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Financial Satisfaction from Intra-Household Perspectives

by

Namkee Ahn*

Victoria Ateca**

Arantza Ugidos**

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** Universidad del País Vasco

Jorge Juan, 46
28001 Madrid -España
Tel.: +34 914 359 020
Fax: +34 915 779 575
infpub@fedea.es

N.I.F. G-78044393

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Abstract:

We address individuals' financial satisfaction from the intra-household perspective. Our purpose is twofold. First, we want to contrast the hypothesis of relative income within the household. Does the income level of one individual relative to that of other members of the same household matter in his/her income satisfaction? Second, we want to test procedural utility hypothesis in that different sources of income may contribute differentially to individuals' income satisfaction. In particular, we compare between labour earnings and non-labour income. These two hypotheses are relevant for policy-making regarding subsidies, taxation and active labour market programs. We use data for Spain and Denmark in the European Community Household Panel (ECHP). In general terms, and for both countries, our results seem to confirm both the procedural hypothesis and the relative income hypothesis. Labour income contributes more to individual financial satisfaction than non-labour income for both husbands and wives in both countries. However, the effect of own share of labour income relative to the spouse's differs considerably between men and woman and between the two countries.

Resumen:

Estudiamos la satisfacción financiera de los individuos teniendo en cuenta a la familia como grupo de referencia. Tenemos dos objetivos principales. Primero, queremos contrastar la hipótesis de la renta relativa dentro del hogar. ¿Importa el nivel de renta de un individuo relativo a otros miembros de la misma familia en la satisfacción financiera del propio individuo? Segundo, queremos comprobar la hipótesis de la utilidad de procedimiento. Es decir, ¿Hay diferencias en el efecto de renta en la satisfacción financiera según la fuente de ingreso? En particular, comparamos los efectos de la renta laboral con los de la renta no-laboral. Estas dos hipótesis son relevantes para las políticas relacionadas con subsidios, sistema tributario y políticas activas del mercado de trabajo. Utilizamos datos de España y Dinamarca contenidos en las 8 olas del Panel de Hogares de Unión Europea (ECHP). En términos generales, para ambos países, los resultados confirman ambas hipótesis, la hipótesis de la renta relativa y la hipótesis de la utilidad de procedimiento. La contribución a la satisfacción financiera de la renta laboral es mayor que la de la renta no-laboral. Sin embargo, el efecto en la satisfacción financiera individual de la renta del propio individuo relativa a la del cónyuge difiere sustancialmente por género y país.

1. Introduction

In the last few decades, many researchers have tried to explain why the increases in national income have not lead to an increase in average national happiness, even after controlling for the changes in income distribution. This paradox, first studied by Easterlin (1973), drew attentions of many economists as they used to build their models upon an underlying hypothesis of a direct relationship between income and happiness (utility in economist terminology). Thanks to the contributions from economists, sociologists and psychologists, consensus has emerged on the role of income in the determination of happiness.

First, relative positions in income distribution or to own expectation indeed matter in individuals' happiness. There is evidence that people are influenced by the income levels of other people (Diener, 2002; Easterlin, 1995; Ferrer-i-Carbonell, 2005, Luttmer, 2005, Stuzter, 2001, Vera-Toscano et al. 2006). Thus, aspirations defined with respect to the reference group are an important determinant of happiness.

Second, human beings adapt to their experiences. They adapt to some degree to changes such as income gains or losses. Needs (both fulfilled and unfulfilled) will determine how people evaluate current situations, but also new needs emerge as former – or less sophisticated ones - are covered. These hedonic adaptation mechanism introduces a dynamic component on the evaluation of own situation (Easterlin 1995 and 2001).

Moreover, there is also consensus on the fact that individuals define their happiness on a bundle of life circumstances (or domains). Individuals are not worried about income by itself, but rather by non-market commodities that can be produced by income. In a review of major domains of life, Van-Praag and Ferrer-i-Carbonell (2004) emphasizes the mediator role of financial satisfaction in the determination of subjective well-being. Financial satisfaction would have income as the major input. Therefore, the role of income in overall happiness would be mediated by the financial satisfaction that each individual enjoys.

In this paper, we address determinants of individual financial satisfaction in the following two dimensions.

How does individual contribution to total household income determine financial satisfaction? This first question is related to income pooling/sharing hypothesis in terms of consumption allocation decisions at the household level. In a bargaining model of intra-household distribution of income and consumption, income distribution within a household may have an influence on the consumption distribution within the household. If the share of own contribution in household income has a positive effect on own private consumption relative to other members, it is interpreted as evidence against the income pooling hypothesis. In our case where we do not observe consumption distribution within the household, individual income satisfaction may serve as a proxy. A positive effect of own income share on income satisfaction would provide evidence against income pooling. However, we can not infer anything on household consumption distribution. Even in the case of a positive effect of own income share on individual income satisfaction, consumption distribution may not change if altruism or gender role operates within the household.

Do different sources of income affect differently individual's financial satisfaction? In this second target, we want to contrast procedural utility hypothesis: people may have preferences defined over processes as well as over outcomes. That is, people may be affected not only by the amount of money they have access to but also the way in which the money is acquired (Frey et al., 2003). We compare the effect of earned labour income and that of non-labour income on individuals' financial satisfaction.

Both issues are relevant for the evaluation of the effect of policy interventions regarding the type of subsidies and their beneficiaries.

Importance of relative income has already been addressed in several works (Ferrer-i-Carbonell, 2005; Luttmer, 2005, Vera-Toscano et al., 2006) which show more or less consistently a negative effect of the income of reference group on own satisfaction. However, even if other household members can be considered most immediate reference group to an individual, very little work on financial satisfaction has addressed the question of how financial satisfaction is determined by the household income structure and its attributes, with a few exceptions, such as Bonke and Browning (2003), Alessie et al. (2006), García et al. (2007) and Rojas (2005 and 2006). The studies by Rojas contrasts if own income share has any effect on individuals' general and economic satisfaction in Mexico and find no significant effect, therefore supporting communitarian income pooling hypothesis. On the other hand, the

paper by García et al. which uses the data from ECHP concludes that Southern European countries (Greece, Portugal and Spain) are the only countries where both husbands' and wives' income satisfaction are significantly and positively affected by their spouses' wages and non-wage incomes, thus indicating a particular way of life characterized by mutual cooperation and income sharing between spouses.

Regarding the relevance of income sources on financial satisfaction, to our knowledge, there are no empirical validations of the effect of procedural utility on financial satisfaction, although other approaches have investigated how rewarding income is (Camerer et al., 2004 and 2005).

One of the main purposes of this work is to compare the results between Spain and Denmark. These two countries represent well two different cultural and socio-economic backgrounds. Spain represents traditional family system where female labour force participation and the divorce rates are low and cohabitation is rare, and different gender role is still dominant. Denmark, on the contrary, represents a country with much greater gender equality in the labour market and high rates of divorce and cohabitation rates. Despite these differences, results reported in the recent literature (Alessie, 2006 and García et. al., 2007) find similar patterns regarding intrahousehold and gender behaviour.

Our results seem to confirm both the procedural utility hypothesis and the relative income hypothesis for both countries, Spain and Denmark. We find that, in both countries, total household income affects strongly all household members' financial satisfaction and that earned income is more rewarding than non-earned income. Some differences between these two countries are also observed. In Spain, own-share of labour income increases significantly financial satisfaction for both husbands and wives. We do not find gender differences. In Denmark, however, wives' financial satisfaction is not affected by who contributes to the total household labour income but husbands are positively affected by their own contribution to the total labour income.

2. The Data and Variables

We use the dataset for Spain and Denmark contained in the European Community Household Panel (ECHP), annual panel survey for the years 1994-2001. This dataset is particularly suitable for our purpose since it contains information on the amount and the type of total household income and personal income for each adult household member. Moreover, a subjective question regarding the satisfaction level with present financial situation is asked to all adult (age 16 or more) members of the household.

A new dataset was constructed by merging own individual information (from the personal file), with information of the spouse (using the relational and the personal file), and that of household characteristics (contained in the household file). We selected married or cohabiting couples of ages between 25 and 59 who have no children or children under 16. Our final sample contains information for 17530 individuals (8765 couples) for Spain and 11974 individuals (5987 couples) for Denmark.

In the ECHP, there are two types of data regarding income, personal and household. The survey provides annual income data by some detailed category. Different categories of income sources include work, capital, private transfer and social protection. Income from social protection is further divided into unemployment insurance, old-age pension, survivor pension, family protection, etc... However, most income data refer to the calendar year preceding the interview. This time gap may lead to reporting errors as the surveys in many countries are carried out in rather later months of each year, November in the case of Spain and xxx in Denmark. Another problem of time inconsistency exists due to the fact that satisfaction variables refer to the current (at the time of interview) situation while these income variables refer to the whole year. Two income variables which are not affected by this problem are current monthly household income and current monthly personal labour income. We use these two income variables in our analysis. Using the exchange rate and the inflation rate in each year we converted income data in Euros of the 2001 price.

The first income variable included in the analysis is total net household income. We include this variable in logarithm due to widely found evidence for its empirical superiority over the linear term. The coefficient of this variable will tell us how the total household income affects individuals'

financial satisfaction independent of contributor or income type. The second income variable is the share of household labour income in total household income. This variable will capture the effect of labour income relative to non-labour income in the household and serves as a test of procedural utility hypothesis. The third income variable is the share of own labour income in total household labour income.[1] This is supposed to capture the effect of own contribution relative to the spouse's in financial satisfaction, and serves as a test of intra-household relative income hypothesis. We have also included the interaction variable between own share and cohabiting. The idea is that spousal commitment between cohabiting couples is supposed to be weaker than in the case of married couples, and thus the share of own labour earnings having more importance among cohabiting couples.

We also include other variables which are supposed to affect individual financial satisfaction. Age may affect the financial satisfaction as one has different income needs and economic aspiration over the life cycle. Gender is likely to matter as social norms may define different gender roles in terms of intra-household income contribution as well as due to biological and psychological differences by gender. Education may affect financial satisfaction due to potentially different economic expectations by education. Presence of children may matter if individuals face different income needs or different intensity of marital commitment when children are present.

3. Empirical Results

Table 1a presents the sample distribution of our dependent variable, financial satisfaction, for Spain and for Denmark. In Spain less than 5% of the sample reports being fully satisfied, a proportion substantially lower than in the case of life satisfaction found in other surveys. On the other hand, the proportion of the other extreme (very dissatisfied) is almost three times larger. The average is a little bit lower than the mid point (3.5) and the lower half of the scores represents about 50% of the sample. There is a negligible gender difference. Obviously, if only total household income matters as income pooling hypothesis predicts, we would expect perfect correlation in financial satisfaction between husband and wife. In our sample, the correlation coefficient was 0.59, strong but far from being perfect. There were 45% of the

[1] We would have preferred to use a share of total personal income in total household income. Unfortunately, non-labour income in the household cannot be assigned to individuals in the dataset. However, for most households, labour income is the predominant source of personal income, 92% in Spain and 90% in Denmark.

spouses reporting the same levels of financial satisfaction, 27% husband reporting higher satisfaction and the resting 28% the opposite. This indicates that there are sufficient variations in satisfaction levels between spouses to warrant our analysis at the outset.

In Denmark, we observe in general much higher levels of financial satisfaction compared to Spain. Almost 20% of the sample reports being fully satisfied and less than 2% reports being very dissatisfied, having only 15% of the sample reporting satisfaction levels lower than the mid-point. Gender difference is again very small. The correlation coefficient was 0.59, the same as in Spain. There were 50% of the couples reporting the same levels of financial satisfaction, 24% husband reporting higher satisfaction and the resting 26% the opposite. Compared to Spain, the satisfaction level in Denmark is highly concentrated in the two highest satisfaction scores, representing about 58% of the sample. This may affect the precision of our estimation, especially in the case of fixed-effect models whose identification rely exclusively on variations over time within each individual.

The standard deviation of our dependent variable is higher in Spain than in Denmark. When we decompose the variations into between individuals and within individuals, we observe a larger variation between individuals than within individuals in all four samples. However, it appears that there are sufficient variations in satisfaction levels over time within individuals to warrant fixed-effect estimation models. The average years observed per person are 3.63 in the Spanish sample and 3.77 in the Danish sample.

Table 1: Sample Distribution of Financial Satisfaction

	Spain		Denmark	
	Husband	Wife	Husband	Wife
Very dissatisfied (=1)	9.0	8.77	1.67	1.84
2	15.41	15.47	3.56	4.08
3	25.85	25.52	9.59	10.54
4	27.02	26.75	26.69	25.24
5	19.58	19.42	40.35	38.03
Fully satisfied (=6)	3.14	4.06	18.14	20.28
Average	3.42	3.45	4.55	4.54
Std. Dev. (overall)	1.29	1.31	1.10	1.15
Std. Dev. (between)	1.09	1.09	0.99	1.01
Std. Dev. (within)	0.84	0.86	0.67	0.71
Obs. Person-year	8765	8765	5987	5987
Obs. Person	2414	2414	1589	1589
Years per person	3.63	3.63	3.77	3.77

Sample statistics of explanatory variables are presented in Table 2. For both countries labour income represents around 90% of total household income, suggesting market work as a dominant income source for the households of our sample. In Spain husband's share of labour income is 74% compared to 26% for wife, an indication of a strong male-breadwinner society that seems to have prevailed the time that our sample is drawn from. There were very few couples cohabiting without a formal marriage (5%), and a large proportion of couples had dependent children (73%). In Denmark the share of labour income is much more equal between spouses than in Spain, 57% for husband and 43% for wife. Also in Denmark there are a much higher percentage of couples cohabiting and a lower percentage of couples having dependent children. Although the education level is substantially higher in Denmark than in Spain, no significant gender differences are observed in either country.

Table 2: Sample Statistics: Mean and Standard Deviation

	Spain		Denmark	
	Husband (N=8765)	Wife (N=8765)	Husband (N=5987)	Wife (N=5987)
Log household income	7.34 (0.54)	7.34 (0.54)	8.10 (0.32)	8.10 (0.32)
Share of labour Income	0.92 (0.27)	0.92 (0.27)	0.90 (0.42)	0.90 (0.42)
Share of own labour income	0.74 (0.33)	0.26 (0.33)	0.57 (0.27)	0.43 (0.27)
Age	36.71 (6.65)	34.38 (6.20)	40.49 (9.30)	38.24 (9.13)
Cohabit	0.05 (0.22)	0.05 (0.22)	0.27 (0.44)	0.27 (0.44)
Have child	0.73 (0.44)	0.73 (0.44)	0.60 (0.49)	0.60 (0.49)
Low educ	0.46 (0.50)	0.46 (0.50)	0.16 (0.36)	0.16 (0.36)
Mid educ	0.22 (0.41)	0.23 (0.42)	0.47 (0.50)	0.45 (0.50)
High educ	0.32 (0.47)	0.31 (0.46)	0.37 (0.48)	0.39 (0.49)

We run two regressions for each country, one for each gender. First, we present the results from OLS regressions[2]. Then, taking advantage of the panel structure of the data we present the results of fixed-effect OLS regressions which control for unobserved fixed individual effects. The results are shown in Table 3 and Table 4, respectively for OLS and fixed-effect OLS.

[2] We have also estimated, given the discrete nature of the dependent variable, ordered probit models. The results do not differ qualitatively from those obtained by OLS.

Table 3: Results from OLS (1=very dissatisfied, …, 6=fully satisfied)

	Spain		Denmark	
	Husband	Wife	Husband	Wife
Log household income	1.143 (40.08)	1.017 (34.85)	1.147 (24.49)	1.092 (22.57)
Share of labour income	0.218 (4.51)	0.349 (6.94)	0.306 (9.24)	0.325 (9.40)
Share of own labour income	0.542 (12.76)	-0.021 (0.47)	0.495 (8.39)	0.131 (2.12)
Share of own * Cohabit	-0.323 (2.08)	0.443 (2.76)	-0.271 (2.56)	0.289 (2.61)
Age	-0.056 (3.22)	-0.106 (5.70)	-0.028 (1.83)	-0.042 (2.60)
Age-sq.	0.0007 (3.20)	0.001 (5.97)	0.0004 (2.26)	0.0007 (3.59)
Cohabit (re: married)	0.066 (0.59)	-0.479 (5.57)	0.036 (0.53)	-0.339 (5.78)
Educ. Middle (re: low)	-0.007 (0.20)	-0.021 (0.62)	-0.094 (2.45)	-0.019 (0.47)
Educ. High (re: low)	0.069 (2.08)	0.044 (1.24)	-0.162 (3.93)	-0.100 (2.31)
Have child	-0.204 (6.39)	-0.093 (2.80)	-0.309 (9.22)	-0.236 (6.65)
Constant	-4.342 (11.74)	-2.385 (6.65)	-4.551 (10.28)	-3.892 (8.66)
R-sq.	0.211	0.176	0.139	0.148
N	8765	8765	5987	5987

Note: Absolute values of t-statistics are reported in parentheses.

First, we discuss the results for OLS regressions. Household income is clearly the most important determinant of individuals' financial satisfaction for both countries and for both genders. Doubling household income increases financial satisfaction by about one point in a 1-to-6 scale. Given the total household income, the share of labour income affects positively and significantly individual financial satisfaction in both countries. This suggests that individuals value more labour income than non-labour income, evidence supporting the procedural utility hypothesis.

Turning to the relative income hypothesis between spouses or partners, the share of own labour income clearly increases financial satisfaction for men in both countries. For women, it has no effect in Spain while it has some positive effects in Denmark. However, its effect appears to be different between married couples and cohabiting couples and by gender. In both countries, the effect of own share of labour income is much smaller among cohabiting men than married men while the opposite is true for women. The difference in the effect of own share between cohabiting women and married women is much larger in Spain than in Denmark. That is, in Spain, cohabiting women consider important own share while married women don't do so. This difference seems to confirm the differences in social norms in the two countries.

Other socio-demographic variables also affect significantly individuals' financial satisfaction. Given other things the same, financial satisfaction decreases with age up to somewhere around 30 to 40 and thereafter it increases with age. Cohabiting women are substantially less satisfied with their financial situation than married women, but no such effects are observed among men. Education shows small or no effects in both countries. On the other hand, having children appears to lower substantially both spouses' financial satisfaction. The effect is larger in Denmark than in Spain, which is somewhat contrary to our intuition based on the fact that family support is greater in Denmark than in Spain. Perhaps, it may be the case that the decision to have children is affected by couples' financial situation more strongly in Spain than in Denmark. That is, in Spain only those couples with sufficient financial resources go on to have children. Low fertility rate and small government family subsidies in Spain is consistent with our conjecture.

Now we turn to the results of fixed-effect OLS regressions. It is a usual practice in economics literature that one does not report the results of supposedly inferior estimation models (in our case OLS) when a supposedly better method (in our case, fixed-effect model) is applied. The fixed-effect model we apply here is supposed to control for time-constant unobserved individual heterogeneity. One concern, however, is that model identification is much weaker in this model since it depends exclusively on inter-temporal variations within individuals. Given the short panel with the average observed time less than 4 years in our sample, within-individual variations may not be sufficiently large for a precise estimation. Furthermore, given the discrete nature of the dependent variable, it is likely that only sufficiently large changes (to pass the cut-point between categories) are captured in the data. In particular, in Denmark, the majority (over 60%) report either 5 or 6 (two highest categories) of financial satisfaction, therefore with a small or no margin to improve. Much smaller R-Squared values in the case of fixed-effect regressions are a symptom of this. It seems relevant to consider these points when one interprets the results of fixed-effect models.

Table 4: Results from Fixed-Effect OLS

	Spain		Denmark	
	Husband	Wife	Husband	Wife
Log household income	0.862 (15.54)	0.728 (12.81)	0.982 (14.95)	1.079 (15.27)
Share of labour income	0.279 (4.71)	0.236 (3.89)	0.323 (9.24)	0.390 (10.32)
Share of own labour income	0.193 (2.40)	0.169 (2.03)	0.578 (7.08)	-0.038 (0.44)
Share of own * Cohabit	-0.042 (0.16)	-0.172 (0.64)	-0.183 (1.41)	0.406 (2.90)
Age	0.088 (2.08)	0.102 (2.30)	-0.101 (3.36)	-0.095 (2.98)
Age-sq.	-0.0005 (0.83)	-0.001 (1.39)	0.001 (2.46)	0.001 (1.78)
Cohabit (re: married)	-0.063 (0.32)	0.011 (0.07)	0.134 (1.47)	-0.162 (1.97)
Educ. Middle (re: low)	0.006 (0.10)	0.099 (1.53)	-0.108 (1.37)	-0.032 (0.40)
Educ. High (re: low)	0.029 (0.35)	0.094 (1.02)	-0.030 (0.34)	-0.026 (0.30)
Have child	-0.133 (2.18)	-0.162 (2.57)	-0.127 (2.18)	-0.132 (2.06)
Constant	-5.783 (6.89)	-4.529 (5.45)	-1.295 (1.77)	-1.867 (2.49)
R-sq.	0.055	0.039	0.064	0.058
N	8765	8765	5987	5987

Note: Absolute values of t-statistics are reported in parentheses.

Compared to the results from OLS, we observe some interesting changes in some estimated coefficients. The effect of household income remains to be a dominant determinant although it is reduced slightly. The share of labour income also remains as an important factor in all groups although the effect becomes smaller among Spanish women. The major difference appears in the effect of the share of own labour income. For Spanish men and women, it has significant positive effect without any significant difference between the married and cohabiters (that is, the interaction term is close to zero or not significant). This may be the symptom of weak identification due to few cases of changing status between being married and cohabiting. On the other hand, there is a large difference between men and women and between cohabiting women and married women. Danish men care a lot of their share of labour income relative to their partners regardless of their marital status. On the other hand, Danish women care of their own share only if they are cohabiting rather than married.

The effects of other variables are in general smaller and less significant compared to the results of simple OLS. The change from cohabiting to being

married increases financial satisfaction among Danish women. Although the opposite case (from being married to cohabiting) should be interpreted exactly the other way around (that is, negative effect), it is irrelevant since there are almost no such cases. Having children reduces financial satisfaction by a similar magnitude in all groups.

4. Conclusions

In general terms, and for both countries, our results seem to confirm both the procedural utility hypothesis and the relative income hypothesis. Labour income contributes more to individual financial satisfaction than non-labour income for both husbands and wives, thus confirming the procedural utility assumption. On the other hand, the effect of own share of labour income relative to the spouse's differs considerably between men and woman and between the two countries, and some cases by marital status. In this respect, we also observe differences between the results from plain OLS and those from fixed-effect OLS. For men in both countries, own share is valued much more if they are married than cohabiting. This is true independent of the methodology employed. For women, however, there is a substantial difference between the two countries. In Spain, while own share provides substantial satisfaction to cohabiting women it has no effect among married women, according to the result of simple OLS. This difference disappears in the results of fixed-effect OLS. In Denmark, on the other hand, the difference between cohabiting women and married women remains substantial or even increases a little when fixed-effect model is estimated.

A policy implication may be drawn from our results. First, a bigger contribution of labour earnings to individual financial satisfaction than non-labour earnings supports active labour market policies which are designed to improve employability than passive subsidies. With respect to the relevance of own share, the differences observed in the results between different estimation models should serve as a warning against any hasty policy recommendations.

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