Estimating the Laffer Tax Rate on Capital Income: Cross-base Responses Matters*

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Abstract

We derive a formula to estimate the Laffer tax rates on capital income. Our theory clarifies what sufficient statistics need to be estimated: the elasticities of capital income (the "direct" elasticity) and of labor income (the "cross" elasticity) with respect to the net-of-tax rate on capital income. We estimate these elasticities using reforms between 2008 and 2017 in France. We obtain a direct elasticity around 0.66 which is very robust across specifications. Ignoring the cross elasticity would lead to a Laffer rate around 60%. However, since labor incomes are much larger than capital incomes, the Laffer tax rate is especially sensitive to the cross elasticity. We estimate this cross elasticity to be positive in France, which contradicts micro-foundations of this cross elasticity that relies on income shifting but which is in line with micro-foundations from two-period labor and savings models. Our estimate for the cross base elasticity dramatically decreases the Laffer rate which can be reduced down to 20%.

Keywords: Efficiency; Capital Income taxation; Panel data; Instrumental Variables Estimation;

JEL Code: H21; H24; H31; C23; C26

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I Introduction

Arthur Laffer's famous napkin[1] launched many controversies in both political and economics arenas. When a tax rate is above a certain point, hereafter refereed to the "Laffer rate", increasing further this tax rate might so much compress the corresponding tax base than government's revenue actually decreases. Hence, it is crucial for the design of fiscal policy to verify that actual tax rates are below the Laffer rate, and for this purpose, to estimate the Laffer rate. This is especially the case for capital income taxation which is likely among the most responsive tax base. This paper estimates the Laffer rate rate on capital income in France and argues this Laffer rate is very sensitive to cross elasticity of labor income to the net-of-tax rate[2] on capital income.

Our theory first emphasizes that the Laffer rate on capital income not only depends on the *direct* elasticity of capital income, but it also crucially depends on *cross* elasticity of labor income with respect to the net-of-tax rate on capital incomes. As labor incomes are actually much larger than taxable capital income in France, even with a small cross elasticity of labor income, a given capital tax reform results in much larger effects on labor income tax revenues than on capital tax revenues. It is therefore crucial not only to estimate the direct elasticity but also the cross elasticity, whose sign appears theoretically ambiguous. On the one hand, a micro-foundation of these elasticity by an income shifting model predicts a positive direct and a negative elasticity. This is because a lower tax rate on capital, i.e. a rise in the net-of-tax rate on capital, induces a shift from labor to capital. On the other hand, a two-period models in which taxpayers works and save in the first period and consume in the second period conversely predicts both elasticities to be positive. This is because a lower tax rate on capital, i.e. a rise in the net-of-tax rate on capital, increase the return of "working and saving" in the purpose of increasing future consumption. Hence, whether taking into account the cross elasticity increases or decreases the Laffer rate on capital income can only be answered by estimating empirically the cross elasticities of labor income to the capital net-of-tax rate.

For this purpose, we use a panel of French taxpayers records (POTE) which is now available

[1] According to the popular view, the Laffer curve was created by Arthur Laffer on a napkin at a Washington, DC restaurant, September 13th 1974. This napkin is actually exposed at the National Museum of American History. Blinder (1981) points that this view does not give justice to Jules Dupuit who wrote in 1844:

> "If a tax is gradually increased from zero up to the point where it becomes prohibitive, it yields is at first nil, then increases by small stages until it reaches a maximum, after which it gradually declines until it becomes zero again"

So the Laffer curve should rather be named the "Dupuit curve".

[2] The marginal net-of-tax rate is the complement of the marginal tax rate. It shows how much an after-tax income increases when before-tax income increases by 1. For example, if the marginal tax rate is 35%, the marginal net-of-tax tax rate is 65%.

to researchers on the CASD[3]. This administrative database covers the universe of taxpayers and contains an ad-hoc[4] identifier that allows us to track for each tax household the evolution of its tax returns from 2008 to 2017. Based on these data, we can identify direct and cross elasticities thanks to several salient capital tax reforms that took place between 2008 and 2017 in France. In particular, taxpayers were allowed between 2008 and 2012 to exclude their dividends from the personal income tax, in which case dividends were taxed at a flat rate named the PFL.[5] Among the reforms that we use to identify direct and cross elasticities are changes in the PFL rates between 2009 and 2012 and the removal of the PFL option after 2013.

We estimate an average elasticity of capital and labor income with respect to both marginal net-of-tax rates using an Instrumental Variable approach. This approach compares the evolution of incomes of different taxpayers according to the way they are affected by the different reforms. Following Auten and Carroll (1999) and Gruber and Saez (2002), our instruments are changes in marginal net-of-tax rates that would have been experienced by taxpayers if their incomes had not changed in real terms. In this way, the instruments keep only the part of changes in tax rates that are caused by tax reforms alone. These instruments allow us to interpret the estimated elasticities in terms of behavioral responses to taxation. We obtain a direct elasticity of capital income around 0.65, which appears robust across specifications. Ignoring cross response, this estimate leads to a Laffer rate on capital income around 60%. Moreover, we obtain a slightly positive and statistical significant cross-elasticity of labor income with respect to net-of-tax rate on capital incomes. This result suggest that the cross elasticity is not prominently explained by income shifting but rather by the impact of capital taxation on the incentive to work and save. Our estimated cross elasticity dramatically decreases the Laffer rate down to 45% taking into account only income tax on labor income and down to 25% taking also into account social security revenues. Hence, the Laffer rate on capital income is so much sensible to the estimate of cross elasticity that further investigation of cross responses of labor incomes to capital tax reforms are needed for policy recommendations.

This paper is part of the literature estimating the behavioral responses of taxable income to tax reforms.[6] In this literature Kleven and Schultz (2014) find in particular that capital income is characterized by an elasticity to its own marginal net-of-tax rate which is said to be higher than

[3]This is the POTE database which has been available on the Secure Data Access Centre (CASD) since June 12, 2019.

[4]This identifier does not allow us to retrieve the identify of taxpayers, thereby securing statistical and fiscal anonymity, but is sufficient to follow the same tax units across time.

[5]For *Prélèvements Forfaitaire Libératoires*.

[6]See Feldstein (1995), Auten and Carroll (1999), Gruber and Saez (2002), Saez (2003), Kopczuk (2005), Saez et al. (2012) and Weber (2014) on US data, Kleven and Schultz (2014) on Danish data and Piketty (1999), Lehmann et al. (2013), Cabannes et al. (2014), Sicsic (2020) on French data among many others.

labor income in Denmark (see also the results Hermle and Peichl (2018) on German data). Our contribution consists in studying not only the responses of capital income to their own marginal net-of-tax rate, but also in studying the responses of labor income to the capital marginal net-of-tax rate.[7]

We also contribute to the empirical literature on the taxation of dividends. Chetty and Saez (2005) and Yagan (2015) estimate the effect of the 2003 dividend tax cut in the United States. To do this, they use a difference-in -differences approach on companies data. Chetty and Saez (2010) and Yagan (2015) obtain elasticities of about 0.5 on dividends with respect to the marginal tax rate. Boissel and Matray (2019) obtain a statistically significant elasticity of dividends in France. Our contribution is to find a positive direct elasticity of capital incomes using households instead of firms data.

Several studies have highlighted income shifting behaviors[8]. Our results, in line on this point with Boissel and Matray (2019) and Ben Jelloul et al. (2019) and Lefebvre et al. (2021) suggest the absence of such behavior in France in response to capital taxation reforms before 2018, but the presence of significant income shifting in response to labor income taxation reforms.

Lastly, our article is part of a series of recent works studying behavioral responses to capital tax reforms in France. Guillot (2019) is concerned with the 75% tax on rate on earnings above $1,000,000$ € in 2013 and 2014. Pacifico (2019) studies the effects of more restricted in the ceiling of the tax advantage due to children in 2013 and 2014. Sicsic (2020) compares the estimated elasticities of labor income with respect to, one hand, personal income tax reforms and, one the hand to social tranfers. Boissel and Matray (2019) use the methodology of Chetty and Saez (2005) and Yagan (2015) on data from French companies, which enables them to study the effect of the *increase* in social security contributions applying to SARL executives that has occurred in France from 2013. Bach et al. (2019) study the effect of the removal of the flat tax option on capital income in 2013. They use difference-in-differences methods using both household and companies data. Conversely, the present paper use a bunch of capital tax reforms to estimate behavioral elasticities and therefore the Laffer rate. Aghion et al. (2019) highlight the divergence after 2013 between the trend in the incomes of taxpayers belonging to the upper percentile after 2012 compared to other taxpayers.

Section II provides the conceptual framework. Section III presents the data. Section IV

[7] Kleven and Schultz (2014) find that cross-elasticities between labor income and capital taxation are negatively significant but much lower than the direct elasticities. The authors find that the elasticity of labor income to capital taxation is zero over the entire period of interest in the study, and -0.028 for the main reform only

[8] See (Romanov, 2006) in Israel, (Alstadsæter and Wangen, 2010) in Norway, (Pirttilä and Selin, 2011, Harju and Matikka, 2016) in Finland, (Edmark and Gordon, 2013, Alstadsæter and Jacob, 2016) in Sweden and Tazhitdinova (2020) in the UK

describes the institutional context. Section V present the methodology and the results. The last section concludes.

II Conceptual framework

In this section, we clarify how cross-base responses impact the Laffer tax rate on capital incomes. We first present preferences. Second, we derive the optimal Laffer tax rate on capital income and discuss how it is impacted by the cross-base elasticity of labor incomes on capital income net-of-tax rates (NTR). Finally, we provide illustrating examples where cross base responses can be signed.

II.1 Preferences

The population is made of N Taxpayers indexed by $i = 1, ..., N$. Let y_1 denote (pre-tax) labor income and y_2 denote (pre-tax) capital income. To earn these incomes, a taxpayer needs to provide some efforts in one form or the other. For instance, larger hours of work or working more intensively increase labor earnings y_1. Larger capital income y_2 today requires more savings in the past, i.e. lower consumption in the past. All in all, preferences of taxpayer i between after-tax income (or consumption for short) c, labor income y_1 and capital income y_2 are described by a twice-continuously utility function $\mathscr{U}^i : (c, y_1, y_2) \mapsto \mathscr{U}^i(c, y_1, y_2)$ defined on $\mathbb{R}^3_+$ which is increasing in consumption c and decreasing in labor income y_1 and capital income y_2, i.e.: $\mathscr{U}^i_c > 0 > \mathscr{U}^i_{y_1}, \mathscr{U}^i_{y_2}$.

Combining the various tax schedules, let t_1 denote the marginal tax rate on labor income, t_2 the tax rate on capital income and let R be the demogrant defined such that the linearization of the budget constraint around the taxpayer's optimum is $c = (1 - t_1)y_1 + (1 - t_2)y_2 + R$. The taxpayer chooses her efforts, equivalently her labor and capital pre-tax income to solve:

$$\max_{y_1, y_2} \quad \mathscr{U}^i\left((1 - t_1)y_1 + (1 - t_2)y_2 + R, y_1, y_2\right)$$

The first-order conditions

$$1 - t_1 = -\frac{\mathscr{U}^i_{y_1}}{\mathscr{U}^i_c} \qquad 1 - t_2 = -\frac{\mathscr{U}^i_{y_2}}{\mathscr{U}^i_c}$$

equate, on the left-hand side, the marginal net-of-tax-rate (NTR) which captures the marginal increase of after-tax income from one additional euro of pre-tax income $j = 1, 2$, with, on the right-hand side, the marginal rate of substitution (MRS) between pre-tax income $j = 1, 2$ and consumption, which captures the utility cost in monetary term from one additional euro of pre-tax income $j = 1, 2$.

II.2 The Laffer Rate formula

We define the Laffer rate on capital income as the linear tax rate that maximizes government's revenue given the tax schedule on earnings. For this purpose we denote $T_1(\cdot)$ the potentially nonlinear tax schedule on labor earnings and by t_2 the linear tax rate on capital income. All else being equal, taxpayer i choose efforts and get labor incomes $Y_{1,i}(t_2)$ and capital incomes $Y_{2,i}(t_2)$ that are differentiable functions of the linear tax rate on capital income.[9] Cross-bases responses arise whenever labor earnings depends on the capital tax rate, i.e. whenever $\frac{\partial Y_{1,i}}{\partial(1-t_2)} \neq 0$. Finally, we denote $\mathcal{Y}_1(t_2) \overset{\text{def}}{\equiv} \sum_{i=1}^{N} Y_{1,i}(t_2)$ aggregate labor earnings and by $\mathcal{Y}_2(t_2) \overset{\text{def}}{\equiv} \sum_{i=1}^{N} Y_{2,i}(t_2)$ aggregate capital income. Government's revenue are defined as:

$$\mathcal{R}(t_2) \overset{\text{def}}{\equiv} \sum_{i=1}^{N} T_1\left(Y_{1,i}(t_2)\right) + t_2\, \mathcal{Y}_2(t_2)$$

The first term corresponds to tax liabilities on labor earnings and the second to tax revenue from capital incomes. A marginal variation of capital tax rate implies a marginal variation of tax revenue given by :

$$\frac{\partial \mathcal{R}}{\partial \tau_2} = \underbrace{\sum_i y_{2,i}}_{\text{Mechanical Effect}} \underbrace{- \tau_2 \sum_i \frac{\partial y_{2,i}}{\partial(1-\tau_2)}}_{\text{Capital Responses}} \underbrace{- \sum_i T_1'(y_{1,i})\, \frac{\partial y_{1,i}}{\partial(1-\tau_2)}}_{\text{Labor Responses}} \tag{1}$$

A unit increase in the capital tax rate affects government's revenue by three means. The first term corresponds to the *mechanical* increase in tax liabilities if tax bases were exogenous. This term is equal to the aggregate capital income aggregate capital income in the economy:

$$\text{Mechanical effect} = Y_2 \overset{\text{def}}{\equiv} \sum_i y_{2,i}$$

The second term results from the responses of capital income. A rise in the capital income shrinks the capital income tax base, thereby reducing tax revenue. Denoting $\frac{\partial \ln y_2}{\partial \ln(1-\tau_2)}$ the income weighted average of direct elasticity, this terms is equal to

$$\text{Capital responses} = -\frac{\tau_2}{1-\tau_2} \frac{\partial \ln y_2}{\partial \ln(1-\tau_2)} Y_2$$

The last term is novel and appears because of the response of labor incomes to capital tax reform. It sums for each taxpayer her response $-\frac{\partial y_{1,i}}{\partial(1-\tau_2}$ to the capital tax reform to the marginal tax rate $T_1'(y_{1,i}$ it faces. It worth noting here that there is nothing here specific with labor income, which should be more broadly interpreted as all income exclude from the tax schedule specific to capital income. Let $Y_1 = \sum_i y_{1,i}$ aggregate labor income, $\tau_1 \overset{\text{def}}{\equiv} \sum_i \left(T_1'(y_{1,i})\, y_{1,i}/Y_1\right)$ the

[9] To save on notations, we omit $t_{1,i} \overset{\text{def}}{\equiv} T_1'(y_{1,i})$ and $R \overset{\text{def}}{\equiv} T(y_1) - (y_{1,i})T'((y_{1,i}))$ in the arguments of functions $Y_{1,i}$ and $Y_{1,i}$.

income-weighted average of marginal labor income tax rates. Assuming homogeneous elasticities across taxpayers, labor income responses induces a variation in government's revenue of:

$$\begin{aligned}\text{Labor responses} &= -\frac{\tau_1\, Y_1}{1-\tau_2}\,\frac{\partial \ln y_1}{\partial \ln(1-\tau_2)}\mathrm{d}\tau_2 \\ &= -\frac{\tau_2}{1-\tau_2}\,\frac{\tau_1\, Y_1}{\tau_2\, Y_2}\,\frac{\partial \ln y_1}{\partial \ln(1-\tau_2)} Y_2\, \mathrm{d}\tau_2\end{aligned}$$

Equation (1) can be rewritten as:

$$\frac{\partial \mathcal{R}}{\partial \tau_2} = \underbrace{Y_2}_{\text{Mechanical Effect}} \underbrace{- \frac{\tau_2}{1-\tau_2}\,\frac{\partial \ln y_2}{\partial \ln(1-\tau_2)}\, Y_2}_{\text{Capital Responses}} \underbrace{- \frac{\partial \ln y_1}{\partial \ln(1-\tau_2)}\,\frac{\tau_1}{1-\tau_2}\, Y_1}_{\text{Labor Responses}}$$

which leads to the Laffer rate on capital incomes:

$$\tau_2 = \frac{1}{1 + \dfrac{\partial \ln y_2}{\partial \ln(1-\tau_2)} + \dfrac{\tau_1\, Y_1}{\tau_2\, Y_2}\,\dfrac{\partial \ln y_1}{\partial \ln(1-\tau_2)}} \tag{2}$$

The Laffer rate on capital incomes depend on the direct elasticity $\frac{\partial \ln y_2}{\partial \ln(1-\tau_2)}$ of capital income and on the cross elasticity $\frac{\partial \ln y_2}{\partial \ln(1-\tau_2)}$, which is scaled by the ratio between the tax revenue due to labor income $\tau_1\, Y_1$ and the tax revenue due to capital income $\tau_2\, Y_2$. This scaling factor shows up because how an elasticity matter depends on the size Y_i of the corresponding tax base and on the responsiveness τ_i of tax revenue with respect to this tax base.

To get how large is this scaling factor, we first use our dataset to get average *taxable* labor and capital incomes. Table 1 indicates that in 2011, labor income equal to $Y_1 = 64,896$ € per capita and capital income equal to $Y_2 = 5,046$ € per capita. Sicsic (2018) indicates average marginal tax rates τ_1 equal to 25%, which leads to $\tau_1\, Y_1$ around $16,224$ € per capita. However, these figures exclude Social Security Contribution (hereafter SSC), which plays a huge role in France. According to Sicsic (2018), labor cost are 35% higher than taxable labor income, which leads to $Y_1 = 87,610$ € per capita including SSC. Moreover, taking SSC into account increases τ_1 to 58% according to Sicsic (2018), which leads to $\tau_1\, Y_1$ around $50,814$ € per capita. Taking $\tau_2 = 30\%$[10] leads to a scaling factor $(\tau_1\, Y_1)/(\tau_2\, Y_2)$ around $10,7$ excluding SSC and around $33,5$ including SSC.

II.3 Two examples where the cross elasticity have opposite signs

While the direct elasticity is obviously expected to be positive, the sign of the cross elasticity is a priori unclear. To illustrate this point we successively consider two different specializations

[10] This figure exclude corporate tax. This is because Yagan (2015) and Boissel and Matray (2019) find that firms respond to change in dividend tax by changing their distribution policy, not by changing their investment behavior. Excluding corporate income tax from τ_2 is therefore consistent with the plasible hypothesis that change in the tax rate households faces on their capital income would have little impact on taxable corporate income.

of the general model to explore in each of these two micro foundations what is the sign of the cross elasticity. In both model, the direct elasticity is positive. However the cross elasticity is negative in the first income shifting example while it is negative in the second example.

The Income Shifting model

Let us first consider an income shifting model where effective labor income $x_1 > 0$ and effective capital income $x_2 > 0$ are exogenous. In such a framework, taxpayers have the ability at some monetary cost denoted $\Sigma(d)$ to declare an amount d of labor income as capital income, where the cost function Σ is twice differentiable, convex and verifies $\Sigma(0) = \Sigma'(0) = 0$. Hence taxable labor income is $y_1 \overset{\text{def}}{\equiv} x_1 + d$, taxable capital income is $y_2 \overset{\text{def}}{\equiv} x_2 - d$ and disposable income is $(1-t_1)y_1 + (1-t_2)y_2 + R - \Sigma(d) = x_1 + x_2 + R + (t_2 - t_1)d - \Sigma(d)$. The optimal amount of income shifted is determined by the first-order condition $\Sigma'(d) = t_2 - t_1$, which implies

$$0 > \frac{\partial d}{\partial(1-t_2)} = \frac{\partial y_1}{\partial(1-t_2)} = -\frac{\partial y_2}{\partial(1-t_2)}$$

A two period example

Consider the case where taxpayers live two periods. In the first period, labeled "Tod" for Today, taxpayers work and earn y_1, save s and consume d_{tod}. In the second period, labeled "Tom" for Tomorrow, savings become capital income $y_2 = \rho\ s$, where ρ stands for the gross return on savings and is typically larger than one. Labor income are taxed in the first period at rate t_1 with a demogrant R_1, so the first-period budget constraint is $d_{Tod} = (1-t_1)y_1 + R_1 - s$. Capital income are taxed in the second period at rate t_1 with a demogrant R_2, so the first-period budget constraint is $d_{Tom} = (1-t_2)y_2 + R_2 = (1-t_2)\rho\ s + R_2$. Finally, assume taxpayers' preferences over the consumption at both periods and labor (d_{Tod}, d_{Tom}, d_1) are described by a utility function which is additively separable and quasilinear in the consumption of tomorrow, i.e. $u(d_{Tod}) - v(y_1) + d_{Tom}$, with $u', v', v'' > 0 > u''$. The taxpayer thus choose labor income y_1 and savings to solve

$$\max_{y_1, s} \qquad u\left((1-t_1)y_1 + R_1 - s\right) - v\left(y_1\right) + (1-t_2)\rho\ s + R_2$$

The first-order conditions are

$$\frac{v'(y_1)}{u'\left((1-t_1)y_1 + R_1 - s\right)} = 1 - t_1 \qquad u'\left((1-t_1)y_1 + R_1 - s\right) = (1-t_2)\ \rho$$

The first order condition with respect to s implies that savings s, thereby capital income decrease with the capital tax rate t_2, so the direct elasticity with respect to the capital net-of-tax

rate is positive, i.e. $\frac{\partial y_2}{\partial(1-t_2)} > 0$. Combining the two first-order conditions implies that the utility cost of labor should be equal to the marginal return of "work and save", i.e:

$$v'(y_1) = (1-t_1)(1-t_2)\rho$$

Earning one more unit of income today enables $1-t_1$ additional units of savings, which eventually leads to $(1-t_1)(1-t_2)\rho$ additional units of consumption tomorrow. Hence, in this specific example, the marginal net-of-tax rate on capital income has the same impact on incentive to work than the marginal net-of-tax on labor income, which leads to $\frac{\partial y_1}{\partial(1-t_2)} > 0$. While the quasi-linearity assumption simplifies the analysis, it enables to clarifies that one works not only to consume today but also tomorrow, so a higher tax rate on savings also decreases incentives to work.

III Data

We use the POTE database [11] in panel format produced by the General Direction of Public Finance (DGFIP) on the CASD. These files contain all the elements of taxpayers' 2042 tax returns and of the 2042 complementary tax returns in France, as well as various processing variables used for the calculation of the income tax. They are exhaustive and include an encrypted identifier of tax households and an encrypted identifier of each taxpayer, which enable them to match the tax record of the same household[12] across years. Even if the income tax is declarative, since 2005, most of the item of the 2042 tax recorded is third-party declared[13] and pre-filled, taxpayers only having to verify the income tax records.

Each year, depending on the legislation, the definition of the declared income changes, which leads to changes in tax boxes. It is therefore necessary to take into account these changes to the tax boxes in order to maintain a stable definition of the different types of income used in this study (labor earnings, capital incomes, real estate incomes, self-employed incomes) to clearly define the control and treatment groups. To do so, we use the definition of category income that appears in the production balance sheets of the Tax and Social Income Survey (ERFS) produced by INSEE (National Institute of Statistics and Economics Studies) each year.[14] We use these documents to define for each year the income aggregates $y_{1,t}$, $y_{5,t}$, $y_{5pro,t}$, $y_{15,t}$, $y_{2,t}$, $y_{2div,t}$ and $y_{2int,t}$ whose simplified definition is described in Table 1, but with the constraint to

[11] Fichier Permanent des Occurrences de Traitement des Émissions

[12] In France, income tax applies to "tax units" (*foyers fiscaux*) and not individuals

[13] Most of in incomes are declared from salaries and wages, early retirement benefits, unemployment benefits, daily sickness benefits, exempt overtime, pensions and income from movable capital received are declared by employers, pension funds, public employment service, payroll tax administration, banks

[14] INSEE provides an ERFS production balance sheet in which it defines the category income of tax households in correspondence with the boxes on the tax returns, whether taxable or not.

keep stable definition of the different incomes.

Labor Incomes	
$y_{1,t}$	Wages + Unemployment benefits + Pensions
$y_{5,t}$	Farm incomes + Self-employed incomes
$y_{15,t} \overset{\text{def}}{\equiv} y_{1,t} + y_{5,t}$	Labor incomes
Capital incomes	
$y_{2,t}$	Capital incomes taxed at the flat tax + Capital incomes including in the computation of personal taxable income
$y_{2div,t}$	Dividends taxed at the flat tax + Dividends including in the computation of personal taxable income
$y_{2int,t}$	Fixed capital incomes

Table 1: Income aggregates created for each years t

Despite the attention paid to the stability of the definition of the different incomes, some changes cannot be dealt with [15] However, these changes have no effect on the results of this study. [16].

Once the various income aggregates for each year constructed, a cylindrical panel of tax returns is build using the encrypted tax identifiers corresponding to household, tax filer "1", and tax filer "2". This technique excludes from our study households that experienced divorce, death, PACS or marriage between 2008 and 2017.

It should be noted that the capital income taken into account in our analysis is the taxed income, present in the tax data. Other capital income is not taxed, such as income from different passbooks (livret A, LDD...) and some life insurance and PEA income. Our paper does not allow us to give any results on the effect of the reforms studied on these incomes.

We select the households in our panel that have reported labor income and capital income over the studied period (2008-2017). We remove from our sample only the extreme values in terms of annual changes in capital income [17]. Our base sample, we follow more than 2.8 million tax households each year. It should be noted that 42.2% of the households in our panel are accounted for by one retired person at least.

[15] such as specific schemes on pension increases for retirees having raised at least 3 children and the employer and employee contributions to the collective contracts for complementary health care in the declared incomes $y_{1,t}$ from 2014 onwards.

[16] These changes could lead us to consider an increase in income $y_{1,t}$ in 2014 to be linked to the scaling; on the contrary, we find that the reform would have a negative (but very small) effect on this income, which indicates that this change in the box should not worry us. Moreover, for pension increases, the robustness tests on retirees show no effect of the reform on this population, so this change in the tax box contour would have no effect on our conclusions.

[17] We remove to our sample households which capital incomes annual variation holds between the 5^{th} and the 95^{th} centile.

Statistiques	$y_{15,2011}$	$y_{2,2011}$	RFR_{2011}
	2 854 069 foyers		
Moyenne	64 896	5 046	68 487
Écart-type	51 891	83 566	142 630
P75	70 709	1 691	69 800
Médiane	53 184	352	50 978
P25	42 905	44	40 812

Table 2: Descriptive statistics

Marginal Tax Rate Simulation

For the estimation of elasticities using the instrumental variable method *à la* Auten and Carroll (1999) and Gruber and Saez (2002), we need to simulate each year the amount of income tax and social security contributions payed in order to calculate the marginal effective tax rates on different types of income. To do this, we partly use the tax block and the parameters of the INES microsimulation model co-managed by INSEE, DREES and Cnaf and freely available since 2016.[18] We thus simulate over the period 2008-2017 the income tax brackets, income tax advantage due to children and its ceiling, and the main deductions to reconstitute a income based tax from declared income. We also simulate the CSG and CRDS on labor and capital incomes over the period 2008-2017 (based on the rates applicable to income, deducted from net income by simulating employee contributions for high earners[19]). Taking social security contributions into account makes it possible to reconstitute the effective taxes faced by individuals (excluding corporation tax for dividends) and thus to have elasticities closer to real ones. To calculate the effective marginal tax rates on each income, we increase the different incomes by 5% in turn, which allows us to deduct a marginal tax rate by comparing the modified tax paid with the one simulated in the counterfactual scenario. For the econometric analysis, the marginal net-of-tax rates will be used and are calculated as the complement to 1 of the marginal rates. Thanks to our panel, we can build the different instruments according to the method of Auten and Carroll (1999) and Gruber and Saez (2002) by recovering the revenues of previous years and applying them inflation rate.[20] We create the instruments related to each change in

[18] See https://www.insee.fr/fr/information/2021951 for a quick description or the more detailed presentation in https://adullact.net/projects/ines-libre.

[19] The simulation of employee contributions is crude and does not take into account the non-linear scale depending on the annual social security ceiling (see Sicsic (2020) for the scale). We pretend that all the individuals in our sample are in the last brackets.

[20] This calculation is simple for dividends or business income, but is more complicated for fixed income investment products. Indeed, the latter were included in box 2EE but this box also includes other types of income (life insurance products with a duration of less than 8 years, solidarity savings products and fixed income investment products paid in an uncooperative state). The latter income was not taxed at the scale and remained in box 2EE after 2013, while the fixed income investment products taxed at the scale are reported in box 2TR from 2013 onwards. It is estimated that 83% of income previously reported in 2EE was reported in 2TR as a result of the reform, which we used to simulate the instruments between the years before 2012 and 2013.

interest variables.

IV Policy Variations

We describe in this section the main policy variations that we used for our identification.

Between 2008 and 2012, taxpayers could choose between two options for the taxation of their dividends and capital income (excluding life insurance).[21] Taxpayers can opt to include these incomes in the personal income tax base. In this case, the dividends benefit from a 40% tax discount. Moreover, dividendes benefits from an additional lump sum discount of 1 525 € for singles and of 3 050 €for couples from 2008 to 2011. Alternatively, they could opt for the flat tax, namely the *Prélèvement Forfaitaire Libératoire* (PFL). Incomes at the PFL are then excluded from the personal income tax base. Instead they are taxed at flat rate, which is different for interests and dividends. The PFL rates gradually increase in 2011 and 2012.

In 2013, the PFL option is removed and dividends and interests are included the personal income tax base from 2013 ownwards so that all capital incomes are included in the personal income tax base between 2013 and 2017. The PFL remained only for life insurance contracts and some specific tax-advantaged assets[22] The 40% discounts on dividends was maintained to compensate the fact that interest where deductible from the corporate income tax. For taxpayers belonging to 45% income tax bracket who opted for the PFL before 2012, the removal of the PFL option increased marginal tax rate on dividends from 36.5% [23] to 40.2% [24] and marginal tax rate on interests from 39.5% [25] to 58.2% [26], excluding tax exemptions [27]. Figure 1 summarized marginal tax rate on dividends (left panel) and interests (right panel) for taxpayers opting for the PFL up o 2012

On top of these main reforms, several other reforms were implemented during the period, the main of them being:

[21] It concern income from non-exempt capital products such as income from shares and company units, interest from government bonds, Treasury bills, interest from home savings plans subscribed for more than 12 years.

[22] The PFL was maintained for solidarity savings products given within the framework of a solidarity-based automatic payment mechanism (PFL at a reduced rate) and interest paid to a non-cooperative State or territory (whose PFL was higher). It should also be noted that the income tax and PFL exemption of regulated savings books and contractual savings products has not been affected by the reform: these products have remained exempted.

[23] which corresponds to the sum of the PFL of 21% and the 15.5% for social security contribution (SSC) on capital income

[24] This corresponds to the application of the marginal tax rate of 45% on the 60% of taxable dividends, taking into account a 40% tax rebate on dividends plus 15%.5 SSC, taking into account the 5.1% CSG deduction: $40.2\% = 0.6 times 45\% + (15.5\% - 0.45 times 5.1\%)$.

[25] which is the sum of the 21% PFL and the 15.5 % SSC on capital income

[26] which corresponds to the application of the marginal tax rate of 45 % plus 15.5 % SSC, taking into account the rebate of 5.1 % of CSG: $58.2\% = 45\% + (15.5\% - 0.45\%, 5.1\%)$. (Conseil des Prélèvements Obligatoires, 2018)

[27] Solidarity savings products are still subject to a PFL at a rate of 5 %. Life insurance policies held for 8 years or more are always subject to a PFL of 7.5%, and those held for less than 8 years are subject to a PFL of 15 or 35% (depending on whether they are more or less than 4 years old). Investment income paid in an uncooperative state is taxed at a rate of 75 %

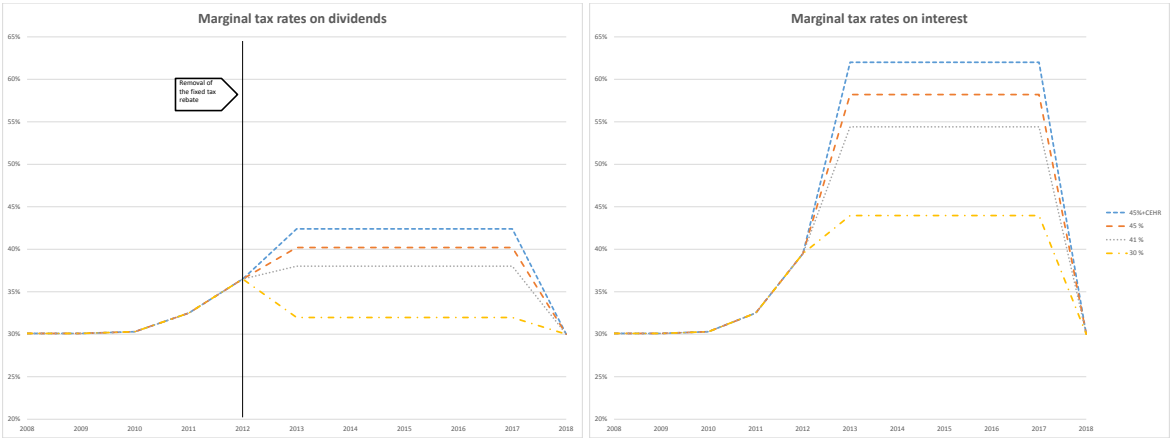

Figure 1: Evolution of dividends and interests' marginal tax rate

- An income tax "bracket creep" in 2011 and 2012: the kinks of the personal income tax schedule, which are usual inflated each year, were exceptionally kept unchanged in nominal terms in 2011 and 2012.
- The removal of the lump sum discount on dividends from 2012 onward[28];
- The **the inclusion of capital gains on securities in personal income tax** from 2013 onward, thus creating a new category of income subject to income tax scale, capital gains on securities having previously been subject to a flat tax.
- The obligation to pay **social security contributions on the dividend of small firms (SARL) managers in excess of 10% of the share capital** introduced by the 2013 Social Security Finance Law, a reform studied by Boissel and Matray (2019).
- A more restricted ceiling of the tax advantage due to children in 2013 and 2014: the ceiling decreases from 2,336 € per additional half share to 2,000 € in 2013 and 1,500 € in 2014. The effects of this reform have been studied in particular by Pacifico (2019) and Sicsic (2020).
- the creation of an income tax bracket with a marginal rate of 45% for income above 150,000 euros in 2013 (on 2012 income), studied by Sicsic (2020).
- The implementation of a Special tax on High Income Contribution Exceptionnelle sur les Hauts Revenus, CEHR in 2012. The CEHR depends on the reference tax income[29] (RFR): 3% for Reference Taxable Income (RFR) above 250,000 € for singles and 5000,000 € for

[28] In 2011 the amount of the annual fixed tax rebate was set at 1,525 for singles and 3,050 for couples subject to comprehensive taxation.

[29] The equivalent of Adjusted Gross Income in the French system

couples and 4% for a RFR above 500,000 € for singles and 1,000,000 for couples. It leads to a 49% top MTR.

- A rise of marginal tax rate on earnings above 1,000,000 € in 2013 and 2014, a reform studied by Guillot (2019).

Hence, over the period, the most salient tax reforms concerned capital income.

Figure 2 displays the evolution of the mean of the logarithmic of capital (left panel) and labor (right panel) income for two groups of taxpayers. On the one hand, there is a "treatment group" that includes all taxpayers who have continuously declared their dividends or interests or both to the PFL between 2008 and 2011. On the other hand, the "control group" includes all other tax taxpayers. The mean of logarithms of incomes are normalized to zero in 2011 (the year before the mains reforms) in order to compare the differences in the evolution of capital income between the two groups.

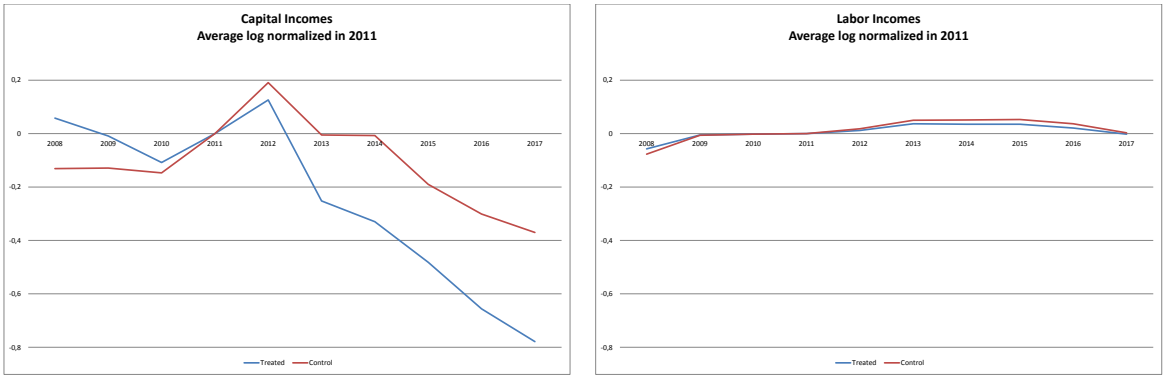

Figure 2: Evolution of taxpayers' labor and capital incomes

The left panel of Figure 2 shows that there is no divergent evolution of capital income between the two groups from 2008 to 2011. Conversely, from 2013 onward, capital income decrease much more rapidly in the treatment group than in the control group, suggesting a causal effect of capital tax reforms on capital income. A potential mechanism explanation for the responses of capital income would be the decisions to shift taxpayers' earning as dividends, especially for self-employed taxpayers. Under such income-shifting responses, one would observe a more positive evolution of earnings in the treatment group than in the control group. However, we do not observe such a divergence in the right panel of 2.

Hence, while Figure 2 suggests huge behavioral responses to capital tax reforms in France, and it also suggests that income shifting from earnings to dividends played a little role if any in these responses. However, this graph only illustrates some suggestive evidence about behavioral response to one salient capital tax reform. To compute the Laffer tax rate, we conversely

need to estimate both the direct elasticity of capital income and the cross elasticity of labor income to the marginal tax rate, which we conduct in the next section using an IV approach.

V Results on elasticities and laffer rates

V.1 Estimation Strategy

To estimate the sufficient statistics highlighted in the theoretical section (the elasticity of income k to the marginal net-of-tax rate to the MNTR of capital income $1-\tau^2$), we estimate the following equation:

$$\ln\left(\frac{y^k_{i,t}}{y^k_{i,t-1}}\right) = \alpha + \beta^1 \ln\left(\frac{1-\tau^1_{i,t}}{1-\tau^1_{i,t-1}}\right) + \beta^2 \ln\left(\frac{1-\tau^2_{i,t}}{1-\tau^2_{i,t-1}}\right) + \mu_{i,t} \tag{3}$$

This (log) difference specification has the advantage of eliminating individual fixed effects that capture heterogeneity across taxpayers that are invariant over the time. Nevertheless, ordinary least squares estimation of equation (3) would not only capture the effects of tax variables on income, but also the effect of different types of income on the marginal tax rates faced by taxpayers given the progressivity of taxes. To correct for these simultaneity biases, a two stage least squares estimator is implemented, using the instrumentation strategy originally proposed by Auten and Carroll (1999) and Gruber and Saez (2002). The instruments correspond to the changes in the (log) marginal-net-of tax-rate (MNTR) that would have occurred if taxpayer's income have been kept unchanged between years $t-1$ and t in real terms, also called mechanical MNTR i.e.

$$\ln\left(\frac{1-\overline{\tau}^k_{i,t}}{1-\tau^k_{i,t-1}}\right) \qquad \text{où} \qquad \overline{\tau}^k_{i,t} \overset{\text{def}}{\equiv} \frac{\partial T_t(y^1_{i,t-1}, y^2_{i,t-1})}{\partial y^k} \tag{4}$$

where $\overline{\tau}^k_{i,t}$ represents the partial derivative of the tax rate of the year t compared to the k^{th} income, evaluated at the income of the year $t-1$. It is therefore the mechanical variation of the (log of the) marginal net-of-tax rate that is only caused by changes in tax scales, and not the variations in MNTR that would appear as a result of changes in income that wouldn't be caused by responses to the tax reforms.

However, it is well know that mean reversion and heterogeneous trends between different income groups are serious challenge to the validity of this IV approach (Kopczuk, 2005, Saez et al., 2012, Weber, 2014). The first problem causes a negative correlation between the level of income and its variation in the following period. The second problem proved particularly daunting on US data given the context of persistent increases in inequality. Thus, when the wealthiest taxpayers experience both faster income growth and a sharp decline in their marginal tax rate, how can one distinguish between faster income growth caused by tax reforms and that caused by trends towards income divergence and increased inequality? To adress these issues, Auten

and Carroll (1999) add in the right-hand side of the equation (3) the log of the income in $t-1$ while Gruber and Saez (2002) proposed to add a richer nonparametric specification based on splines per deciles of income. Kopczuk (2005) and Saez et al. (2012) have, however, shown how, on American data, the results are extremely sensitive to the specifications used to control these phenomena, which casts serious doubt on the reliability of the results. It is therefore essential to check the robustness of the results to a change in specification.

In this study, we use different functions of the reference tax income[30] (RFR) of the year $t-1$ to control for these phenomena. Finally, we believe it is essential to add temporal indicators in the control variables to control for macroeconomic effects. Hence, we estimate by the 2SLS method:

$$\ln\left(\frac{y^k_{i,t}}{y^k_{i,t-1}}\right) = \beta^1 \ln\left(\frac{1-\tau^1_{i,t}}{1-\tau^1_{i,t-1}}\right) + \beta^2 \ln\left(\frac{1-\tau^2_{i,t}}{1-\tau^2_{i,t-1}}\right) + \Phi\left(RFR_{i,t}\right) + \sum_{k=2008}^{2016} \delta_k \mathbb{1}_{t=k} + \mu_{i,t} \quad (5)$$

where $\Phi(\cdot)$ is either the log function as in Auten and Carroll (1999) or the specification originally proposed by Gruber and Saez (2002) which consists of introducing a 10 piece spline in log first period RFR.

V.2 Results

The results of the estimations of the equation (5) are transcribed in the table 3. These results are obtained by two stage least squares, using the instruments given by the equation (4).

	$\frac{\partial \ln y^1}{\partial \ln(1-\tau^2)}$ (a)	$\frac{\partial \ln y^2}{\partial \ln(1-\tau^2)}$ (b)
(1) Baseline (Splines of RFR_t)	**0.0675***** (**0.0015**)	**0.6607***** (**0.0061**)
(2) Direct elasticities	$\emptyset$	0.6538*** (0.0060)
(3) Splines of $\ln RFR_{t-1}$	0.1109*** (0.0016)	0.6654*** (0.0061)
(4) Retirees	$0,031^{***}$ (0,002)	$0,876^{***}$ (0,015)

Table 3: Equation (5) Estimates

The first row of the table 3 shows the equation (5) estimates results on our sample. Column (b) is the estimate of the direct capital income elasticity y_2 to their own MNTR. We find a particularly high elasticity around 0.66. Column (a) displays the estimates for the labor income cross elasticity estimate at the capital income MNTR, which we find around 0.06, which is statistically significant at 1%.

[30] RFR is the concept of taxable income before deduction that is close in spirti to AGI on US data

We obtain a positive cross elasticity while the mechanism of income-shifting predicts on the contrary a negative elasticity. A decrease in the marginal tax rate on income from capital implies an increase in the marginal net-of-tax rate τ_2 on capital income. The income-shifting mechanism predicts that taxpayers will react to this increase in the MNTR of capital income by shifting labor income into capital income, which would *increase* capital income (i.e. $\frac{\partial \log y_2}{\partial \log \tau_2} > 0$) and *decrease* the labor income (i.e. $\frac{\partial \log y_1}{\partial \log \tau_2} < 0$). Thus, this result supports our conclusion that there are no income-shifting effects following a change in the marginal rate of capital.

Row (2) of table 3 seeks to verify that our estimate of direct elasticity $\frac{\partial \log y_2}{\partial \log \tau_2}$ are not contaminated by the estimated $\frac{\partial \log y_1}{\partial \log \tau_2}$ cross-effect. The elasticity of capital income at its own MNTR (column (b)) is remarkably unchanged.

		$\frac{\partial \ln y^1}{\partial \ln(1-\tau^2)}$ (a)	$\frac{\partial \ln y^2}{\partial \ln(1-\tau^2)}$ (b)
(1)	Without controls	0.1638^{***} (0.0015)	0.6681^{***} (0.0061)
(2)	$\ln RFR_t$	0.0632^{***} (0.0015)	0.6606^{***} (0.0061)
(3)	**Splines of $\ln$ RFR$_t$**	$\mathbf{0.0675}^{***}$ (**0.0015**)	$\mathbf{0.6607}^{***}$ (**0.0061**)
(4)	$\ln RFR_{t-1}$	0.1090^{***} (0.0016)	0.6648^{***} (0.0061)
(5)	Splines de $\ln RFR_{t-1}$	0.1109^{***} (0.0016)	0.6654^{***} (0.0061)
(6)	$\ln\left(\frac{RFR_t}{RFR_{t-1}}\right)$	0.1631^{***} (0.0015)	0.6681^{***} (0.0061)
(7)	Splines of $\ln\left(\frac{RFR_t}{RFR_{t-1}}\right)$	0.1538^{***} (0.0015)	0.6561^{***} (0.0060)
(8)	$\ln RFR_t$, $\ln\left(\frac{RFR_t}{RFR_{t-1}}\right)$	0.0774^{***} (0.0015)	0.6620^{***} (0.0061)
(9)	Splines of $\ln RFR_t$ and splines of $\ln\left(\frac{RFR_t}{RFR_{t-1}}\right)$	0.0812^{***} (0.0015)	0.6687^{***} (0.0061)
(10)	Splines of $\ln RFR_{t-1}$ and splines of $\ln\left(\frac{RFR_t}{RFR_{t-1}}\right)$	0.0826^{***} (0.0015)	0.6689^{***} (0.0016)

Table 4: Specifications with control on taxable income, Instruments (4)

The method of Auten and Carroll (1999) and Gruber and Saez (2002) for estimating income elasticity at it marginal net-of-tax rate has been the subject of intense criticism in the literature Saez et al. (2012). The difficulty is that this method has often been used in a context where the wealthiest taxpayers have benefited at the same time from the largest reductions in marginal tax rates and have experienced faster income growth than other taxpayers (Weber, 2014). It is therefore generally particularly difficult to distinguish in this difference in income growth between what is due to tax reforms and what is due to a trend of increasing inequality. Kopczuk

(2005) showed in particular how estimates on U.S. data were particularly sensitive to the specification of income controls (the $\Phi(\cdot)$ function in the equation (5)). Therefore, in row (3) of the table 3, we re-estimated the equation (5) assuming a log-linear 10-piece splines of the previous year taxable income (per decile of RFR), as in Gruber and Saez (2002). Note that the estimates in lines (1) and (3) are very close which strengthen the reliability of our results. This can be explained by the fact that since inequalities are much less dynamic in France, the problem of heterogeneity of trends by income groups is much less likely to contaminate the estimation of the (5) equation. Moreover, since we are dealing with an increase in marginal tax rates, ignoring the effects of a possible increase in inequality would tend to underestimate the effect. Table 4 presents other estimated results we carried out in changing the specification used to control this effect.

Given the average age of our taxpayers and the fact that retirement pensions are included in the income aggregate y_{15} (see Table 1), we may wonder whether the low elasticity of labor income at their own MNTR may not be due to an over-representation of retirees in our sample. Row (4) of Table 3 then shows the results of the estimation of the equation (5) by restricting itself to a sub-sample of retirees tax households. Such a restriction leads to very close results.

V.3 Policy implications: the Laffer Rates

In this section, we use our estimates to calculate the capital income tax rate that would maximize government revenues: the Laffer tax rate. To do this, we use the equation (2), and the econometric estimates obtained (see row (1) of Table (3)). Neglecting the cross-responses, the Laffer rate would be equal to $\tau_2 = 60,2\% \simeq 1/(1+0,66)$, given our estimate of 0.66 for the direct elasticity of capital income, which appeared robust.

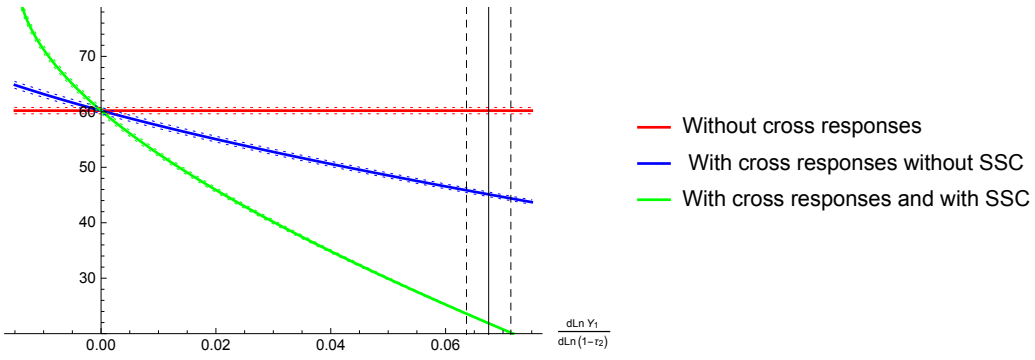

Figure 3: Laffer tax rates as a function of the cross elasticity $\frac{\partial \ln Y_1}{\partial 1-\tau_2}$

But this first calculation, which corresponds to the red curve in Figure 3, ignores the effects of the taxation of capital on labor incomes. The higher the cross elasticity $\frac{\partial \ln Y_1}{\partial \ln(1-\tau_2)}$, the greater

the decrease not only of capital income, but also of labor income in response to the higher the tax rate on capital income, and therefore of the taxes levied on the latter. However, since labor income represents a much higher tax burden than capital income [31] the Laffer tax rate appears to be particularly sensitive to the estimation of the cross elasticity $\frac{\partial \ln Y_1}{\partial \ln(1-\tau_2)}$ of labor income to the marginal net-of-tax rate on the capital income.

This sensitivity is illustrated by Figure 3 which shows how much the Lafferian rate decreases with cross elasticity $\frac{\partial \ln Y_1}{\partial \ln(1-\tau_2)}$. The latter is represented on the x-axis of figure 3, the y-axis corresponding to the Laffer rates. The blue curve represents the Laffer tax rate, taking into account only income tax on labor income. We would obtain a Laffer rate around 45.1% if we retained a cross elasticity of 0.067, which is in line with our econometric results. [32]. If we also integrated employee and employer social contributions, we would then obtain a significantly lower Laffer rate, represented by the green curve in Figure 3. It should be noted that if the cross-elasticity were negative, which would be in line with the income shifting mechanisms, the Laffer rates would become higher than 60.2%.

VI Conclusion

In this paper, we have shown that the cross-base responses matters to calculate the Laffer tax rates on capital income. We derive a formula to estimate the Laffer tax rates and highlighted what sufficient statistic are needed to compute Laffer rates. We then estimate these statistics using reforms between 2008 and 2017 in France with instrumental variables method. The Laffer rate would be equal to 60%, given our estimate of 0.66 for the direct elasticity of capital income, which appeared robust. But we show that since labor income represents a much higher tax base than capital income, the Laffer tax rate is particularly sensitive to the estimation of the cross elasticity of labor income to the marginal net-of-tax rate on the capital income. We estimate this cross-elasticity positive, which conduct the Laffer tax rate to be lower that value using only the direct elasticity, around 45.1% taking into account only income tax on labor income and lower taking into account payroll taxes.

However, these calculations of Laffer tax rates must be taken with caution because of the numerous underlying simplifying assumptions. First of all, it should be remembered that our es-

[31] we have chosen average earned income $Y_1 = 64\,896$ for earned income (excluding social security contributions) and $Y_2 = 5\,046$ on the basis of the table below. Sicsic (2018) indicates average marginal tax rates on gross labor income around 25% excluding social contributions (whether or not the marginal rates are weighted by income). When social security contributions are included, it takes the average marginal rate of 58% and adds 35% to gross earned income to interpret it as super-gross earned income. Finally, we considered a rate of 30% on capital income in the status quo economy. The calculation of the Laffer tax rate takes into account the responses of Y_1 and Y_2 to variations in t_2.

[32] The vertical lines in Figure 3 represent our estimate of the cross elasticity and the 95% confidence interval around this estimate.

timates relate only to capital income, and exclude financial capital gains in particular. Next, our calculations of Laffer tax rates presuppose homogeneous elasticities across taxpayers receiving financial income, a simplifying hypothesis whose empirical relevance and consequences for the calculation of the Laffer tax rate are beyond our control.[33]. Moreover, if we obtain a lower Laffer rate by taking into account cross-responses, it is only because our econometric exercises lead us to a positive estimate for this cross-elasticity. This econometric result may be surprising because it is contrary to the intuitions inspired by income-shifting mechanisms. A positive elasticity is nevertheless theoretically compatible with the following idea : an increase in the marginal tax rate on capital reduces the benefit of earning additional income from activity in order to save. Thus, an increase in the taxation of capital income would reduce incentives to earn earned income. However, our estimate of a positive cross-elasticity would benefit from further empirical confirmation. Moreover, while the sign of the elasticities we have estimated seems robust, we should not underestimate the remaining uncertainty about the exact values of the elasticities, particularly in light of the table 3.

Finally, it is likely that a significant proportion of the behavioral elasticities that we have estimated reflect tax optimization behavior. Reducing tax optimization opportunities, allowed in particular by certain tax expenditures, would then have an effect on the elasticities, and thus on the Laffer tax rates. Nevertheless, this argument assumes that tax optimization mechanisms are sufficiently well understood to know what changes in the tax code and tax collection techniques are necessary to reduce tax optimization opportunities and thus increase Laffer tax rates. However, our understanding of the mechanisms by which taxpayers react to capital tax reforms unfortunately remains limited. This is why it seems interesting and important, beyond the limits inherent to this exercise, to simulate which Laffer tax rates are induced by the elasticities we have estimated.

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