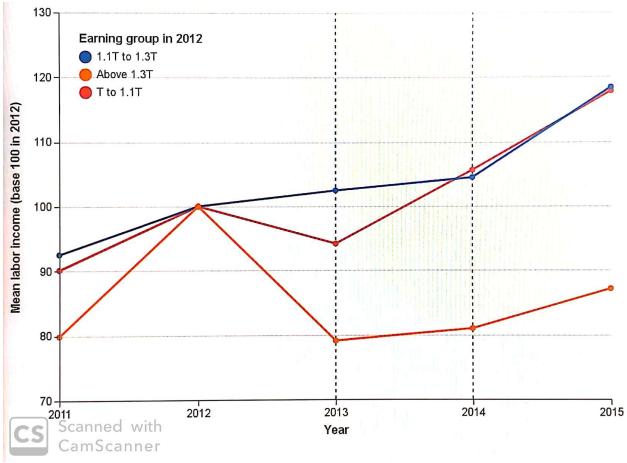
Notes: The figure shows the evolution in the number of taxpayers by earning group between 2011 and 2015. The two vertical lines (2013 and 2014) denotes years where the tax on high labor income was in place. The number of taxpayers in 2012 are normalized to 100 in all groups. The earning groups are construted using $revs_{wage}$ and computed relative to the threshold T = 1,000,000 euros. The red curve denotes taxpayers above the threshold in a given year, while the orange and blue curves are used as contrefactual (taxpayers just below the threshold). The red curve decreases in 2013, increases slowly in 2014 and increases sharply in 2015, while counterfactual curve only experiencea continuous increase in this period.

FIGURE 9: Evolution of the mean labor income by earning group

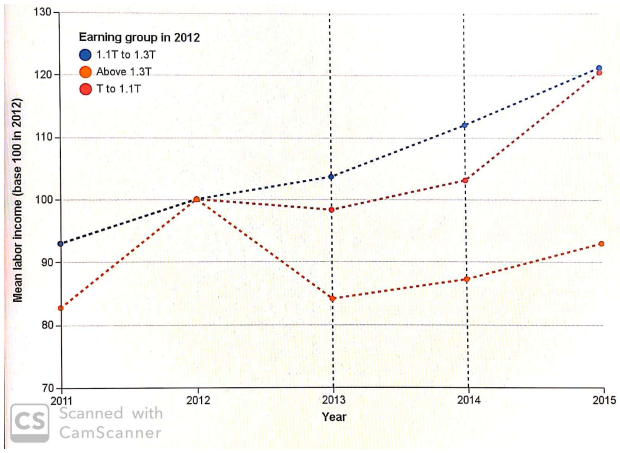
(a) Relative to threshold



(b) Base 100 in 2012



(c) Base 100 in 2012 conditional on being here the whole period



Notes: The figure shows the evolution in the mean gross labor income by earning group between 2011 and 2015. Groups are determined according to their gross labor income relative to the threshold in 2012. The two vertical lines (2013 and 2014) denotes years where the tax on high labor income was in place. The earning groups are construted using $revs_{wage}$ and computed relative to the threshold T = 1,000,000 euros. Panel (a) shows the evolution of the mean gross labor income relative to the threshold by income group. Solid lines denotes estimation on all observations available, while dashed lines denotes estimation using only taxpayers who are available throughout the period. Panel (b) shows the evolution of the mean gross labor income when incomes level in 2012 are normalized to 100 for all groups. It uses all available observations. Panel (b) shows the evolution of the mean gross labor income when incomes level in 2012 are normalized to 100 for all groups. It uses taxpayers who are available throughout the period.

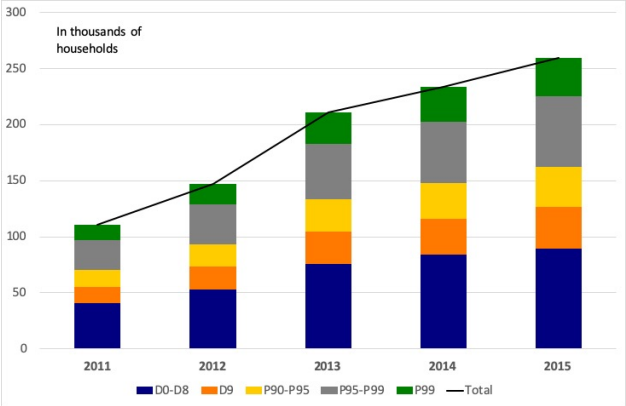
5 Evidence on foreign income

One variable of interest is the number of foreign bank account operations. More precisely, households have to declare each year if they undertook at least one operation in a bank account outside France. By operation, it is understood closing, opening or any other operation. Figure 10a

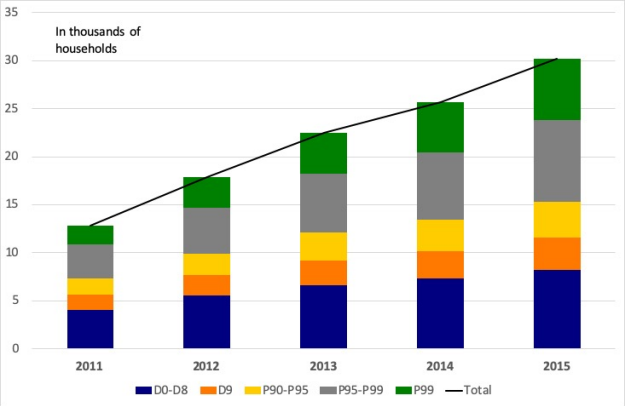
shows the evolutions of the number of this type of operations. Most probably, there is a growing trend in the evolution, but they increased significantly in 2013, the year the two major reforms were implemented. Moreover, half of this increase is explained by the reporting of the households in the top 10% of the income distribution. It is worth pointing out that this number represents a lower bound for the number for operations in foreign accounts as households have to declare if they had at least one operation. Also, the number of these operations continues to grow after 2015 which is consistent with opening and other operations than the closing of a bank account. Nevertheless, it is difficult to say if this increase is directly linked with the two reforms as in 2013 a type of tax amnesty started to be implemented in France[14] which encouraged households to declared bank accounts, income and wealth that was not previously declared in order to benefit from a lower fiscal fine. This measure explains probably to some extent the observed rise in 2013, but it is not straightforward to know exactly. Further explorations of our data will help us have more insights of the explation of this evolution. Figures 10b shows the evolution of a similar variables but for the number of foreign life-increase. These contracts display a growing trend, but there is no parrticular evolution in 2013.

FIGURE 10: Number of foreign bank accounts operations and life-insurance contracts

(a) Bank accounts operations



(b) Life-insurance



Notes: The Figure shows the evolutions of the number (in thousands) of households tha reported having undertaken some kind of operations in foreign bak accounts (Figure 10a) or reported having at least one life-insurance contract outside France (Figure 10b). By bank operation, it is understood opening, closing of any operation in a foreign bank account. The levels for different income groups are also shown in the Figures. For example, half of the reported bank operations in 2013 were undertaken by households in the top 10%. Finally, the income groups are defined using the total declared income without taken into account the null values.

[14] *Service de Traitement des Déclarations Rectificatives.*

References

Aghion, Philippe, Vlad Ciornohuz, Maxime Gravoueille, and Stefanie Stantcheva, "Anatomy of Inequality in France," Working Paper.

Guillot, Malka, "Who Paid the French 75% Tax on Millionaires? Effects on Top Wage Earners and Their Employers," *Available at SSRN: https://ssrn.com/abstract=3412261*, 2019.

APPENDIX

A-1 Tables and Figures

A-1.1 Basic descriptives cross-section

This section presents basic descriptives on the income distribution using only cross-section data. The statistics are computed at the households level on the whole dataset without any treatment for double tax returns for an individual by year and without taking into account tax returns that have a number of shares equal to zero (about 650 observations). This dataset has 184,141,964 observations (or tax returns). The income groups are generally defined on the total declared income [15], but the statistics and figures are very similar if other definitions of the income groups are considered as: *(i)* using other total income variables (taxable income or fiscal income) or *(ii)* dividing the income variable by the number of shares of the household.

TABLE A-1: Summary statistics

		D0-D9	P90	P95	P99	P99.9	P99.99
Panel A							
Age		50.1	52.1	52.3	52.9	54.2	55.9
Married or in a Civil Union		29.8	84.3	85.1	85.1	81.7	78.8
Single		43.1	7.0	6.2	5.6	6.6	7.6
Divorced		15.5	6.0	6.2	6.8	8.7	10.0
Having children		24.9	52.2	55.3	57.4	52.7	44.8
Number of children		0.4	1.0	1.1	1.2	1.1	0.9
Panel B							
Total wages		12,716	58,255	73,989	122,939	267,493	580,197
Replacement income		7,972	15,428	15,686	16,272	23,2163	39,776
Self-employment income		730	12,633	20,863	57,115	158,823	380,441
	- exempt income	16	626	1,143	4,240	25,360	118,479
Total capital income		318	9,183	16,718	64,908	403,101	2,084,963
	- Capital income	304	6,221	10,935	38,353	191,556	733,774
	- Capital gains	13	2,963	5,783	26,555	211,545	1,351,189
	- exempt income	26	2,572	4,891	20,367	139,400	839,048
Real-estate income		497	5,815	8,815	20,066	46,141	73,922
Total income		22,233	101,315	136,072	281,301	898,721	3,159,299

Notes: The table shows summary statistics by income groups defined on the total declared income without taking into account the null values. Panel A shows summary statistics on demographic variables: (i) age is defined as the age of the only declarant for single households or the average age of the two declarants for married or in a civil union households, (ii) having children describes the probability of at least a dependent child in the household and (ii) number of children shows the per households average number of dependent children. Panel B shows for different types of income the per household unconditional average. See Appendix A-3.2 for the definitions of the different types of income considered.

[15] See Appendix A-3.2 for the definition of the total declared income variable.

TABLE A-2: Structure of the household income by type of income and tax treatment (%)

	D0-D9	P90	P95	P99	P99.9	P99.99
By type of income						
Wages and compensations	57	64	62	50	36	23
Pensions and unemployment benefits	36	23	16	7	3	
Self-employment income	3	7	12	22	21	15
Real-estate income	2	4	6	8	7	3
Capital income	1	2	4	10	20	23
Capital gains	0	0	1	3	13	35
By tax treatment						
Progressive taxation	89	89	89	85	67	45
Flat taxation	1	1	2	5	17	26
Exempt income	10	10	9	10	16	30

Notes: The table shows the structure of the total declared income by type of income and tax treatment. The income groups are defined on the total declared income without taking into account the null values. The shares are computed over 2011-2015. See Figure A-2 and A-3 for a decomposition by period.

TABLE A-3: Share of households that declare a null value for a type of income by year

Type of income	2011	2012	2013	2014	2015
Wages and compensations	37.3	37.6	37.9	38.0	38.3
Replacement income	48.0	47.8	47.4	47.1	49.6
Non-wage income	93.1	93.0	92.9	92.8	92.7
Total capital income	49.7	49.2	51.6	53.3	57.3
- Capital income	49.8	49.3	51.7	53.4	57.4
- Capital gains	99.1	99.1	99.0	98.9	98.9
Real-estate income	89.7	89.6	89.6	89.4	89.3
Taxable income	5.7	5.6	5.8	6.0	6.3
Fiscal income	5.1	5.1	5.4	5.6	5.9
Total declared income	3.6	3.7	4.0	4.1	4.8

Notes: The tables shows the share by year of households that do not declare a certain type of income. For example, 37.3% of the households in 2011 did not declare any type of wage and compensations income. Also, 99% of the households in 2013 did not declared any type of capital gains income, or only 1% of the households declare on average some type of capital gains.

TABLE A-4: Share of households that have a minimum share of labor or total capital income by income group

	D10-D30	D40-D60	D70-D90	Top 10%	Top 5%	Top 1%	Top 0.1%	Top 0.01%
Labor income share								
50%	43	61	61	64	62	51	33	19
75%	35	57	54	55	51	39	25	15
90%	29	51	46	44	41	29	18	11
99%	25	43	36	29	24	13	6	4
100%	21	29	18	9	6	2	1	1
Capital income share								
50%	3	0	0	2	4	11	35	61
75%	3	0	0	1	1	4	21	52
90%	3	0	0	0	0	1	8	35
99%	3	0	0	0	0	0	1	4
100%	3	0	0	0	0	0	0	1

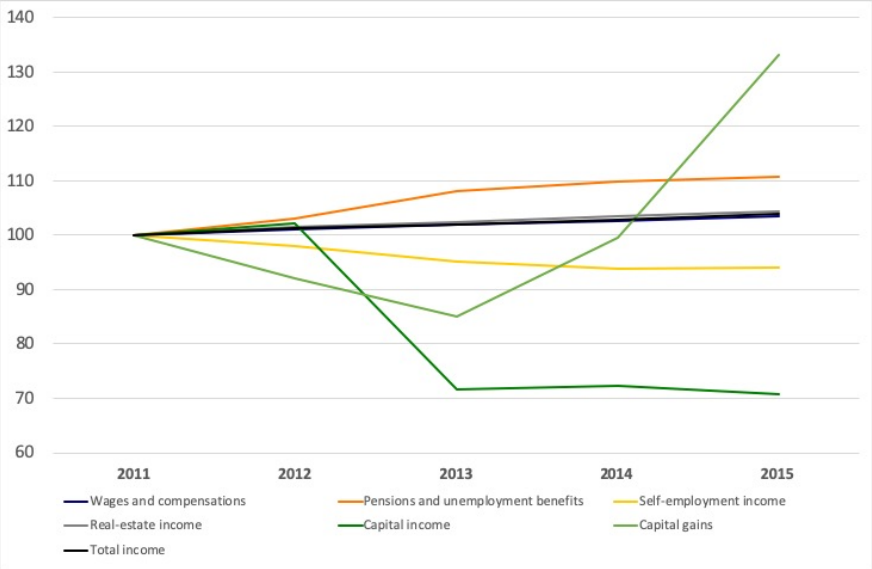
Notes: The table shows the share of households by income group that have a miminum share of labor or total capital income in their total declared income. For example, 43% of the bottom 30% of the households have 50% or more labor income in their total declared income. Also, 61% of the households in the top 0.01% have at least 50% of capital income in their income structure.The values are computed over the period 2011-2015.

TABLE A-5: Evolution of the share for different income types in the total declared income

	Wages and compensations	Pensions and unemployment benefits	Self-employment income	Real-estate income	Capital income	Capital gains	Total income	Tax liability
Top 10%								
2011	32.6	16.4	66.7	55.8	72.0	97.4	33.2	60.3
2012	32.6	16.7	65.5	55.8	71.1	96.8	32.9	60.8
2013	32.6	17.3	64.4	55.5	64.8	94.9	32.1	59.4
2014	32.8	17.4	63.7	55.2	65.7	94.8	32.2	60.3
2015	33.1	17.3	63.3	54.7	66.2	95.6	32.5	63.6
Top 1%								
2011	6.8	1.7	31.6	19.6	47.4	91.4	9.7	27.4
2012	6.8	1.7	29.7	19.5	44.6	88.3	9.3	27.8
2013	6.8	1.8	28.6	19.3	37.6	82.7	8.5	25.3
2014	7.0	1.9	28.3	18.9	39.1	82.5	8.7	26.3
2015	7.2	1.9	28.1	18.3	39.4	85.0	9.0	28.7

Notes: The tables shows the share for two income groups (top 10% and 1%) and different types of income in the total of that type of income. For example, wages and compensations of the 10% richest households represented 32.7% of the total wages and compensation. They also payed 60.3% of the total tax liability. The income groups are defined using the total declared income without taking into account the null values.

FIGURE A-1: Evolution of the average income per household

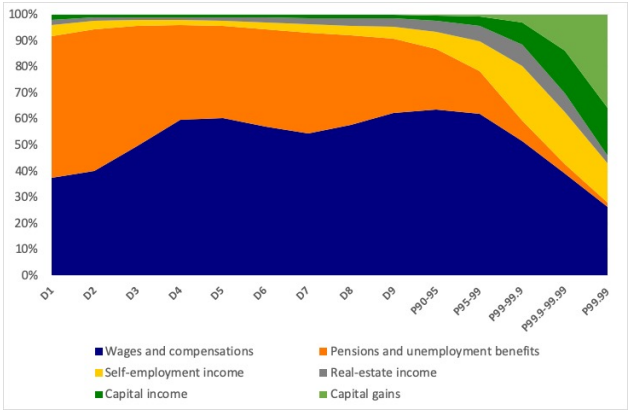


Notes: The figure shows the unconditional evolution of the average income for different types of income. The average values are computed at the household level and the income groups are defined using the total declared income without taking into account the null values.

FIGURE A-2: Decomposition of total income by type of income and income group

(a) 2011-2012

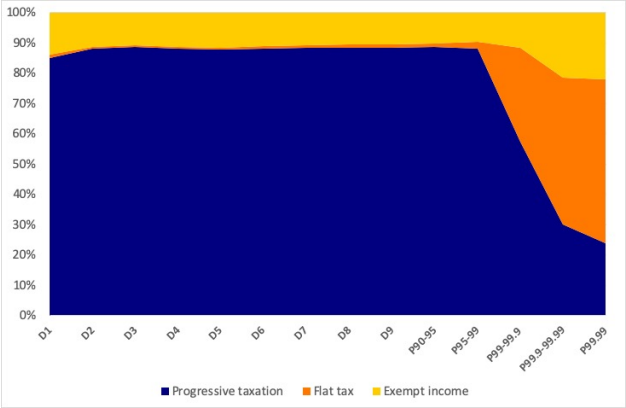
(b) 2013-2015



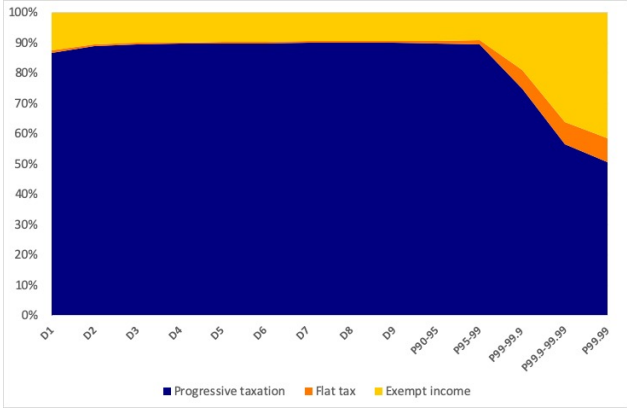
Notes: The income group are defined using the total declared income without taking into account the null value. But, the decomposition Figures are similar if the income groups are defined using other income aggregates or per share values. See Methodology note for a definition of the total declared income.

FIGURE A-3: Decomposition of total income by type of tax treatment and income group

(a) 2011-2012



(b) 2013-2015

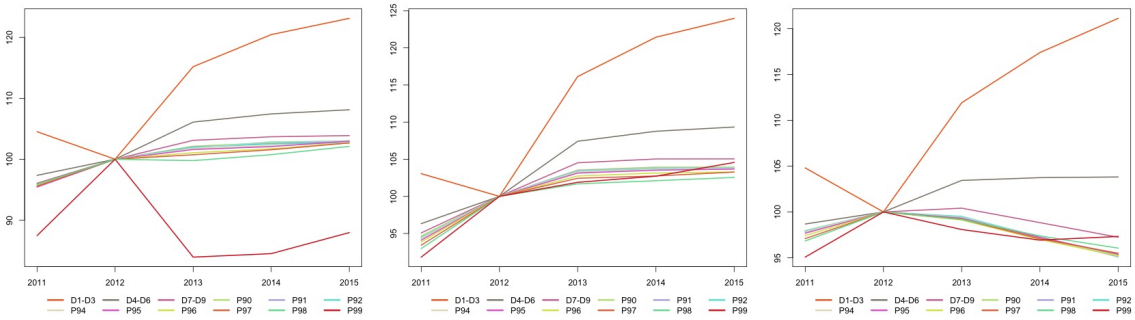


Notes: The income groups are defined using the total declared income without taking into account the null values. But, the decomposition Figures are similar if the income groups are defined using other income aggregates or per share values. See Methodology note for a definition of the total declared income. Income can be subject to three types of tax treatment: progressive (*au barème*), flat tax and exemption.

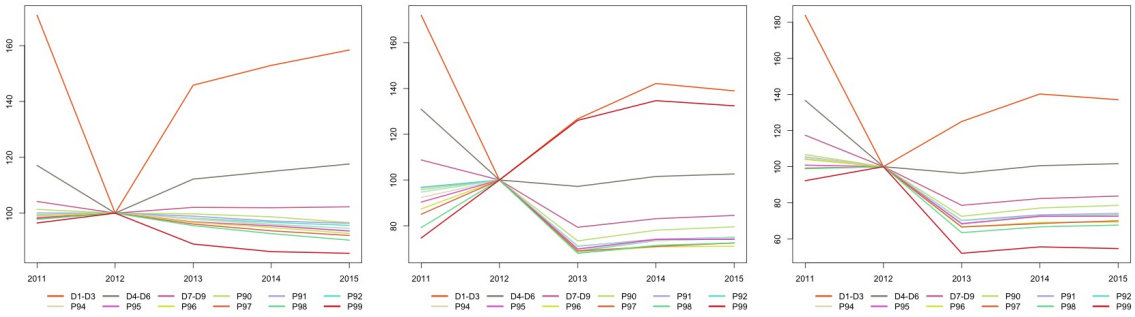
A-1.2 Event studies - figures

FIGURE A-4: Event study capital income tax reform (by income groups and base year 2012)

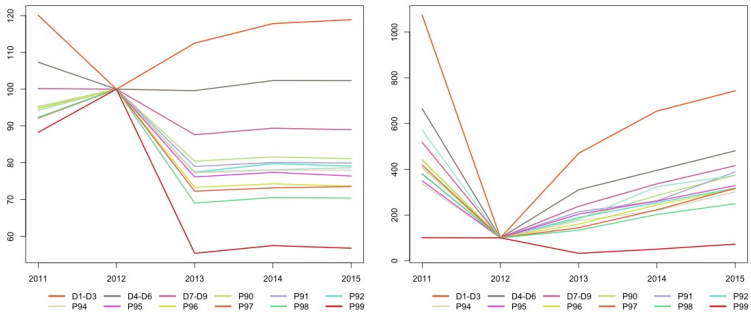
(a) Fiscal income (b) Taxable income (c) Total earnings



(d) Self-employment income (e) Dividends (2dc) (f) Dividends eligible to the flat tax



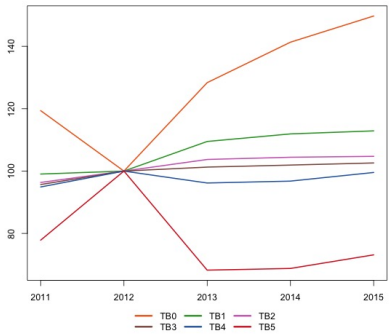
(g) Capital income (h) Capital gains



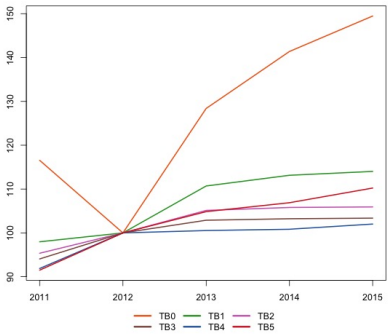
Notes: The Figure shows the evolutions of differents types of income by fixing households in their 2012 income group. The income groups are defined using the fiscal income by the number of shares without taking into account the null values. The income variables considered are: (a) the fiscal income which is a good proxy for total income, (b) taxable income which is the income that is taxed through the porgressive income tax schedule, (c) Total earnings that includes standard earnings and wages and other type of compensations as capital gains considered by the fiscal administration as wages and taxed as such, (d) Self-employment income in the standard regime (ie. without limits on the turnover or the total household income), (e) Dividends that are in principle eligible to the flat taxation (before 2013), but are taxed through the progressive schedule (they are declared in the box 2dc of the tax return), (f) Dividends eligible to the flat taxation regarless of how they are taxed, (g) Capital income that includes all type of income from dividends, bonds or life-insurance contracts and (h) Capital gains that were concerned by the tax reform (ie. that were subject to the progressive taxation after 2013).

FIGURE A-5: Event study capital income tax reform (by tax bracket and base year 2012)

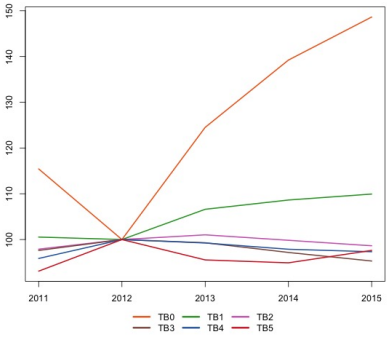
(a) Fiscal income



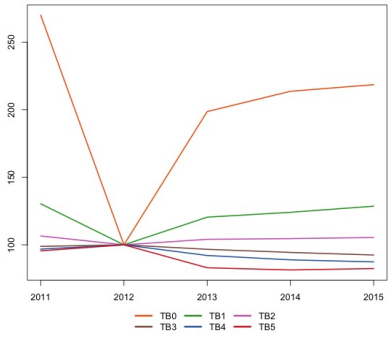
(b) Taxable income



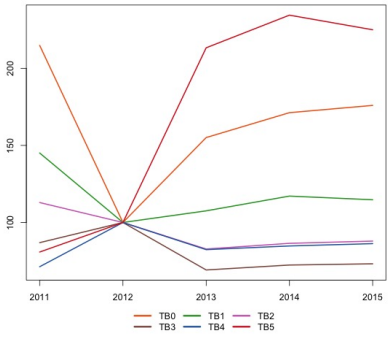
(c) Total earnings



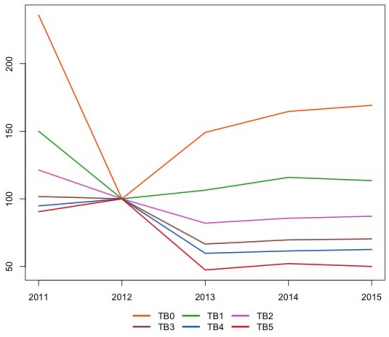
(d) Self-employment income



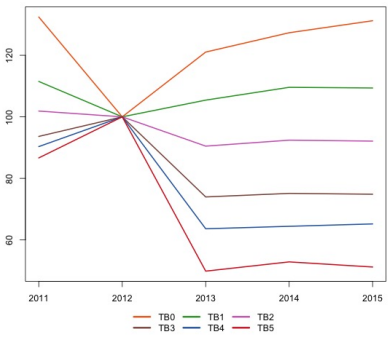
(e) Dividends (2dc)



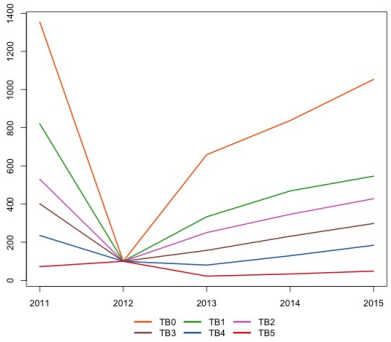
(f) Dividends eligible to the flat tax



(g) Capital income



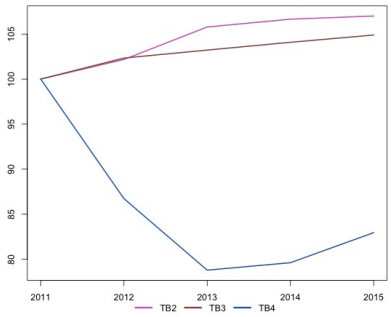
(h) Capital gains



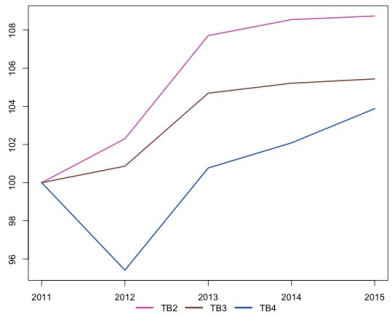
Notes:The Figure shows the evolutions of differents types of income by fixing households in their 2012 tax bracket. The tax brackets are defined using the fiscal income by the number of shares. The capping mechanism, which could increase the marginal tax rate for some households, is not taken into account. For more details regarding the income variables considered see Notes to Figures A-4.

FIGURE A-6: Event study capital income tax reform (by tax bracket and base year 2011)

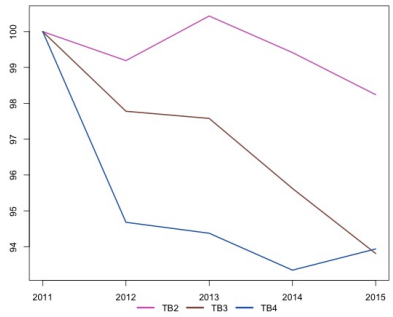
(a) Fiscal income



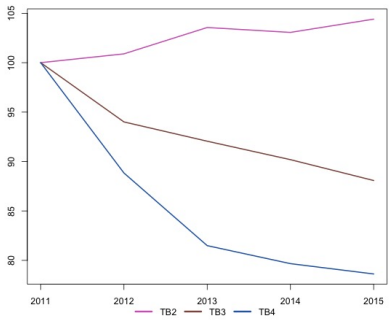
(b) Taxable income



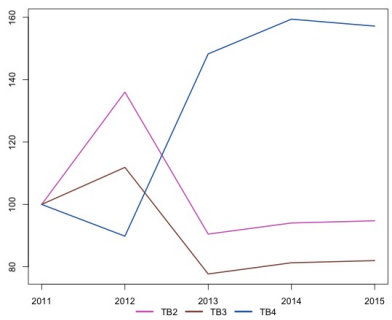
(c) Total earnings



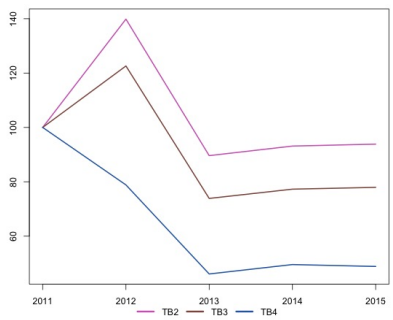
(d) Self-employment income



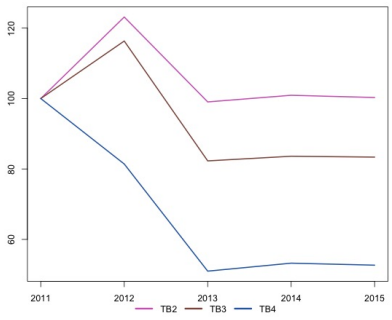
(e) Dividends (2dc)



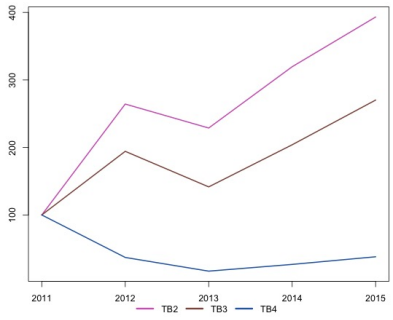
(f) Dividends eligible to the flat tax



(g) Capital income



(h) Capital gains



Notes:The Figure shows the evolutions of differents types of income by fixing households in their 2012 tax bracket. The tax brackets are defined using the fiscal income by the number of shares. The capping mechanism, which could increase the marginal tax rate for some households, is not taken into account. For more details regarding the income variables considered see Notes to Figures 3.

A-2 French Personal Income Tax

The personal income tax is calculated on the basis of the revenues declared by taxpayers, who are required to fill out a single tax return for the taxable household. Tax households have to report all type of income, including from self-employed activities, received in the previous year. The total declared income is firstly adjusted for personal circumstances by allowing tax base deduction for certains of income (like the 10% deduction for wage income) and other personal expenses. Appendix A-3.1 explains in detail how the fiscal administration builds the taxable income from the total declared income.

The tax liability is computed using the taxable income and a income splitting mechanism. Each household has a number of parts determined by the household composition. A single taxpayer has one part and a couple[16] has 2 parts. An extra half-part for each of the first two dependent children and a part for each dependent child thereafter is taken into account as shown in Table A-6. A disabled child adds one part.

TABLE A-6: Number of shares by family status (2017)

Number of children	Single	Widower	Couple
0	1	1	2
1	2	2,5	2,5
2	2,5	3	3
Per extra child		1	

Notes: before 2014 the first two children had only half a share each. From the third child, an additional share was added.

The taxable income is then divided by the number of shares. This per share income (Family coefficient) is used to compute the tax per part using the progressive PIT scale . The gross tax liability is then computed as the tax per share multiplied by the number of shares. However, the tax benefit from this mechanism increases with the declared tax income given the progressivity of the income tax. Since 1981, this reduction has been capped and the amount of this ceiling is revalued at the same rate as the thresholds of the tax brackets.

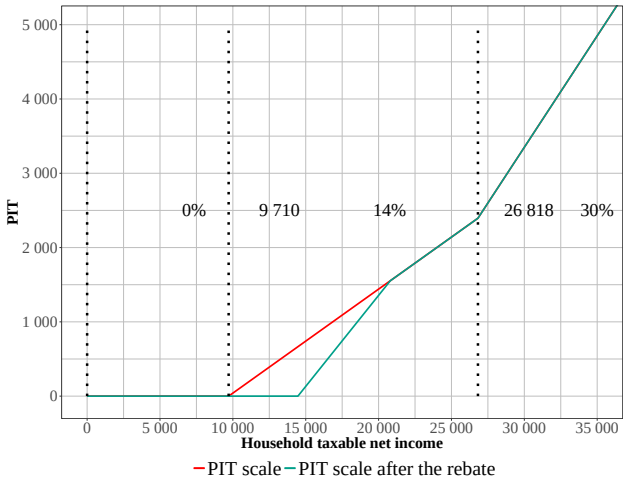
To establish if a tax households is concerned by the cap, tax authorities compare two results: *(i)* tax liability computed according to the real family coefficient in function of the number of shares depending on the family situation and *(ii)* tax liability computed on 2 shares. The sum obtained is then reduced by the amount of the ceiling corresponding to all increases in the family quotient. If this amount is greater than the first amount, the cap is applicable and the amount of tax is the 2^e result. Specific ceilings apply for disabled individuals or veterans.

Low income households are eligible for tax reliefs on the tax liability and after capping the effects of income splitting in order to alleviate the impact of entering into the progressive income tax scale. Firstly, a rebate (*la décote)* applies if the tax is less than €1,553 for single, divorced

[16] Married or in a civil union.

or widowed taxpayers and €2,560 for couples taxed jointly[17]. The effect of the rebate is to shift upwards the entry point into the progressive tax scale and to reduce the tax burden for mainly agents in the first tax bracket as shown by "PIT scale after the rebate" in Figure A-7. In recent years, low income households can also benefit from a tax reduction if their fiscal revenue (*Revenu fiscal de référence*) is bellow or between same established levels. The tax scale after the rebate and the tax reduction for low income households is shown in Figure A-7.

FIGURE A-7: Personal Income Tax scale (2017)



Notes: The figure shows the Personal Income Tax scale for one single person tax household for 2017 PIT. The figure also shows the PIT scale after taking into account the rebate for low income households (*décote*) and tax reduction for low income households.

Finally, after the gross tax is determined[18], other tax reduction or/and tax credits may apply under certain conditions. For example, tax reductions can be applied for donations to charities and institutions of public interest, schoolings costs of dependent children and subscription for the capital of SMEs. Expenses for childcare of sustainable development-related equipement are subject to deductible tax credits. Theses tax breaks are generally subject to an overall cap. For example, the total tax breaks on the basis of expenditure or investments made in 2016 have to be below €10,000.

A-2.1 Taxation of dividends

The taxation of dividends has seen several changes in terms of how the problem of double taxation (at the firm *via* the corporation tax and at the individual level *via* the personal income tax) dealt with and of type of taxation:

[17] For 2017 personal income tax. Before the 2014 income year, the relief did not take into account the family composition (single or couples).

[18] As of 2011 income, top earners are subject to a temporary levy (*Contribution exceptionnelle sur les hauts revenus*), based on their fiscal taxable income (*Revenu fiscal de référence*). The temporary levy consists in a flat rate of either 3% or 4% depending on the declared taxable income

- **Before 2005:** the issue of the double taxation was managed through a tax credit (*avoir fiscal*). The taxable base was computed by adding the tax credit to the amount of the received dividends and from this total, an allowance depending on the family structure (single ou couples) was applied. Then the tax credit was deducted from the the tax liability. The social levies were due on the amount of the dividend plus the corresponding tax credit.

- **In 2005** the mechanism was abolished and replaced by a tax base on the amount of dividends after applying a tax base allowance of 50% and a lump sum tax base allowance depending on the family structure (€1,220 for single persons and €2,440 for couples. Households could benefit as well from a lump sum tax credit of €115 (single persons) and €230 (couples).

- **After 2006** the taxation of income from variable-yield securities underwent numerous changes. Firstly, the taxation system is adjusted by reducing tax base allowance from 50 to 40% as a result of the reduction in the effective tax rates resulting from the extension to all households of the 20% deduction allowance previously reserved to wages. Also, the damily allowance is increased to €1,525 and €3,050 (unchanged until 2010). **In 2008**, a flat-rate PIT discharge levy (*Prélèvement forfaitaire libératoire*) is created, at a rate of 18%, applicable at the option of the taxpayer. As of 2010, the flat-rate increased to 19%, then to 21% after 1^{st} July 2012. In 2011, the family tax credit of 115/230 €is removed penalizing in particular small taxpayers exempt from the PIT. In 2012, a contribution of 3% payable by the distributing company is created for distributed profits after August 17, 2012 (except option for payment in shares). Also, the famly allowance is removed.

- **Since 2013**, the dividends, after application of a 40% deduction allowance, are subject to the progressive PIT scale. the 21% flat-rate levy(-discharging mandatory deduction at source (instalment). All income distributed, whether eligible or not for the 40% allowance, received by individuals who are resident of France for tax purposes, is subject to this levy. However, under certain income related conditions indviduals can opt out of this withholding tax.

Dividends in the data

Dividends were reported in different boxes of the tax return according to their type of taxation (flat-rate or progressive scale) and eligibility to the tax base allowances. Figure A-8 shows the different types of dividends and the reporting obligations (*ie.* in what boxes of the tax return they were reported). The classification shown in the figure is made according to the pre-2013 tax returns. After 2013, the types of capital income that was declared in the indicated boxes slightly changed. For example, dividends from individual, commercial, craft and agricultural enterprise or a liberal profession started to be declared in the $2da$ box after 2014 (and not $2fu$. Firstly, some of the distributed dividends were not eligible to the tax base allowances mainly dividends from quoted real estate investment company[19] and trusts or companies investing predominantly in real estate

[19] *Société d'investissement immobilier cotée - SIIC*

with variable capital[20]. This dividends were reported in the $2ts$ box with other types of capital income as bond products, profits on foreign futures markets or attendance fees earned by members of boards of directors.

Secondly, most of the dividends were eligible to the tax base allowances. Within this type of dividends, some were eligible to the flat rate taxation before 2013. All types of dividends eligible to the tax base allowances are eligible to the flat rate taxation unless otherwise specified. This dividends were reported in $2da$ box. Also, only French tax residants could have opted for the flat taxation. There were mainly three type of dividends non eligible to tha flat rate taxation: *(i)* taxable share of unlisted securities held in a stock saving plan[21], *(ii)* dividends from individual, commercial, craft or agricultural enterprise or a liberal profession and *(iii)* distributed dividends following a correction of the tax authority. These dividends were reported in the box $2fu$.

FIGURE A-8: DIVIDENDES BY TYPE OF TAX TREATMENT

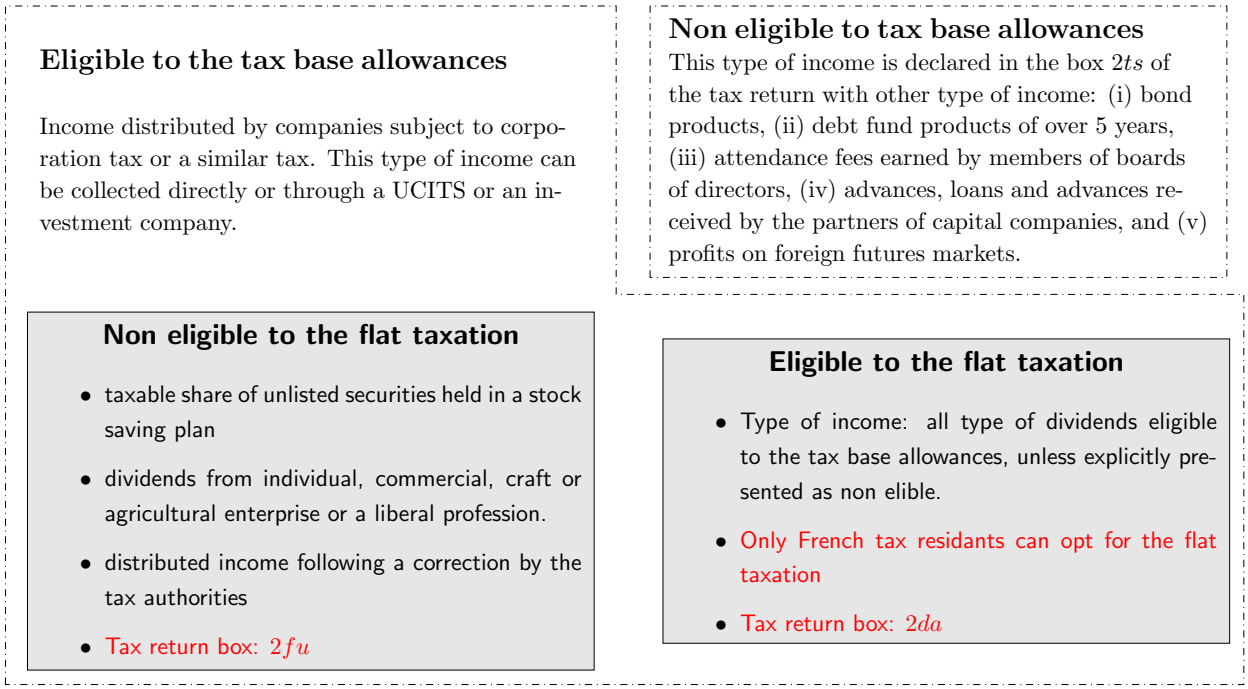


Table A-7 shows some basic summary statistics on the different types of dividends (as defined in the reporting box in the tax return) under certain conditions. The first interesting finding is that roughly half of the households that chose the flat rate taxation also reporting dividends taxed through the progressive schedule (*ie.* $2da > 0$ and $2dc > 0$). This could be qualified as a uninteresting choice as reporting dividends for the two types of taxation led to loosing the advantage of the tax base allowance for the dividends taxed through the schedule[22]. Also, households that

[20] *Sociétés Prépondérance Immobilière à Capital Variable-SPPICAV*
[21] *PEA- Pland d'épargne-actions*
[22] Although, the tax base allowance still applies *au prorata* for the income eligible to the allowanc, but non-eligible to the flat rate taxation (box $2fu$).

opt for the two types of taxation generally report more dividends to the flat taxation then the progressive one.

TABLE A-7: Summary statistics on the different types of dividends conditional on reporting some type of dividends

	Dividends flat tax ($2da > 0$)		Dividends schedule $2dc > 0$		Other eligible	Non eligible
Condition	$2da > 0$	$2da > 0$ and $2dc > 0$	$2dc > 0$	$2da > 0$ and $2dc > 0$	$2fu > 0$	$2ts > 0$
Median						
2011	296	450	20	154	65	357
2012	236	348	17	144	79	360
2013	-	-	16	-	62	99
2014	-	-	16	-	424	79
2015	-	-	20	-	340	86
Mean						
2011	83,576	95,798	1,278	4,067	2,428	1,016
2012	69,707	58,954	1,395	4,457	3,074	1,040
2013	-	-	1,303	-	1,981	1,027
2014	-	-	1,400	-	5,563	940
2015	-	-	1,539	-	6,263	992
Number						
2011	115,722	61,668	9,976,863	61,668	35,350	1,712,880
2012	114,118	61,668	10,066,393	61,668	24,823	1,742,087
2013	-	-	9,994,528	-	23,931	1,123,590
2014	-	-	9,731,554	-	9,122	1,146,420
2015	-	-	8,788,010	-	8,854	1,058,323

Notes: The Table shows some basic summary statistics on households reporting different types of dividends (*ie.* in different boxes of the tax return) under certain conditions. For example, columns 2 and 3 refer to dividends taxed at the flat rate tax conditional on having reported this type of dividends (*ie.* i$2da > 0$)or having reported dividends taxed at the flat rate tax and through the progressive schedule (*ie.* i$2da > 0$ and $2dc > 0$). The eligibilityreference in the last two columns refers to the eligibility to the tax base allowances. Finally, in order to have the same population for the differents types of income considered, only households domiciled in France for tax purposes are considered.

Breaking point

The flat rate taxation could have seemed advantageous given the small tax, but when taking into account the social levies and other parameters this result does not necessary stand. Households would have had in principle to compute the tax liability for the two types of taxation in order to choose the one that was more advantageous for them. In this subsection we describe how the tax liabilities for the two types of taxation were computed in very simple setting and what were the parameters households shoudl have had taken into account when choosing the type of taxation.

Before computing the tax liabilities, we need to make some simplifying assumptions : *(i)* the dividends were fully taxed in one of the two taxation type[23], *(ii)* the marginal tax rate does not depend on the amount of dividends declared[24], *(iii)* the deduction of management fees are not

[23]Theoretically, households could opt for only a part of their dividends to be taxed to the flat tax. In this case, the progressive taxation was computed without taking into account the tax base deductions.

[24]The marginal tax rate can theoretically increase because of the capping of the benefit from the income splitting mechanism. Also, the declared dividends could make the household change its tax bracket, and its marginal tax rate.

taken into account in the computation and *(iv)* the family tax credit is not taken into account, , so this formulae are valid only for 2012. Once this assumptions made, we can compute the two tax liabilities as follows:

$$
\begin{aligned}
\text{Flat tax}: \quad & T_1(D) = (\tau_f + \tau_{sl}) * D \\
\text{Progressive taxation}: \quad & T_2(D) = \tau_m * max[(1-\mu)D - M, 0] + \tau_{sl} * D - \tau_m * d * D \\
\textit{where} \quad & D - \text{amount of declared dividends} \\
& \tau_f - \text{ flat tax} \\
& \tau_{sl} - \text{social levies (CSG, CRDS and social levies)} \\
& \tau_m - \text{marginal tax rate} \\
& \mu - \text{tax base deduction} \\
& M - l\text{ump tax base deduction} \\
& d - \text{deductibility rate of the CSG}
\end{aligned}
$$

We can now equalize the two tax liabilities in order to try to define some necessary (and even sufficient) conditions to choose one or the other type of taxation:

$$
\begin{aligned}
& T_1(D) = T_2(D) \\
\Leftrightarrow \quad & (\tau_f + \tau_{sl}) * D = \tau_m * max[(1-\mu)D - M, 0] + \tau_{sl} * D - \tau_m * d * D \\
\Leftrightarrow \quad & D * [\tau_m(1-\mu-d) - \tau_f] = \tau_m * M \\
\Leftrightarrow \quad & \tilde{D} = \frac{\tau_m}{\tau_m(1-\mu-d) - \tau_f} * M
\end{aligned}
$$

This relationship leads us to two results:

1. The flat taxation is interesting $\Rightarrow \tau_m > \frac{\tau_f}{1-\mu-d} > 30\%$ for year. More precisely, the flat rate taxation is only avantageous for households in the last brackets. This is only a necessary condition. The minimum value of the marginal tax rate that would have made the flat rate taxation advantageous is shown in Table A-8. Thus, the flat rate option has only interesting for households in the last tax bracket or the last two tax brackets in 2012.

2. The amount of dividends has to be larger that a certain amount in order to for the flat rate taxation to be more interesting (for 2011). It is worth pointing out that for 2012 $\tilde{D}$ is equal to zero as the lump sum tax base allowance was removed. Thus, the taxe rate condition would have been sufficient for the choice of the flat taxation of dividends. The evolutions of

On of this cases is presented below.

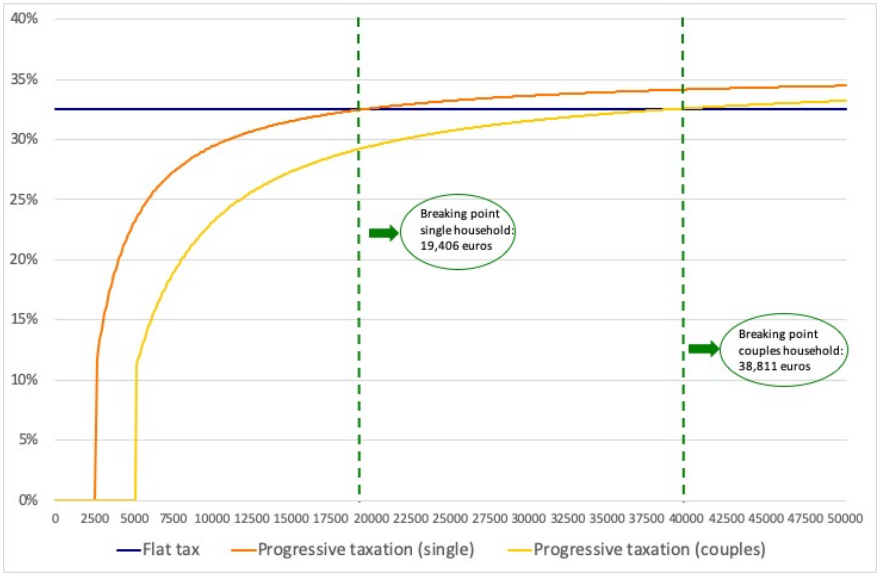
the breaking point value for dividends is shown in Table A-8. In order to better understand the reasoning behind this condition, Figure A-9 shows the evolution of the average tax rate according to the type of taxation and family status.

TABLE A-8: Parameters for the type of taxation for dividends

Year	Statutory top marginal tax rate	Minimum advantageous marginal tax rate	Breaking point
2008	40%	40,7%	7,740
2009	40%	40,7%	12,608
2010	41%	33,2%	16,119
2011	41%	35,1%	19,162
2012	45%	-	-

Notes: The statutory marginal tax rate is computed without taken into account the capping of the income splitting mechanism which could in theory lead to a higher rate. The breaking point value is computed according to previous equation.

FIGURE A-9: Average tax rates according to the type of taxation (2011)



Notes: The average tax rate are computed according the previous equations. Implicity, it is assumed here that the marginal tax rate does not change.

The previous criteri allows us to define in this simple setting the correct choice of the type of taxation for dividends. Basically, we have a minimum marginal tax rate criteria and a minimum amount of reported dividends in 2011. Table A-9 shows some statistics on the number of households that choose the flat rate taxations for dividends by tax bracket. Firstly, it is usefull to point out that the tax brackets are defined using the fiscal income (and not the taxable income) which allows us to take into account some eventual tax bracket changes. The case with only one tax bracket change is

formally explained in the same simple setting hereafter. Secondly, we can see that over 2011-2013 only 30% of the households that chose the flat rate taxation made a *correct choice* according to out criteria. Given the simple setting in which we defined the *correct choice*, it is highly probably that an important share of the households in the tax bracket at 30% made as well a correct choice. So, we can say that roughly 60% of the households opting for the flat rate taxation made the *correct choice*. Nevertheless, some 40% of these households chose the flat rate taxation although it would have been more advantageous for them to choose the progressive taxation. More reasons could explains this result as the meager understanding of how the tax liabilities are computed and/or sometype of preference for simplicity given the way in which the tax liability was collected. Indeed, the tax was collected directly by the enterprise that distributed the dividends in the year the income was earned, and not in the following year for the progressive taxation. In the end, we can see that only 9% of the households made a *correct choice* according to our simple criteria as only 10,502 households out of 115,722 that chose the flat rate taxation in 2011 declared the minimum amount of dividends and had a marginal tax rate larger than 30%.

TABLE A-9: Households choosing the flat rate taxation by tax bracket

	Tax bracket 0	Tax bracket 1	Tax bracket 2	Tax bracket 3	Tax bracket 4	Tax bracket 5
	0	5.5%	14%	30%	41%	45%
Numbers						
2011	2,785	8,425	33,324	35,870	35,318	-
2012	3,062	8,630	32,496	36,451	17,057	16,422
Share in the total						
2011	2.4	7.3	28.8	31.0	30.5	-
2012	2.7	7.6	28.5	31.9	14.9	14.4
*Numbers**						
2011	0	2	60	1,529	10,502	-

Notes: The marginal tax rates are computed using the fiscal income in order to take into account some eventual tax bracket changes. *Numbers* refers to the number of househods that chose the flat rate taxation. *Share in the total* refers to the share of households that chose the flat rate taxation in one tax bracket in the total of households that chose the flat rate taxation. *Numbers** refers to the number of households that chose the flat rate taxation and declared at least the minimum amount of dividends that would have made the flat rate taxation interesting for them.

Finally, we explore formally in the same simple setting as before what the conditions to choose one of the two types of taxation would be if the reported dividends would lead to a change in the tax bracket and, thus, the tax liability $T_2(D)$. Let's first denote τ_{m+1} the marginal tax rate after the integration of dividends, R the initial taxable income and S_{m+1} the entry point into the following tax bracket. We can define the new $T_2(D)$ tax liability by:

$$T_2(D) \quad = \tau_m * (S_{m+1} - R) + \tau_{m+1} * (R + max[(1-\mu)D - M, 0] - S_{m+1}) + \tau_{sl} * D - \tau_{m+1} * d * D$$

Then, we can equalize it with the flat rate tax liability to obtain the breaking point value for dividends when there is a tax bracket change:

$$\begin{aligned}
& T_1(D) = T_2(D) \\
\Leftrightarrow \quad & (\tau_f + \tau_{sl}) * D = \tau_m * (S_{m+1} - R) + \tau_{m+1} * (R + max[(1-\mu)D - M, 0] - S_{m+1}) + \\
& \qquad \tau_{sl} * D - \tau_{m+1} * d * D \\
\Leftrightarrow \quad & \tau_f * D = -(\tau_{m+1} - \tau m)(S_{m+1} - R) + \tau_{m+1}(1-\mu) * D - \tau_{m+1} * M - \tau_{m+1} * d * D \\
\Leftrightarrow \quad & [\tau_{m+1}(1-\mu-d) - \tau_f] * D = \tau_{m+1} * M + (\tau_{m+1} - \tau_m) * (S_{m+1} - R) \\
\Leftrightarrow \quad & D = \frac{\tau_m}{\tau_m(1-\mu-d) - \tau_f} * M + \frac{(\tau_{m+1} - \tau_m)(S_{m+1} - R)}{\tau_m(1-\mu-d) - \tau_f}
\end{aligned}$$

A-2.2 Taxation of bonds

The taxation of bonds, or more generally the taxation of income from fixed-income securities[25], has had almost always known two types of regimes: *(i)* taxation from the progressive income tax schedule and *(ii)* a flat-rate withholding tax (*Prélèvement forfaitaire libératoire*)[26]

Since 1^{st} January 2013, prior to being subject to the progressive income tax scale, income from fixed-income securities received by individuals who are resident of France for tax purposes is subject to a 24% non-discharging mandatory withholding tax (instalment). However, under certain income related conditions individuals opt out of this withholding tax. The interest is only subject to PIT scale only if it exceeds €2,000[27].

A-2.3 Taxation of capital gains

For capital gains it is useful to make the distinction between capital gains realised by private individuals and business capital gains.

[25] Which includes income from bonds and other negotiable debt securities and income from receivables, deposits, guarantees, shareholder advances, Treasury bills and short-term notes issued by public- or private-law legal entities. The rate of return is usually fixed during the investment period, but this is not always so.

[26] The flat-rate was drastically reduced at the time of the free movement of capital from 25% to 17%, then raised again to 19% in 2010-2011, to be increased further to 24% in 2012.

[27] Other income from fixed-income securities continued to benefit from flat-rate taxation. In particular, life-insurance policies and capitalisatoin bonds and contracts are subject to 35% rate if the policy is less than four years, 15% if the terms is between four and eight years and 7.5% when the term is eight years or longer.

Capital gains realised by private individuals

The taxation of capital gains realised by private individuals applies to capital gains on property and capital gains on the transfer of securities or shares for valuable consideration.

Capital gains from property[28] are subject to income tax at a flat-rate of 19%. Tax base allowances bases on the length of the ownership are applied, but the allowances changed over time and are different when computing the personal income tax or the social levies. Other special allowances can apply under certain conditions. However, some capital gains are expressly exempt from tax: the sale of the seller's main residence, the sale of property for less than €15,000, the first sale of a housing unit other than the sellers main residence, provided all or part of the sale price is used to acquire or build a housing unit for use as the main home within a period of 24 months from the initial sale. In principle, capital losses on property sales cannot be set off against either capital gains of the same kind or overall income. Exceptionally, capital losses and gains may be set off in certain exhaustively specified cases, such as where the sold property was acquired by successive fractions. No return needs to be filed if the capital gain is not taxable because it is expressly exempt or because it is eligible for the allowance based on length of ownership or if the sale generates no capital gain or a capital loss.

Moreover, capital gains on property representing a taxable amount of more than €50,000 are subject to a surtax. This surtax does not concern capital gains from the sale of building plots or related rights. The rate is between 2% and 6% based on a progressive scale depending on the amount of the taxable capital gain.

Capital gains on the disposal of securities and shares changed the type of taxation in recent years. Before 2013, they were automatically subject to social contributions and flat-rate taxation without the possibility to opt for the PIT scale. Over this period, the statutory regime was concerned by two main changes: *(i)* the flat-rate was progressively increased and *(ii)* the exoneration threshold was abolished in 2011, after having been limited, as of 2010, to the PIT alone.

After 2013, as other type of capital income, capital gains started to be systematically taxed through the progressive PIT scale. However, tax base allowances fot the duration of ownership have been introduced. The standard tax base allowances are: *(i)* 50% of the amount of the net gain or distributions (in the case of UCITS capital gains coupons), where the shares, units or rights have been held for at least two years and less than eight years on the date of the transfer or the distribution and *(ii)* 65% of the amount of these same profits, when the shares, shares or rights have been held for at least eight years on the aforementioned date. An increased allowance is introduced from 1 January 2014 to compensate for the abolition as from the same date of certain specific regimes or exemption. This tax base allowance is: 50% for a detention between one and four years; 65% for a holding period of between four years and less than eight years - or 85% for any

[28] More precisely, capital gains realised by individuals in the course of managing their private assets, during the sale for valuable consideration of proporty or property rights

period of detention exceeding eight years. This increased rebate applies under the same conditions as the general allowance and concerns specific transactions:

- The sale by a company executive of the shares of his company, on the occasion of his retirement. This provision applies from January 1, 2014. When the necessary conditions are met, capital gains will firstly benefit from a specific deduction of €500,000, and then, for the surplus of capital gains, the increased deduction, the rate of which varies according to the holding period of the shares. This scheme replaced the regime applicable until 31 December 2013, in which transfers made up to that date benefited from a one-third reduction per year of detention beyond the fifth year, which led the pre-release regime after eight years of holding the securities.

- Transfers made in the family context: Where the members of the same family hold, directly or indirectly, more than 25% of the rights in the social benefits of a company subject to the SI, the transfer by a member from family group to another member of this group benefits of the increased allowance since 1 January 2014.

- Investments in startups, small and medium-sized enterprises (SMEs less than ten years old when the sold shares were subscribed for or acquired) and transfers of undertakings.

Business capital gains

Business capital gains are profits of an exceptional nature made on the sale of fixed assets by industrial, commercial, craft, agricultural or non-commercial enterprises. A distinction is drawn between long-term and short-term capital gains (or losses). Short-term capital gains (or losses) are generally included in the base of the taxable profit subject to the progressive income tax scale, while long-term capital gains are taxed at a reduced rate equal to 31.5% (income tax for 16% and social levies for 15.5%). Capital gains realised by very small businesses are totally or partially exempt where the business activity has been pursued for at least five years and turnover does not exceed certain thresholds.

A-3 Definition of income variables

A-3.1 Income aggregates available in the data

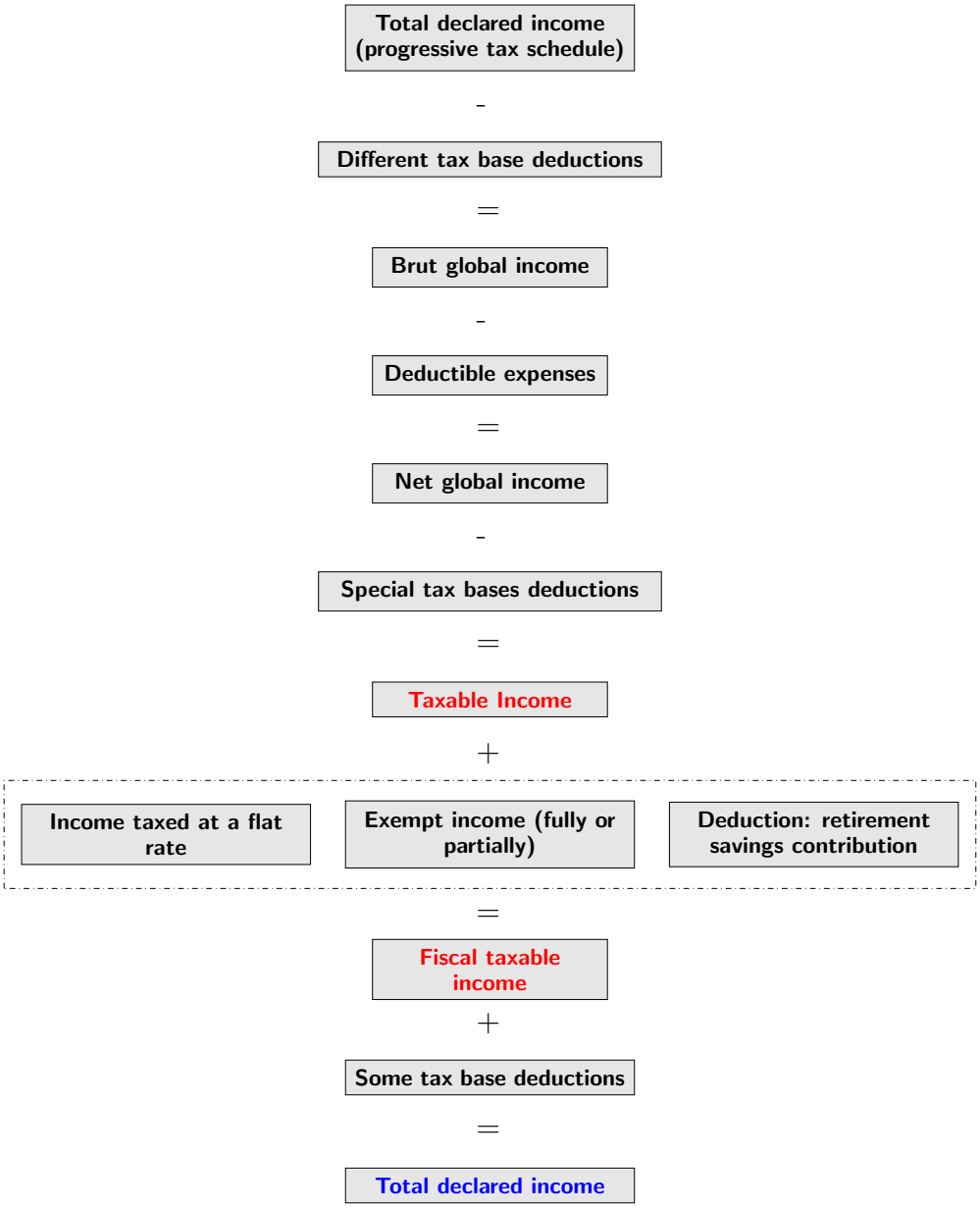
The **Taxable Income** (*Revenu Imposable*) and **Reference Taxable Income** (*Revenu Fiscal de Référence*) are the two main income aggregates that are used by the fiscal authority compute the tax liabilities or taken into account in income criteria for exemptions or social benefits. Figure A-10 shows how the Taxable Income and the Reference Taxable Income are constructed and defines the intermediary income aggregates.

Firstly, different tax base deductions are applied to the total declared income taxed at the progressive income tax schedule. These deductions include: *(i)* the automatic 10% deduction for personal expenses and *(ii)* 10% for pensions, 30% for property income taxed in the *micro-foncier regime* and deductions for self-employed micro-regimes. Thus, the Brut Global Income is defined (BGI, "*Revenu Brut Global*"). From this income aggregate, other deductible expenses are substracted: alimony, various deductions, hospitality expenses, repair expenses of the bare properties and the deductible fraction of the payed CSG[29] in order to define the Net Global Income (NGI, "*Revenu Net Global*"). Finally, from the NGI special tax base deduction are applied to get the Taxble Income (TI). These special deduction are: *(i)* allowance for elderly or disabled persons and *(ii)* allowance for dependent married or in a civil union children. The Taxable Income is the income aggregate that passes through the income splitting system[30] and the progressive income tax schedule[31].

The **Reference Taxable Income** is defined in order to have a better image of the entirety of household income. This income aggregate is mainly used in income criteria for some exemptions or social benefits. As of 2011, the RTI is also used as a taxable base for the temporary levy on top income households. It is worth noting here that top income households are mainly concerned by the second utilisation of this income aggregate. The Reference Taxable Income can be constructed by adding to the Taxable Income previously defined : *(i)* income taxed at a flat rate, *(ii)* exempt income (partially or fully) and *(iii)* the retirement savings contribution deduction. The income taxed at a flat rate include: *(i)* professional gains for non-salaried professionals, *(ii)* capital gains, *(iii)* flat-rate withholding tax on interest and dividends, *(iv)* real estate gains, *(v)* 7.5 % flat-rate on retirement pensions, *(vi)* added value of executives at retirement and *(vii)* options and free shares, savings plans closed in anticipation. Exempt income (fully or partially) includes: *(i)* some professional income of the self-employed (ZFU, etc.), *(ii)* some employee income (impatriates), *(iii)* allowance in the event of the retirement of a company executive, *(iv)* deduction for the period of detention of capital gains, *(v)* 40% abatement for dividends, *(vi)* foreign income exempted by a tax treaty and *(vii)* others: young entrepreneurs, risk capital etc.

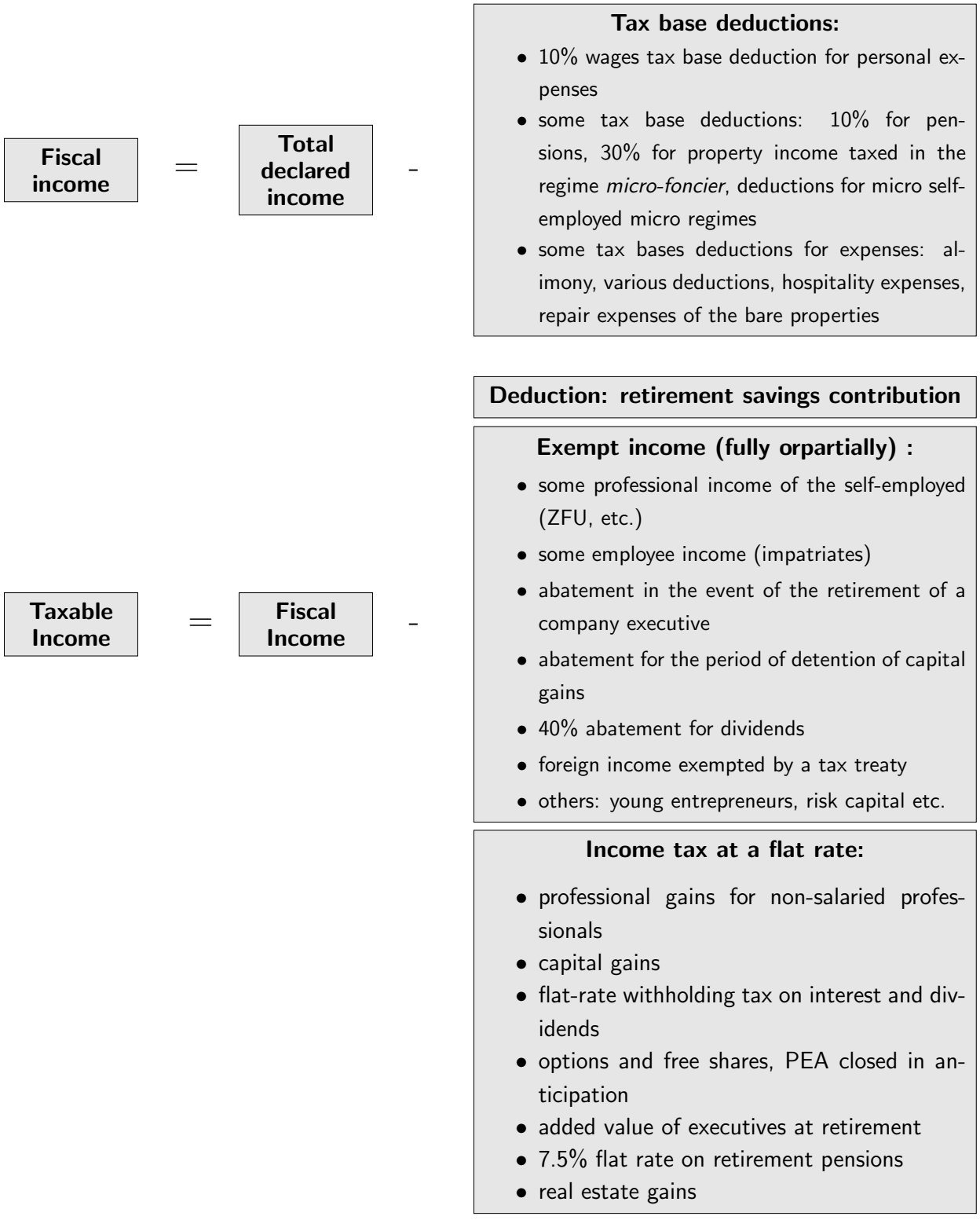
[29] *Contribution Sociale Généralisée.*
[30] Système du Quotient Familial.
[31] See Append A-2 for a brief description of how the French Personal Income Tax is computed.

FIGURE A-10: DEFINITIONS OF THE FISCAL INCOME AND THE TAXABLE INCOME



The Reference Taxable Income is thus a good proxy for the total declared income regardless of the type of tax treatment of the different types of income. We can thus use it to define income groups, but ideally we would like to know how the different types of income contribute to the evolution of this "total income" equivalent. As the decomposition is not available in the dataset, we have to define all the sub-aggregates for each type of income. The definitions of these variables are the subject of Appendix A-3.2.

FIGURE A-11: DEFINITIONS OF THE FISCAL INCOME AND THE TAXABLE INCOME



A-3.2 Construction of income aggregates

In order to conduct more precise analysis, we need information on the type of income each household earns. In our data, there are no variables at an aggregated level of the type of income.We have thus constructed these aggregates by using the boxes of the tax return. One possibility would be to try to construct the Fiscal Income by type of income. Nevertheless, such a decomposition is not easily implementable in the short-run given the various mechanism that should be account for as shown in Figure A-11. A simpler solution that does not take into account any specific tax treatments, would be to try to have a definition of the total declared income as defined by Figure A-10. It is worth pointing out that this variable will a posteriori be very well correlated with the Fiscal Income. The straightforward way to define the sub-aggregates and, thus, the total declared income is to follow the different blocks in the tax return.

Nevertheless, the administrative classification by type of income does not necessary correspond to the standard decomposition by type of income. For example, some capital income is reported in the compensations and wages block. So, the objective is to also have within each block aggregated variables for types of income that are potentially different. Also, for capital gains is straightforward to define de sub-aggregates directly by tax treatment. Finally, at this stage we do not take into account some type of income (as wages of the detached employess, capital gains which taxation is reported or deficits). These are detailed here below:

1. **Compensation, wages, pensions and annuities**:
   - wages and compensations: inc_earn_{wages},$inc_earn_{capital\_gains}$,inc_earn_{except},$inc_earn_{extra_hours}$ andinc_earn_{other}
   - replacement income: $unemp$, rsa, ret, ret_{alim}, ret_{rentes}, $ret_{invalid}$ and ret_{flat}
2. **Income from variable and fixed-yield securities**: div_{abatt}, div_{nabatt}, int_{prog}, $assur_{prog}$, div_{abatt}, div_{lib}, int_{lib}, int_opt_{lib} and $assur_{lib}$
3. **Capital gains**: at this stage it is straightforward to define the aggregates directly by type of tax treatment. A more detailed decomposition will be considered in the future.
4. **Real estate income**: At this stage, deductible deficits are not taken into account.
5. **Self-employment**: $revnsl$, $revnss$, $revnsr$, $revns\_pv_{lt}$ $revns\_pv_{ct}$, $revns_{exempt}$ and $revns_pv_{exempt}$

We can thus define the total declared income by adding the previous income aggregates. Furthermore, we can define a different decomposition of the total declared income by type of potential tax treatment: progressive taxation (through the progressive income tax scale), flat taxation and exempt income. For the sake of simplicity, only the main tax base allowances (that allow us to define exempt income) are taken into account at this stage. This tax base allowances are: the 10% deduction of activity and replacement income and the 40% deduction for dividends. In the future, other specific deductions are going to be taken into account as the tax base deductions for

life-insurances, income from self-employed activities and lump-sum tax base deduction for some type of capital income in 2011. It should be though noted that these deductions should not lead to major changes in the overall decomposition of income by type of tax treatment as they concern specific populations.

Wages and compensations:	inc_earn_{prog}	$=$	$0.9 * (inc\_earn_{wages} + inc\_earn_{capital\_gains}) + inc\_earn_{except}$
	inc_earn_{exempt}	$=$	$0.1 * (inc\_earn_{wages} + inc\_earn_{capital\_gains}) + inc\_earn_{extra\_hours} + inc\_earn_{other}$
Replacement income:	inc_rpl_{prog}	$=$	$0.9 * (unemp + inc\_rpl_{pen} + inc\_rpl_{alim} + inc\_rpl_{rentes} + inc\_rpl_{invalid})$
	inc_rpl_{exempt}	$=$	$0.1 * (unemp + inc\_rpl_{pen} + inc\_rpl_{alim} + inc\_rpl_{rentes} + inc\_rpl_{invalid}) + rsa$
	inc_rpl_{flat}	$=$	$0.9 * inc\_rpl_{flat}$
Capital income:	inc_ci_{prog}	$=$	$0.6 * div_{abatt} + div_{nabatt} + inc\_ci_{other\_prog}$
	inc_ci_{exempt}	$=$	$0.4 * div_{abatt}$
	inc_ci_{flat}	$=$	$div_{lib} + bonds_{lib} + inc\_ci_{other\_flat}$
Self-employment income:	inc_se_{prog}	$=$	$inc\_se_{ss} + inc\_se_{sr} + inc\_se_{a} + inc\_se_{pv\_ct}$
	inc_se_{exempt}	$=$	$inc\_se_{exempt} + inc\_se_{pv\_exempt}$
	inc_se_{flat}	$=$	$inc\_se_{ss} + inc\_se_{pv\_lt}$