

# THE DIVORCED FINANCIAL SPHERES OF BENINESE SPOUSES

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**Abstract:** This paper exploits original data collected in Benin, using both income and expenditure at the individual level. We provide evidence suggesting that husbands and wives do not pool their respective incomes and thus do not make expenditure decisions on the basis of a common budget. As corroborated by numerous anthropological accounts from West Africa, husband and wife are secretive and individually allocate their personal income to private and public goods. We describe a non-cooperative context that enables us to predict the determinants of spouses' patterns of consumption. Our empirical results confirm that spouses' financial spheres are, to an extent, disconnected. Copyright © 2012 John Wiley & Sons, Ltd.

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## 1 INTRODUCTION

As pointed out by Rangel and Thomas (2006), numerous anthropological accounts cast doubt on whether the standard unitary model is an appropriate representation of the decision-making process in West African households. Alongside this several case studies in developing countries (see among others Thomas, 1990 and Hoddinott and Lawrence, 1995) have shown that household consumption decisions are affected by the identity of the income earners. Among the theoretical alternatives to the unitary model (for a discussion on household models see Apps and Rees, 2009), much attention has focussed on the collective model in which differences between spouses' preferences or individual bargaining powers affect the outcome. Empirical investigations from Quisumbing and Maluccio (2003), among others, support this model.

However, a number of investigations pertaining to risk sharing within households implicitly reject the cooperative model (Dercon and Krishnan, 2000; Doss, 2001). Studies

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on intra-household production decisions in developing countries also tend to find less evidence of cooperative decision making (Udry, 1996). Finally, there is a recent trend that uses experiments to better understand household decision making (Iversen *et al.*, 2011). These papers show that spouses do not maximise surplus from cooperation and thus repudiate both the unitary and the cooperative models.

In this paper, we give evidence of non-cooperative behaviour within West African households by using answers to open-ended questions on personal earning activities and expenditures. What is striking from our field investigations in Benin is that husbands and wives are secretive with respect to income matters. They actively avoid sharing information about their personal earnings and thus do not have a common budget. This behaviour, detailed in the following section, discredits the common budget hypothesis and casts doubts on the unitary and widely used cooperative models. Bringing in such evidence was made possible by collecting first-hand data at the individual level. Indeed, the originality of this paper is that our survey included detailed information on each spouse's income and expenditures.

Our goal is to check if non-cooperative behaviour results in expenditure decisions being independent from spouse's influence. To what extent are spouses' financial spheres disconnected? To answer this question, we set up econometric specifications for testing the linkages between husband and wife's financial spheres. Our data allow us to establish that, to a large extent, intra-household secrecy isolates individual expenditure on five different items (food, health, frivolous goods, clothing and savings) from the influence of their spouse.

In the following section, we describe how spouses interact with one another. Section 3 gives a description of the survey on which we based our analysis, and Section 4 presents our methodology. We then proceed in Section 5 to test our conjecture by using our household dataset. In Section 6, we offer some consistency checks and then an analysis of secrecy. Section 8 concludes.

## 2 SPOUSE INTERACTIONS

During our survey, we carried out several informal interviews that highlighted that spouses were secretive with one another regarding financial matters. A large proportion of women and men with whom we spoke in two of the poorest neighbourhoods of Cotonou claimed that their spouse was unaware of how successful they were in their occupational activities and was therefore unable to estimate their income. Regardless of gender or age, many of the respondents would state 'the less he/she knows about my activities, the better.' We also frequently heard: 'I do not want him/her to know my income otherwise he/she will ask me to meet the cost of such and such expenses.' Our survey included questions to this effect and was addressed to all those who were both older than 15 years and in a couple. This was 572 respondents (out of a total of 1179 enumerated individuals). When asked whether they could estimate their spouse's income; 79 per cent said no, 11 per cent said yes and 10 per cent said they had partial knowledge. Similar results were obtained for the question 'Do you think your spouse knows your income?': 76 per cent answered no, 16 per cent said yes and 8 per cent thought their partner had partial knowledge of their income. Thus, by concealing their earnings partners avoid having to share them or create a common budget and, in doing so, retain sole control over their personal income.

This evidence is also corroborated by the work of numerous anthropologists. In his work entitled 'Paths of Power: Control, Negotiation and Gender Among the Fon of Benin',

Falen (2003) describes how Beninese Fon<sup>1</sup> couples interact and confirms their secretive behaviour:

The principle economic rule for a married couple is that finances are separate. Marriage by no means entails a complete sharing of money, property or any other wealth. On the contrary, spouses rarely share access to each other's money or belongings. The notion of a married couple's communal property or joint bank accounts is totally foreign to most Fon people. Indeed, keeping common finances would be dangerous, since money is always scarce and people are generally willing to take, borrow, beg, or in any way extract money from one another. (p. 164)

Guyer (1981) reviews the anthropological literature related to the difficulty of identifying a decision-making unit, such as the household. She reports similar evidence to ours from other West African societies. Clark (1994) studies the market women of Kumasi, Ghana and observes that they are expected to have an independent source of income and keep separate budgets even after marriage. She also notes:

An important aspect of ideal social personhood for men, women, and children is the ability to control autonomous resources. Individuals retain full control of their personal earnings and property and, conversely, only have conditional or negotiable access to the resources of even their closest kin. Personal dignity requires that an adult woman be able to dispose of her own income, however modest, without explanation or permission from others. (p. 107)

Other recent field studies in West Africa by Lecarme-Frassy (2000), Einarsdottir (2004) and Mandel (2006) also underline a high degree of secrecy in spousal relationships and the independence wives have in managing their own income.

In the Beninese context, spouses avoid disclosing information about their income and expenses, in order to keep their earnings out of reach of their spouse and manage them with maximum latitude.<sup>2</sup> In addition, they try to reduce their contribution to the household's public goods because it is detrimental to their own consumption of private goods. In order to implement this strategy, both spouses hide their income and try to give their partner a blurry image of their earnings. By conveying a distorted downward idea of their income, they attempt to depart from the status-quo public good expenses, fixed by social norms, by foisting on to the other a share of their burden. Were one individual able to know that one's partner were capable of giving more towards the household, he or she would demand to contribute less, or claim money for his/her own private consumption. Therefore, neither spouse is incentivised to reveal the true amount of their earnings.

Although we believe the Beninese spouses' interactions we observed are non-cooperative in nature, we do not suggest that members of a couple do not consult together concerning the provision of public goods. A minimum of common management is required in a couple with regard to the respective gender role. Contributions to public goods in Benin are often made according to local social norms, fixing the intra-household allocation of expenses on different items according to gender. As breadwinner, the husband is supposed to provide

<sup>1</sup>The Fon people represent the dominant ethnic group in South and Central Benin. A fifth of all individuals in our dataset have this ethnic affiliation.

<sup>2</sup>Considering that their work takes them to different parts of the city, a large fraction of couples do not interact during working hours. The cost of meals, transportation or medicines, money transfers for relatives or colleagues, gifts for funerals and momentary luxury spending on items such as alcohol and cigarettes can therefore be concealed.

for house-related expenses (rental fees, repair costs, electricity). In addition, it is up to him to cover the costs of housekeeping, schooling fees and the family's medical bills. The wife's role is to take care of the family, cook and pay for water. In many cases, the husband's income is not sufficient to cover all the expenses expected of him, making it necessary for the wife to spend more on the household than what had been expected from her originally.<sup>3</sup> In Section 4, we provide descriptive statistics related to several types of public goods expenditure, which concur with these social norms.

### 3 DESCRIPTION OF OUR SURVEY

Our data collection took place during the first 3 months of 2004 in the three districts of Vossa, Enagnon and Enagnon-Plage located in Cotonou (a city of about 1.1 million inhabitants). They are known to the city's authorities to be the poorest districts. Our survey covered 497 randomly selected households: 110 in the district of Vossa, 273 in Enagnon and 114 in Enagnon-plage.<sup>4</sup> Enumerators were required, for all members older than 15 years, to fill in a form detailing expenses destined for clothing and health during the past 6 months and to produce precise information regarding food and personal expenditure for the previous week. Our survey also contained a series of questions related to the use of savings vehicles and the amount of money put into these.<sup>5</sup>

Before launching our survey, we were aware that spouses did not have a common budget. It would therefore have been inappropriate to interview only the heads of households in order to acquire household level data and would certainly have led to bias estimates. To take account of the fact that a household is a collection of separate and individual economies we surveyed husbands, wives and all other adult members of a household separately and in private. Particular attention was thus put on confidentiality in order to obtain maximum accuracy, and our enumerators strictly abided by these rules. Overall, households represent 2083 individuals. Among them, only 572 are members of a couple, this remaining sample being divided into 292 women and 280 men. Members of couples considered here are those for which both spouses were surveyed. This means that both spouses live in the same household—at least to a certain extent—and thus have regular interactions. We discarded couples for which one spouse was living elsewhere.

The presence of polygamous (polygynous) households resulted in our data set having slightly more women than men (51 per cent vs 49 per cent). The gender gap was not wider because many polygynous husbands live with only one wife. Therefore, in most cases only one wife was surveyed. Polygyny could complicate the intra-household decision-making process put forward previously. However, seeing how it works in Benin, we think it should not raise any questions where our estimations are concerned. According to Falen (2003) and to our own informal interviews, a polygynous household can be considered as consisting of many separate couples. Through various ways, the husband makes sure that each of his wives knows as little as possible with respect to his involvement with the other(s). Moreover, as jealousy is widespread among wives of polygynous husbands, seldom do they interact and

<sup>3</sup>For additional details on marital roles see chapter 5 of Falen (2003).

<sup>4</sup>More details on the sampling procedures and other survey related issues can be obtained upon request from the authors.

<sup>5</sup>These include itinerant bankers or money collectors, rotating savings and credit associations (rosocas) and bank accounts (available to a wealthy minority only). Savings accumulated outside of these vehicles -notably those stashed under the mattress- were not reported or computed.

Table 1. Individual characteristics

	In couple		Women in couple		Men in couple	
	Mean	SD	Mean	SD	Mean	SD
Monthly Expenditures in 1000 XOF (CFA francs)						
Food	46.60	32.17	37.76	23.45	55.82	37.11
Health	16.79	42.35	6.57	18.55	27.44	55.57
Clothing	22.42	27.84	18.45	20.58	26.57	33.33
Frivolous goods	2.76	2.70	1.82	1.71	3.73	3.16
Savings	12.27	27.58	10.61	15.71	14.00	35.97
Income	70.03	72.48	55.34	33.23	85.36	95.59
Spouses characteristics						
Female	0.51	0.50	1.00	0.00		
Polygamous	0.21	0.41	0.23	0.42	0.20	0.40
Age	38.27	11.77	34.90	10.35	41.79	12.14
Has no education	0.46	0.50	0.66	0.48	0.26	0.44
Household size	5.19	2.34	5.28	2.44	5.09	2.24
Vossa	0.28	0.45	0.28	0.45	0.29	0.45
Enagnon	0.46	0.50	0.46	0.50	0.45	0.50
Number of households members						
Male, aged 16–59 years	1.37	0.93	1.39	0.97	1.35	0.89
Female, aged 16–59 years	1.39	0.78	1.42	0.81	1.36	0.74
Children, aged 6–15 years	1.45	1.53	1.50	1.56	1.40	1.51
Children younger than 6 years	0.85	0.87	0.84	0.86	0.88	0.88
Adults older than 59 years	0.10	0.35	0.10	0.35	0.10	0.34
Number of observations	572		292		280	

SD, standard deviation.

share daily expenses or public good expenditures. Each wife is inclined to care for her own offspring and manage her household separately. For polygynous households, we thus consider, for regression purposes, the relationship between the husband and each one of his wives independently. For the 11 households for which we have data on several wives, we allocate the same value for spouse's income to each wife. For husbands, we attribute an average over all of his wives' incomes.

Table 1 shows descriptive statistics of all five types of budget expenditure, spouses' characteristics and the composition of households. In our sample, men are on average significantly older and more educated. They also have larger levels of expenditure for all types of budget expenditure except savings. These figures are consistent with the social norms discussed earlier. Table 2 displays the censoring levels for each of our expenditure categories, and the proportions of expenditure that are strictly greater for the husband than for the wife. As can

Table 2. Censoring levels of the dependent variables

	Men	Women	yh > yw
Food			223 (80%)
Health	33%	56%	176 (63%)
Clothing	18%	16%	161 (58%)
Frivolous goods	5%	9%	220 (79%)
Savings	34%	29%	120 (43%)
Number of observations	280	292	

be observed, censoring levels are important for both health and saving, and only for the latter is there no majority of couples in which husbands spend strictly more than wives.

#### 4 METHODOLOGY

We use a simple expenditure function for both private and public goods expressed in nominal terms.<sup>6</sup> Expenditure on a good is a function of personal income<sup>7</sup>; whether the household is polygamous or not; the size of the household; and potential price effects, which are controlled for by a vector of dummy variables for household district locations  $z_r$ . It is also a function of a series of variables, which represent the number of persons in a specific demographic group  $dem_v$  in the household (female aged between 16 and 59 years, children aged between 6 and 15 years, younger than 6 years, older than 60 years, etc.). The idea being that an individual may spend their income differently depending on the demographic distribution within the household. These variables are standard in this type of analysis.

We can think of both spouses maximising their utilities by allocating their income on private and public goods according to their own preferences. To solve this maximisation problem, each would make conjecture about their spouse's allocations. The solution to this can be described as a best-response function to the other spouse allocations (i.e. if I think my husband is likely to spend more on public goods, I can therefore allocate a greater share of my income to private goods). Thus, a key variable to add to our specification is expected spouse's public good contribution. Because it is not directly observable, we need to find a proxy. Taking its actual value in our specification would lead to an endogeneity problem: this variable being itself a function of the explained variable. A more sensible way to work in order to obtain consistent estimators is to use spouse's income as a proxy for spouse's expected public good provision (that is to say the income actually reported by the spouse). This provides us with an estimation of both income effects. Despite having advocated widespread secrecy, we can still justify the presence of spouse's income in our specification. We think that in order to maximise their utility and manage the joint provision of public goods, spouses make guesses, whether accurate or not, as to their partner's income to gauge their partner's expected public good provision. We therefore write our specification as follows:

$$x_{ij} = \alpha_0 + \alpha_1 income_i + \alpha_2 incomespouse_i + \alpha_3 polygamous_i + \alpha_4 hholdsize_i + \sum_{r=1}^{R-1} \delta_{ij} z_r + \sum_{v=1}^{V-1} \omega_{vj} dem_v + \epsilon_{ij}$$

Individuals (for both female and male samples) are denoted by  $i$ , and expenditure data are aggregated into five categories denoted by  $j$ . They are expressed in nominal terms and reported on a monthly basis. Three categories have both a private and public good component, which we cannot disentangle from our data: food and other daily non-durables (charcoal, gas for cooking, petrol for lamp, etc.), health (medications, hospital fees, etc.) and clothing. They include personal expenditure as well as expenses towards other

<sup>6</sup>Semiparametric estimates tend to show that the relationship between expenditure and personal income is linear. However, by way of consistency check, we altered our specification using the natural logarithm of personal income to allow a non-linear relationship. Results using natural log are similar.

<sup>7</sup>Our measure of personal income includes all income-generating activities from both formal and informal sectors, as well as earnings from interest on loans, rents on houses or apartments and received transfers.

members of the household (notably children). The remaining two categories concern private budget items: frivolous goods (alcohol, meals out, cigarettes, entertainment, etc.) and savings.<sup>8</sup>

One may argue that personal income is endogenous: other variables contained in the error term such as tastes and preferences, which among other things would reflect an inclination to consume goods rather than leisure, could also be correlated with this regressor. Consequently, we use techniques to deal with endogeneity; we do so by instrumenting for personal income in the next section.

We aim at verifying if the non-cooperative context in which spouses interact renders personal income allocations independent from spouse's influence. By checking whether or not  $\alpha_2$  is significant, we can test for the presence of linkages between husbands' and wives' financial spheres for our set of five different allocations. It is important to notice that both outcomes, one in which *incomespouse* has a significant impact, and the other where it does not, are both compatible with a non-cooperative model of intra-household resource allocation (Doss, 1996). Our investigation does not test this model's validity but simply looks at the extent to which spouses are immune to their partners' influence in this particular West African context.

## 5 ESTIMATING EXPENDITURE FUNCTIONS

In Tables 3 and 4, we present our estimates with ordinary least squares (OLS) and Tobit.<sup>9</sup> In each table, the first column displays estimates related to food and other daily non-durables. The other four columns exhibit estimates, which take account of the censoring of the other categories and are estimated using Tobit (with and without instrumentation). The Tobit model is appropriate if we consider that zero values are corner solutions for households which, given their preferences, chose not to consume because of realised prices and income. Estimates are obtained on two subsamples: husbands and wives. Combining both would certainly have enriched our results. However, regressing on this aggregate sample would have required a series of household dummies, to capture unaccounted for interactions and specificities within the household, which created a problem of weak instruments for all our potential candidates. Preliminary tests indicate that our estimates suffer from heteroskedasticity, which we correct for. Outliers in the form of bad leverage points were identified and given lesser weight or discarded using the technique described in Verardi and Croux (2009) for robust estimation (hence, sample size differs from one category to another).

Tables 3 and 4 report the results for both the husband and the wife subsamples using OLS and Tobit estimating techniques. For the subsample of husbands, income has a positive and significant impact for every category. Spouse's income has a significant and positive impact only on food and frivolous goods. Clearly, differences in significance show that personal income has a more widespread impact on one's pattern of consumption than spouse's income. However, it appears that both income and spouse's income coefficients are not significantly different at a 10 per cent level, except for savings. As for the subsample of wives, we find

<sup>8</sup>Whether savings are used for the purchase of a private or public good is difficult to predict. However, by analysing ROSCAS in Cotonou, Dagnelie and LeMay-Boucher (2012) establish that the 'cashpot' is mainly used for small business investments and private consumption.

<sup>9</sup>Results from two-stage least squares and IV Tobit are discussed here but are not shown. They are available upon request from the authors.

Table 3. Coefficients for different budget items with ordinary least squares and Tobit for men

	Food		Health		Clothing		Frivolous goods		Savings					
	Coefficient	SE	Coefficient	SE	Coefficient	SE	Coefficient	SE	Coefficient	SE				
Income	0.261	***	0.146	**	0.0608	***	0.0214	***	0.0158	***	0.00297	0.13	***	0.0315
Spouse income	0.247	***	0.133		0.028		0.0736	**	0.0138	**	0.00535	0.0096		0.0501
Polygamous household	11.3	**	8.66	14	5.38		4.74		0.575		0.428	-3.8		3.66
Size of the household	4.08		2.65	5.03	-1.17		2.27		-0.0911		0.179	-1.15		1.47
Female aged between 16 and 59 years	-4.24		1.3	7.99	4.9		4.27		-0.149		0.319	-1.65		2.68
Children aged between 6 and 15 years	-5.85		-2.07	5.84	0.375		2.82		-0.26		0.203	1.44		1.69
Younger than 6 years	-0.756		7.19	6.49	3.09		2.96		0.157		0.208	3.32	*	1.77
Older than 6 years	-10.1	***	15.3	11.8	-8.49	*	4.61		-0.594		0.423	-4.18		3.34
Vossa	-2.37		10.6	11.6	8.32	*	4.77		-0.348		0.319	-0.462		3.23
Enagnon	12	***	-2.2	9	9.44	**	3.92		0.562	*	0.295	-1.28		3.03
Constant	9.49		-31.6	**	13.9		5.68		2.2	***	0.452	1.67		4.26
Number of observations	273		275	277			275					271		

SE, standard error. \*significant at 10%, \*\*significant at 5%, \*\*\*significant at 1%.



Table 4. Coefficients for different budget items with ordinary least squares and Tobit for women

	Food		Health		Clothing		Frivolous goods		Savings	
	Coefficient	SE	Coefficient	SE	Coefficient	SE	Coefficient	SE	Coefficient	SE
Income	0.48	0.0408	0.223	0.0805	0.249	0.0536	0.03	0.0031	0.225	0.0483
Spouse	0.0109	0.0145	-0.041	0.0253	0.00688	0.0149	0.0012	0.00094	0.0083	0.0146
Income										
Polygamous household	2.61	2.53	3.66	5.11	1.99	3.3	0.249	0.225	2.7	2.59
Size of the household	3.47	1.7	2.98	3.41	0.605	1.6	-0.107	0.113	-0.506	1.27
Female aged between 16 and 59 years	-1.83	2.36	-3.14	4.98	-2.46	3.27	0.163	0.216	1.89	2.25
Children aged between 6 and 15 years	-3.22	1.98	-4.31	4.56	0.214	1.91	0.091	0.127	1.05	1.28
Younger than 6 years	-4.39	1.85	-5.11	4.91	-0.419	2.02	0.0443	0.135	0.328	1.33
Older than 59 years	-5.55	2.6	1.63	4.77	-2.41	2.66	0.278	0.298	0.528	2.38
Vossa	-1.65	2.27	5.88	6.4	9.8	2.68	-0.638	0.198	-2.44	1.93
Enagnon	3.97	2.05	1.67	4.5	11.3	2.99	-0.0071	0.197	-3.6	1.99
Constant	1.77	3.95	-22.3	8.33	-6.17	4	0.247	0.273	-6.19	3.2
Number of observations	290		292		290		290		287	

SE, standard error. \*significant at 10%, \*\*significant at 5%, \*\*\*significant at 1%.

stronger results. In this case, spouse's income is never significant, and for all items, its coefficient is significantly smaller than the coefficient on income.

Our identifying instrument for the potentially endogenous variable personal income is a dummy variable taking value one if an individual has been living in the neighbourhood for at least 24 months. It is strongly significant for all categories.<sup>10</sup> Intuitively, there are reasons to expect this variable to be correlated with income (spending time in a neighbourhood helps create a network and potential earning opportunities) while at the same time, it can reasonably be considered independent from tastes and preferences. This does not in itself guarantee a successful identification of the second-stage estimation. Our estimates may indeed suffer an important bias if the instrument is only weakly correlated with the endogenous variable. However, our Kleibergen-Paap rk *F*-statistics show that weak instruments need not be regarded as a problem.<sup>11</sup> We also check if income suffers from endogeneity or not by comparing our estimates with and without instrumentation. The results of the implemented test obtained from the STATA command *ivreg2*, defined as the difference of two Sargan-Hansen statistics, suggest that we cannot reject the null that the specified endogenous regressor can actually be treated as exogenous for all our expenditure categories.

However, for the sake of completeness, we obtained results (not shown) using two-stage least squares (2SLS) and IV Tobit. They point out that, for the subsample of husbands, personal income has a positive and significant impact on only three expenditure categories: food, frivolous goods and savings. For all items, our 2SLS and instrumented Tobit estimates reveal that spouse's income has no significant impact on expenditure. Similarly to our previous estimates, both income and spouse's income coefficients are not significantly different at a 10 per cent level, except for savings. As for the subsample of wives, we find that, apart from health, personal income is significant in explaining the pattern of expenditure across all categories. Spouse's income is not significant, and for all items except for health, its coefficient is significantly smaller than on income.

Overall, our results drawn from the subsample of wives, point to a high degree of independence between spouses' financial spheres. The results are less clear-cut for the subsample of husbands. Personal income is widely significant, whereas spouse's income is for only two out of our 10 estimation models. However both variables impacts appear to be of similar magnitude. These results tend to show that irrespective of the nature of the good, whether public or private, consumption appears to be isolated to a certain extent from spouse's influence, which is consistent with our initial observations. This implies that secretive individuals deal with their own income and their spouse's have minimum influence on their pattern of expenditure.

## 6 CONSISTENCY CHECKS

One may regard estimating equation by equation as inappropriate considering that all expenditure decisions are made simultaneously with respect to a given income. This means that if you increase the expenses for one budget item, it will affect the expenses for others. We thus perform a three-stage estimation for systems of simultaneous equations that integrates all five expenditure categories and instruments the endogenous variable personal

<sup>10</sup>The last line of each table reveals the coefficients and standard errors of our instrumental variable used in the first stage regression where personal income is the dependent variable.

<sup>11</sup>Our statistics of 9.80 and 10.29 respectively for the husbands and wives subsamples are close to 10, which represents the 'rule of thumb'.

income. Results (not displayed) confirm our previous conclusions. We also ran similar regressions including the natural log of income instead of income in levels. Results lead to similar outcomes: expenditure categories are positively and significantly influenced by one's own income, and spouse's income is generally not significant. As to the significance of the difference in magnitude between coefficients on the logarithms of income and logarithm of spouse's income, we also obtain similar results as for levels. Alternative specifications were explored by adding variables such as age and education; the inclusion of either variable did not alter our overall conclusions.

It is more than plausible that individuals in the lower quantiles of the distribution behave differently than those in the higher quantiles. A suitable method for investigating this question is the censored quantile instrumental variables (CQIV) estimator developed by Chernozhukov and Kowalski (2011), which simultaneously takes account of endogeneity and censoring and therefore produces non-biased estimates. Although the results obtained (not shown) with CQIV for the male subsample are less compelling, the female subsample largely confirms what has been put forward previously.

## 7 SECRECY

As we mention above, 21 per cent of the individuals of our sample claim to know at least partially how much their partner earns, but only 15 per cent provide an estimation of their partner's income. On average, spouses underestimated their partner's income: the relative discrepancies between the guesses and the spouses' actual income are on average 44 per cent of the spouse's income. There seems to be little difference in the pattern of consumption from knowing or not knowing one's spouse income. Looking at the differences in the means of consumption for all five items across gender reveal that out of the 10 possible *t*-tests between the subsample of those who know and those who do not know, only one shows a significant difference (frivolous good for female).

In order to gain insight into the impact of secrecy on the expenditure patterns, we run three additional sets of regressions with the same specification used previously shown in Table 3. We add an interaction term with spouse's income and a dummy variable measuring secrecy. It has in turn three different definitions: (i) it takes value 1 if the individual claims to know at least partially his/her spouse's income (128 individuals); (ii) it takes value 1 if the individual gave an estimation of their spouse's income (90); and (iii) it takes value 1 for those who claim to know their spouse's income and provided an estimation of it (26). Results (not shown) indicate that the coefficients of income and spouse's income remain similar after the inclusion of either one of these interaction terms to the specification.

## 8 CONCLUSION

What our investigation shows is that members of a couple are secretive and independent and that their economic interactions are best described as interdependence through the consumption of public goods. Our findings are robust to changes in functional forms and to three-step simultaneous equations estimations and remain true across a majority of the non-censored quantiles. From this, we can draw some policy implications. If policy makers were to aim at raising women's financial capacity, they could transfer money directly to them. Risk of leakage into their husband's pocket is minimised because spouses

do not pool income. Promoting the increase of a certain type of public good expenditure would imply considering local social norms regarding the respective responsibilities of husbands and wives.

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