Leisure as a complement of banking: Taxing financial services for reducing leisure time?

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ABSTRACT: Optimality of consumption taxes as VAT can be conditioned by the reduction of working time respect to leisure. Nonetheless, may we tax a good or service complementary to leisure? In this case, by applying the tax, the good itself would be discouraged, but also leisure at the same time. This paper theoretically discusses and analyzes the potential complementarity or neutrality of financial services regarding leisure time. A reduced general equilibrium model is developed, suggesting their complementarity. This is confirmed in the empirical section, where data from 30 OECD countries for 2018 is employed, obtaining that some financial indicators are usually complements of leisure, specifically for women, who are also sensitive in their leisure time to other fiscal and commercial variables. This show that the elimination of the exemption of financial services under VAT may discourage leisure hours, offsetting the discouragement of working hours by the general VAT.

JEL Codes: J22, H21, H25, G21

Key Words: Leisure time, financial services, complementarity, financial VAT, optimal taxation

1. Introduction

There is a well-established idea that new technologies will make employees 'free' from work. Indeed, some early economists already predicted a no-so-far future without work. So, and pending on the purpose and type of policy agenda by the law-makers, it would be good to be able to find new ways of encouraging or discouraging work, depending on the aim and case. In fact, recently some of the "leisure time" we spend is considered that could be paid by remuneration ("unpaid working activities" as volunteerism, going shopping, even house work). Nonetheless, the estimated quantity of this remuneration is far from be solved, and further research is necessary.

Currently, time becomes a high valuable commodity because it is scarce due to long working hours, mostly in developed countries, constraining the leisure time to enjoy (Gratton and Taylor, 2004). A view on the mechanisms that encourage/discourage leisure time would be interesting for solving this kind of problems. This paper contributes a new insight on the issue of considering financial services as a potential complementary good from leisure, proposing the "pure interest", interest without fees nor risk, a kind of rate of time preferences, as a potential determinant on the calculation of the remuneration of the unpaid work, or even of the strict free time. In fact, and thanks to this view, alternatively both work and leisure can be encouraged/discouraged depending on the way policy-makers deal with the financial sector. This paper shows that leisure and capital income can be considered complementary goods. So, for instance, taxing capital may also discourage leisure, but would encourage work hours, in contrast. Therefore, the financial sector could also be an instrument in the leisure-work public and fiscal policies.

The rest of the paper is divided as follows. Second section provides a brief literature review on the issue. Third section formulates the theoretical expectations of the paper by discussing the potential complementarity or neutrality of financial services and leisure. Fourth section develops a reduced model of general equilibrium illustrating this. Fifth section proposes the empirical methodology and data used for confirming the relationship or not. Sixth section shows the empirical results and discusses them. Finally, seventh section concludes.

2. Literature Review

This section starts with a brief review of the existent literature on leisure and financial services, continues showing knowledge on taxing leisure, and finally, develops some essential concepts for the next sections.

There is a scarce literature regarding the link between financial services and leisure time. Nonetheless, recently Yu et al. (2021), have shed further light on the limited research regarding, in this case, the role of the personal financial situation on a special case of spending leisure time, the leisure travel time experiences. According to these authors (p.1), "leisure travel satisfaction–leisure life satisfaction relationship is negatively moderated by current money management stress". Previous literature includes O'Brien (1981), who uses finance as indicator of retirement satisfaction after work. It is well-known that retired people have more spare time because they do not work, and also that they have on average a higher purchase power due to the earnings saved along their whole life. This can lead us to expect a positive sign of the relationship between finance and leisure. In this case of retirement, a higher taxation of financial services would not necessarily lead to a decrease in the leisure time, because they are probably in many cases less able to work.

Leisure can also be related to financial services in a first view by considering both as resources for mobilizing social capital (Pena-López et al., 2021). In fact, these authors perform a survey to some families regarding instrumental and expressive questions that reflect the effective mobilization of social capital, as proposed by Van der Gaag and Snijders (2005 and 2008) through social resources regarding family, work and leisure, which range from material resources as buying a good or a financial service, to intangible ones as love, empowerment or the well-use of information.

Additionally, inflation can also be influenced by leisure and finance. In this paper we go further than Gillman (2020), who finds two main channels for eluding the well-known inflation tax: via banking and via leisure. The first one produces credit, using less cash for the purchases, and the last one avoids the tax by spending less money on goods. This paper finds an additional complementarity: both are narrowly associated since the same time is used in leisure and earning interests simultaneously. The previous author considers that, comparing leisure and banking, the previous services consume a higher

inflation welfare cost than leisure, making the money demand more elastic with banking.

Regarding the taxation of leisure, Alvarez et al. (1992, p. 112) state: “A first-best outcome requires the taxation of leisure; but governments cannot tax leisure, only labour earnings or commodities”. A relevant reason is the measurability of the value added of the leisure time, because in most cases it is not remunerated in any way. Nonetheless, apart from the proposed complementarity of the banking-leisure binomial, other authors have proposed to tax other facts as complements of leisure; for instance, Heijdra et al. (2015) suggest the taxation of pollution as an alternative to taxing labor because they consider that environmental quality and leisure are complements. Additionally, they consider environmental quality and physical capital behave as substitutes in the long term. This is not in contradiction with the main hypothesis of this paper, because in this paper financial capital, not physical, is going to be considered.

Scitovsky (1951: pp. 90-92) suggests that "the imposition or raising of an income tax […] tends to diminish people's willingness to work", which is subject of discussion among economists since several years ago. According to Winston (1965), the imposition of taxation on income produces an indeterminate effect on the allocation of time devoted to leisure, because of the opposite directions of the substitutions and income effects after the tax. Regarding the empirical evidence of whether taxes actually affect work hours and leisure, Mocan (2019) finds that, for their sample population in general, taxes influence in the work hours, but culture of leisure only significantly influences on women, in contrast to men.

Klever (2004), and based on the Becker’s (1965) theory of time allocation, suggests to levy with a lower tax rate those market goods that require little household time, or which even save time. According to Sepulveda (2021, p. 1), “goods that offer greater time savings with respect to their more affordable substitutes should also receive favorable tax treatment”. According to Atkinson and Stiglitz (1976), as leisure time is weakly separable from utility, the optimum in the tax system involves a uniform tax on consumption. Translating it into a Becker environment, this uniform tax has to follow a inverse factor share rule. This Atkinson–Stiglitz–Becker proposition leads to discussion regarding the capital taxation. The life-cycle consumption has different intensities of consumption along time. The use of household time, and so of leisure, will be higher in

the retirement days than in their working age. Consequently, there should be a relatively high VAT rate for elder people, which is equivalent to a positive tax on savings.

The closest paper to this paper in terms of taxation and the finance-leisure relationship is Hek (2006), who compares the long-run effects on economic growth of income taxation and of only capital income, showing that the first one hurts the economic growth, while the second taxation promotes growth because the (p.1) "positive effect of an increase in total non-leisure time may dominate the direct negative effect".

Regarding the measure of the financial sector, in this paper the size of the financial sector will be taken into account. Additionally, further indicators that are going to be next briefly explained are employed as explanatory variables, jointly with commercial trading indicators because of the strong links between commerce and finance.

First, the financial indicator is explained. This paper is based on the seminal work of Lopez-Laborda and Peña (2018), where the value added of financial services is enclosed in the following equations, reflecting the value added of two usual financial products:

$$\begin{aligned} \rho \cdot IR &= IR - \varepsilon \\ \rho \cdot IP &= \varepsilon - IP \end{aligned} \quad . \qquad (1)$$

Where rho is the marginal productivity of the financial services in the business (modified Quoted Spread or mobile-ratio according to the authors), the capital for both kinds of services is the same, IP represents the interest payments and IR the interest receipts. Additionally, a gravitational equation is derived as explanatory under some conditions of the free of charge and risk ("pure") interest (epsilon), as a function linking interest receipts and payments according to next equation (2):

$$\varepsilon = \frac{2 \cdot IR \cdot IP}{IR + IP} \quad . \qquad (2)$$

This expression is employed in Peña (2021) as a proportion of total interest as it is with the modified Quoted Spread, in order to improve comparability, so both expressions are:

$$\delta = \frac{2 \cdot IR \cdot IP}{\left(IR + IP\right)^2}, \rho = \frac{IR - IP}{IR + IP} \quad . \qquad (3)$$

The second expression, in non-relative value (that is, multiplied by total interests) and for commercial payments and receipts, is employed in Peña (2020) for establishing an algorithmic trading for financial products regarding the similarities between commerce and finance concerning these ratios (Lopez-Laborda and Peña, 2021). The second expression for commercial variables (exports and imports) will be also used in this paper but in relative value as in (3). The first expression is also used in the empirical section, but in this case with financial variables.

3. Theoretical-descriptive expectance on the nexus finance-leisure

The motivation of the article would be that, when consuming a financial service, two aspects must be taken into account.

First, the "financial service" itself. The trip to the financial institution, the cost of searching for information, and the time spent on financial training to better understand these products, is time that we spend on a service that could be considered a complement for leisure, since we use leisure, non-working hours, to dedicate it to the financial service. Thus, if we tax financial services, we would be taxing a complement for leisure, which would penalize leisure (and, considering work as substitute of leisure, would encourage work). This effect may be reduced due to the limited time spent on this matter and the proximity of the branches. This aspect would have to do with the value added of the financial sector: the higher the value added of the financial sector, the more leisure, the less work. According to Boadway and Gahvari (2006) this consumption would be complementary to leisure, the tax structure would remain the same and there would be no need to tax this product more than other goods and services.

Second, the capital income or gain. Taking into account that a uniform consumption tax would leave leisure untaxed, a good that would be taxed by a per capita tax (unfeasible in practice, a neutral tax because it is a proportional tax in the strict sense), it must be considered that the financial product itself, free of the value added of the financial service, i.e. total pure capital free of risks, commissions and intermediation margins (similar to pure interest), it is a good which income is received regardless of how much time you spend on it (it is a positive income "per tempus", rather than per capita), since it is charged per unit of time rather than per unit of person. On the one hand, a financial

product itself could be considered substitutive of work (it is not necessary to work for obtaining it), and complementary to leisure (in both cases, there is a possibility of "doing nothing" (*dolce fare niente*). On the other hand, this type of product should be considered as neutral with respect to leisure and work, and a lower tax rate could be applied to it as it is non-distorting, since it is a "per tempus" tax rather than a per capita tax. It should be noted that, as these products are neutral to work or leisure, it is usual for a consumption tax such as the financial VAT to be neutral to these products, since the income obtained from work and used for consumption is taxed. That is why the weight of the financial sector (measured as credit growth over GDP, rather than as value added over GDP as in the previous case, although there is data on this in the OECD for further research) is not affected by the financial VAT (López-Laborda and Peña, 2016, 2017). Thus, taxes on financial or physical capital would be neutral with respect to leisure, expecting them to be unaffected. Additionally, and regarding the consumption-savings nexus, if financial services (including savings) are taxed at the same time of consumption, then there may be not discouragement of working hours.

So, there are two main effects of the impact of the size of financial services on leisure time: the first one is complementary to leisure because we use leisure time to seek information and transport for the financial services, and the second one is neutral to leisure because the mere pass of time (both working and leisure hours) generates banking interests. If both effects are true, overall if the first one is predominant, then taxing financial services would be an alternative to taxing leisure, so, if financial services are taxed, then we would be discouraging leisure time. So, an efficient uniform commodity tax could be found that levies labor, but it also levies leisure time thanks to financial services, being non-distortionary for the leisure/labor relationship.

First, it is worth to highlight that interest income of financial services have embodied two main sources: a part of them is financial consumption, which can be considered complementary to leisure and has to be levied as any other goods or services, but additionally, there is a capital gain component, that in this case, would be levied only as a good neutral to leisure.

4. A reduced model of general equilibrium

In this section a general equilibrium model is developed for seeing the complementarities between financial services and leisure. We consider only two agents: consumers and banks. Consumers maximize their utility, which depends on leisure time and financial services amount, subject to the labor income that is fully spend in buying financial services (deposits and loans). So, the optimization program for the consumer is:

$$\begin{aligned} &\underset{o,f}{Max}\ U = o^{\beta} f^{1-\beta} \\ &s.t.: w(1-o) = (r-R) f \end{aligned} \quad . \tag{4}$$

With $0 < \alpha, \beta < 1$. The optimization program of the bank consists on maximizing the profits, which are equal to the income minus expenses, that is, the loans income minus the deposit income and wages. This is subject to the production function of financial services that is a function of labor:

$$\begin{aligned} &\underset{1-o,f}{Max}\ \Pi = (r-R) f - w(1-o) \\ &s.t.: (1-o)^{\alpha} = f \end{aligned} \quad . \tag{5}$$

The first order conditions for the consumer are:

$$\begin{aligned} &Max\ L = o^{\beta} f^{1-\beta} - \lambda_C \left(w(1-o) - (r-R) f \right) \\ &\frac{\partial L}{\partial o} = \beta o^{\beta-1} f^{1-\beta} + \lambda_C w = 0 \Rightarrow -\lambda_C = \frac{\beta o^{\beta-1} f^{1-\beta}}{w} \\ &\frac{\partial L}{\partial f} = (1-\beta) o^{\beta} f^{-\beta} + \lambda_C (r-R) = 0 \Rightarrow -\lambda_C = \frac{(1-\beta) o^{\beta} f^{-\beta}}{(r-R)} \end{aligned} \quad . \tag{6}$$

So, the condition of equilibrium for the consumer is:

$$w = \frac{\beta (r-R) f}{(1-\beta) o} \quad . \tag{7}$$

The first order conditions for the banks are:

$$Max\ L=(r-R)f-w(1-o)-\lambda_B\left(f-(1-o)^{\alpha}\right)$$

$$\frac{\partial L}{\partial(1-o)}=-w-\lambda_B\alpha(1-o)^{\alpha-1}=0\Rightarrow-\lambda_C=\frac{w}{\alpha(1-o)^{\alpha-1}} \quad . \qquad (8)$$

$$\frac{\partial L}{\partial f}=(r-R)-\lambda_B=0\Rightarrow-\lambda_C=r-R$$

So, the condition of equilibrium for the consumer is:

$$w=\alpha(r-R)(1-o)^{\alpha-1} \quad . \qquad (9)$$

Clearing the markets with the wages from equations (7) and (9), it leads to the following function of financial services:

$$f=\frac{(1-\beta)o(1-o)^{\alpha-1}\alpha}{\beta} \quad . \qquad (10)$$

For observing the relationship between financial services and leisure, the next derivative is performed:

$$\frac{\partial f}{\partial o}=\frac{(1-\beta)(1-o)^{\alpha-1}\alpha}{\beta}-\frac{(1-\beta)o(1-o)^{\alpha-2}\alpha(\alpha-1)}{\beta}>0 \quad . \qquad (11)$$

Which is always positive because $0<\alpha<1\Rightarrow\alpha-1<0$. If a commodity tax is applied to the financial services, we have that:

$$(1+\tau)f=F(o)\xrightarrow{\frac{\partial o}{\partial f}>0}\frac{\partial o}{\partial\tau}=\frac{\partial o}{\partial f}\cdot\frac{\partial f}{\partial\tau}=\frac{\partial o}{\partial f}\cdot\left(\frac{-F(o)}{(1+\tau)^2}\right)<0 \quad . \qquad (12)$$

Therefore, the taxation of financial services also reduces the leisure time, not only the amount of financial services.

5. Empirical strategy and data

In the following sections the empirical exercise is performed to check whether and what theoretical (descriptive and analytical) expectations are confirmed. The econometric methodology is a simple OLS regression because it is used a cross-sectional sample of 30 OECD countries for the year 2018, the latest available year in the data of time-use of the OECD. The dependent variables are those regarding the time employed on labor and

leisure: the variable leisure is, according to the OECD source, "time spent socialising; attending cultural, entertainment and sports events; in hobbies, games and other pastime activities; participating in sports and outdoor activities; using mass media; performing other leisure activities". The variable *totalleisure* includes leisure time but also unpaid work, personal care and also other leisure time as going to the religious services. The variable *woleisure* is the leisure time for women and *menleisure* the same but for men. The "time spent in paid work or learning activities includes: paid work (all jobs); job search; attendance of classes at all levels of instruction (pre-primary, primary, secondary, technical and vocational, higher education, extra or make up classes); research/homework; travel to and from work/study; other paid work or study-related activities" is the variable *paidwork*. For the explanatory variables some fiscal, commercial and financial variables have been included. Concretely, the variable *ftaxrate* is the tax rate applied to indirect taxation of financial services, *fvat* is the binary dummy that takes the value "1" if the exemption of financial services on VAT has been eliminated or "0" otherwise. The variable *septax* is also a dummy variable and takes the value "1" if there is an indirect taxation of financial services by taxes different than VAT and "0" in another case. These three variables are taken from López-Laborda and Peña (2021). A variable collecting the size of the financial sector over the economy is collected by *fssize*, which is the credit supply as percentage of GDP, taken from the World Bank database. The variable *rhoc* uses an adaptation of the second expression of equation (3) where exports are IR and imports IP, from the World Bank database, whilst delta employs the first expression of the same equation but considering interest incomes and expenses as IR and IP, respectively, from the OECD database.

So, the data employed for this exercise is the OECD database for the dependent variables regarding leisure and work hours and the World Bank and OECD databases and López-Laborda and Peña (2021). The data sample is summarized in Table 1 and in Table 2 the main descriptive statistics are provided.

The empirical strategy consists on assessing the impact of the explanatory variables on the dependent ones as follows. First, the individual impacts of each explanatory variable on each dependent variable (*leisure*, *totalleisure*, *woleisure* and *menleisure*) are performed. For the variable *paidwork* the analysis is only performed with the main key variable of interest, *delta*. Next, there is a multivariate explanation of the dependent variables by estimating OLS regressions with and without constant.

Table 1. Countries of the sample.

30 OECD countries, 2018: latest year				
Australia	Finland	Italy	Mexico	Slovenia
Austria	France	Japan	Netherlands	Spain
Belgium	Germany	Korea	New Zealand	Sweden
Canada	Greece	Latvia	Norway	Turkey
Denmark	Hungary	Lithuania	Poland	United Kingdom
Estonia	Ireland	Luxembourg	Portugal	United States

Table 2. Main descriptive statistics.

Variable	Obs	Mean	Std. Dev.	Min	Max
leisure	30	295.9663	37.34203	171.9274	368.2433
totalleisure	30	1174.032	45.09986	1077.455	1263.291
woleisure	30	274.8649	38.90846	159.1109	365.8482
menleisure	30	318.2754	37.77041	186.6022	375.3903
paidwork	30	266.9597	45.27739	176.7091	362.6546
ftaxrate	30	0.0585667	0.0906276	0	0.25
fvat	30	0.3	0.4660916	0	1
septax	30	0.1	0.3051286	0	1
fssize	29	95.69212	46.80773	33.4699	190.756
rhoc	30	-0.0219739	0.1054383	-0.245008	0.254591
delta	22	0.4751846	0.0294855	0.379849	0.4984608

6. Empirical results and discussion

This section provides the results of the regressions obtained by applying the previous methodology and discusses their implications. The main results are provided in Table 3, and are more in detail in the Tables 4-7 of the Appendix.

In Tables 4-7 the results for the univariate OLS model and the multivariate ones with and without constant are provided for the following dependent variables: *leisure*, *totalleisure*, *woleisure* and *menleisure*, respectively for each table. There are eight models in each table, from I to VI the univariates estimated respect to each explanatory variable, models VII uses multivariate models with constant and models VIII show models without it. Models from Tables 4 to 7 are denoted with the final letter *a-d*. The main results are shown in Table 3, which correspond with the models *VIIa-VIId.*

The results of the models shown in the Appendix are mainly robust with and without constant when they are multivariate, but in the univariate models, all of them with constant, there is only a very strongly robust explanatory variable: *delta*, which is positively related with high statistical and economic significance in all the models.

Additionally, there is another explanatory variable that is also statistical and economic significative at least once in the univariate models: it is *fssize*, in the IVc model of Table 6 when woleisure is the dependent variable. This suggests that leisure is positively associated with the size of the financial sector, not only with the used alternative of financial indicator, which is a robustness of the positive relationship between leisure and finance. Furthermore, the coefficient in the univariate OLS estimation of delta impacting paidwork with constant reaches -886.9 and a p-value of 0.009 and an adjusted R^2 of 0.2598. This means that, at the same time finance could be considered a complement of leisure, it may also be interpreted as a substitute of labor. This relationship is also kept for both men and women, but overall for men, where the adjusted R2 is 0.2783, almost three times higher than with women, and the significance reaches 0.007, while it is of 0.076 for women.

Table 3. Main empirical results.

Dependent variable:	Model VIIa *leisure*	Model VIIb *totalleisure*	Model VIIc *woleisure*	Model VIId *menleisure*
ftaxrate	148.068	149.091	154.035	152.629
p-value	0.264	0.428	0.185	0.321
fvat	**-46.533***	-44.572	**-41.702***	-51.684
p-value	0.099	0.258	0.089	0.114
septax	-42.837	-1.035	**-51.638****	-34.341
p-value	0.125	0.978	0.040	0.281
fssize	**0.358***	-0.092	**0.533*****	0.179
p-value	0.074	0.734	0.005	0.421
rhoc	135.426	-74.404	**183.068****	87.054
p-value	0.141	0.560	0.029	0.404
delta	**686.679****	**841.797****	**686.631****	**671.701***
p-value	0.024	0.048	0.011	0.052
Constant	-49.854	791.127	-88.594	-3.465
p-value	0.713	0.001	0.455	0.982
R squared	0.500	0.327	0.629	0.381
Adj. R Sq.	0.285	0.038	0.470	0.116

Note: significance below 1% (***), 1-5% (**), 5-10%(*) and in **bold**.

The most interesting results are provided in Table 3, where there is again a strongly robust association between *delta* and the dependent variables, in addition to a robust significant effect of the size of the financial sector, taking into account the univariate models. Furthemore, the presence of financial VAT (*fvat*) is significatively related with leisure in general, but concretely for women in particular. In fact, women, rather than men, present a higher sensibility of taxes, finance and commerce on leisure, with two additional statistical significant relationships: the presence of indirect financial taxes separated from VAT, *septax*, and the indicator of trading, *rhoc*, with negative and

positive impacts, respectively. When total leisure time is considered or if only men are taken into account, only delta maintains with statistical significance.

So, the theoretical discussion of Section 3 is confirmed according to Section 4, finance may be considered a complement of leisure. Therefore, it is true that, when a financial service is bought, a trip in non-working hours has to be made, in addition to the seeking and understanding costs which are performed in part of the leisure time. Taxing financial sector by eliminating the exemption of financial services under VAT, for instance, may induce to a reduction on leisure time.

These results are in line with Hek (2006), who also considers that taxation of capital income can increase the total non-leisure time, and as this paper finds, it may be more pronounced on women. The reason for why women may be more sensitive to finance in their leisure-work time allocation may be because women have traditionally been those who, in general, have mainly stopped to work in a couple if the circumstances allowed it. So, in this case, if in a couple there is a new source of capital income, the first that traditionally would consider to leave the job would be the women. Other authors, as previously pointed, also highlight differences between men and women regarding leisure, as Mocan (2019) who obtains that leisure culture only influences on women, not on men.

Regarding the price of leisure, finance may be considered a complement of leisure as well as the preferences of time, the pure interest, may be considered also a price of leisure. First, the relationship between the pure interest and the indicator employer in the estimation, the pure interest as a proportion of total interest is as follows:

$$\frac{\partial \delta}{\partial \varepsilon} = \frac{-\varepsilon}{(IR + IP)^2} < 0 \quad , \qquad (13)$$

Which is negatively related, because there is a negative sign before a fraction of positive elements, considering traditional non-negative interests. So, time preferences are the price of money and finance but can also be the price of leisure time. This can lead to potential further research for estimating the remuneration of unpaid work and other kinds of subsidies.

7. Concluding remarks

There is a trade-off between work and leisure. According to Gratton and Taylor (2004), the fact that at the beginning of the twenty-first century there would be a trouble of having leisure time in excess was a wide-spread thought by many academicians and economists. The logic was that leisure is a normal demand good and rises with increases of income, in addition to the production processes that were substituting labor by technology in the early 1980's, like nowadays. However, in most developing countries, workers have faced with less leisure time, in contrast to preferring to reduce some income in order to increase leisure time. So, there is a puzzle of how to manage time in order to be flexible in the labor-leisure allocation.

Up to our knowledge, this paper is the first one in analyzing financial services as complementary of leisure time, helping to solve the aforementioned puzzle with public policies based on taxes. Initially, a discussion regarding the potential complementarity or neutrality of these services with leisure is analyzed, and after that, a reduced model of general equilibrium is performed to show their complementarity. The complementarity view considers that leisure time is spend in seeking for financial services, and making a trip for going to banking branch or time spent in understanding the financial culture or for choosing the best financial product among their variety and complexity.

The neutrality approach only considers the capital income, not the value added, and this may be considered to obtain earnings by the mere pass of time, unworthily of spending working or leisure hours, because income interests only depends on pure time. This is the reason why time preferences are proposed as possible price of leisure time, not only of money. Finally, there is a suggestion stating that taxing financial services, according to the complementarity view, may also reduce or discourage leisure time. So, there is a potential versatility of leisure time and the calculation of remuneration for, e.g., unpaid work spent in leisure time.

The empirical section provides evidence that confirms the sensibility of leisure time to financial variables as the size of the financial sector or the proposed indicator of financial performance. In addition, this sensibility is even higher in women, where there is also a sensibility to the presence of indirect taxes on financial services and commercial variables. The elimination of the exemption of financial services on VAT and the presence of indirect taxes different form VAT on these services discourages the

leisure hours spent by women in a statistical significant way. This opens the doors to further research regarding the optimality of taxing financial services for offsetting other distortionary taxes as general VAT, where the latter may discourage work respect to leisure.

APPENDIX: additional empirical results

Table 4. Results for *leisure* as dependent variable.

Dependent variable: leisure	Model Ia Coeff.	Model IIa Coeff.	Model IIIa Coeff.	Model IVa Coeff.	Model Va Coeff.	Model VIa Coeff.	Model VIIa Coeff.	Model VIIIa Coeff.
ftaxrate	-17.730						148.068	150.536
p-value	0.821						0.264	0.241
fvat		-15.604					**-46.533**	**-45.882**
p-value		0.302					0.099	0.092
septax			8.320				-42.837	-42.101
p-value			0.721				0.125	0.118
fssize				0.179			**0.358**	**0.335**
p-value				0.248			0.074	0.067
rhoc					70.702		135.426	139.386
p-value					0.290		0.141	0.116
delta						**556.476**	**686.679**	**586.111**
p-value						0.047	0.024	0.000
Constant	**297.005**	**300.648**	**295.134**	**279.417**	**297.520**	36.829	-49.854	
p-value	0.000	0.000	0.000	0.000	0.000	0.000	0.713	
R squared	0.002	0.038	0.005	0.049	0.040	0.183	0.500	0.992
Adj. R Sq.	-0.034	0.004	-0.031	0.014	0.006	0.142	0.285	0.989

Table 5. Results for *totalleisure* as dependent variable.

Dependent variable: totalleisure	Model Ib Coeff.	Model IIb Coeff.	Model IIIb Coeff.	Model IVb Coeff.	Model Vb Coeff.	Model VIb Coeff.	Model VIIb Coeff.	Model VIIIb Coeff.
ftaxrate	41.352						149.091	109.939
p-value	0.662						0.428	0.682
fvat		-4.453					-44.572	-54.907
p-value		0.809					0.258	0.329
septax			19.231				-1.035	-12.708
p-value			0.493				0.978	0.818
fssize				-0.024			-0.092	0.276
p-value				0.897			0.734	0.457
rhoc					34.519		-74.404	-137.236
p-value					0.672		0.560	0.454
delta						**788.514**	**841.797**	**2437.703**
p-value						0.022	0.048	0.000
Constant	**1171.611**	**1175.368**	**1172.109**	**1177.683**	**1174.791**	800.456	791.127	
p-value	0.000	0.000	0.000	0.000	0.000	0.000	0.001	
R squared	0.007	0.002	0.017	0.001	0.007	0.236	0.327	0.998
Adj. R Sq.	-0.029	-0.034	-0.018	-0.036	-0.029	0.198	0.038	0.997

Table 6. Results for *woleisure* as dependent variable.

Dependent variable:	Model Ic	Model IIc	Model IIIc	Model IVc	Model Vc	Model VIc	Model VIIc	Model VIIIc
woleisure	Coeff.	Coeff.	Coeff.	Coeff.	Coeff.	Coeff.	Coeff.	Coeff.
ftaxrate	-13.294						154.035	158.419
p-value	0.871						0.185	0.166
fvat		-12.868					**-41.702**	**-40.544**
p-value		0.416					0.089	0.092
septax			7.375				**-51.638**	**-50.331**
p-value			0.761				0.040	0.040
fssize				**0.282**			**0.533**	**0.491**
p-value				0.076			0.005	0.005
rhoc					94.604		**183.068**	**190.104**
p-value					0.171		0.029	0.021
delta						**530.876**	**686.631**	**507.914**
p-value						0.062	0.011	0.000
Constant	**275.644**	**278.725**	**274.127**	**248.403**	**276.944**	29.102	-88.594	
p-value	0.000	0.000	0.000	0.000	0.000	0.822	0.455	
R squared	0.001	0.024	0.003	0.112	0.066	0.164	0.629	0.993
Adj. R Sq.	-0.035	-0.011	-0.032	0.079	0.032	0.122	0.470	0.990

Table 6. Results for *menleisure* as dependent variable.

Dependent variable:	Model Id	Model IId	Model IIId	Model IVd	Model Vd	Model VId	Model VIId	Model VIIId
menleisure	Coeff.	Coeff.	Coeff.	Coeff.	Coeff.	Coeff.	Coeff.	Coeff.
ftaxrate	-15.321						152.629	152.800
p-value	0.847						0.321	0.302
fvat		-17.252					-51.684	-51.638
p-value		0.259					0.114	0.101
septax			8.615				-34.341	-34.290
p-value			0.715				0.281	0.263
fssize				0.067			0.179	0.177
p-value				0.673			0.421	0.381
rhoc					43.086		87.054	87.329
p-value					0.527		0.404	0.382
delta						**577.021**	**671.701**	**664.711**
p-value						0.050	0.052	0.000
Constant	**319.173**	**323.451**	**317.414**	**312.579**	**319.222**	47.554	-3.465	
p-value	0.000	0.000	0.000	0.000	0.000	0.722	0.982	
R squared	0.001	0.045	0.005	0.007	0.015	0.179	0.381	0.991
Adj. R Sq.	-0.034	0.011	-0.031	-0.030	-0.021	0.138	0.116	0.987

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