Pooling of income and sharing of consumption within households

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Abstract   There is extensive literature in economics and economic psychology on the allocation of household income within the household. In economics this refers to household decisions being independent of who generates the income in the household; in economic psychology it refers to the management of household finances. Here, we consider the link between the two concepts using a Danish expenditure survey providing information on both notions and on the assignment of expenditures. More importantly, we investigate whether either type of pooling is related to the sharing of expenditures between the two partners, and whether there are different correlations between the income distribution and the sharing of expenditures among double-career couples and other couples. We find that in most households the income distribution is correlated with the sharing of consumption—the economic approach—and that this holds true even if the household pools its resources—the economic psychology approach, implying that there is no strong relationship between the two approaches.

1 Introduction

In economics 'income pooling' refers to the idea that sharing depends on who actually brings the income into the household. In economic psychology it denotes

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that household members pool their incomes for financial purposes and draw on this pooled income for common and individual expenditures. The two concepts can diverge. For example, household members may agree on how to spend money irrespective of who earns it, but they may also agree to keep separate accounts and pay agreed amounts from their own account. Conversely, the household members may agree to pool their incomes in a joint account, but using money from this account may depend on who generates it.

Our principal interest is in whether individual income and/or income pooling (in the economic psychology sense) influences the allocation of expenditures in couple households. We also test whether individual income within the household impacts individual consumption. We expect that for couples in a pooling regime, the intra-household allocation of consumption is concentrated around equal sharing. Consequently, the partners' relative income will have little or no impact on the distribution of expenditures.

The data stem from the danish household expenditure survey (DHES) including information about for whom every item was bought ('for the household', 'mainly for the wife', 'mainly for the husband', 'mainly for the children in the household' or 'for others'), and information about the spouses' management of their incomes, i.e. income pooling regimes. This allows for investigating income distribution, income pooling and expenditure distribution for the same couples.

The investigation here centers on Denmark, where the welfare state and family-friendly policies, in particular, have aided in increasing female employment to around 74 percent for 25–64-year-olds by ensuring long, paid maternal leave and high coverage rates of childcare institutions of around 65 percent for 0–2-year-olds (Datta Gupta et al. 2008). The high employment rates for women are related to a marked tendency towards a high degree of equality in household production (Bonke and Jensen 2012).

2 Income pooling

We use the term income pooling from the perspectives of economic psychology and sociology defining income pooling as a joint household income regime, and from an economics perspective defining income pooling as equal sharing of consumption between the partners. We investigate if these definitions are comparable by testing whether the correlation between income distribution and consumption sharing is the same in a joint household income regime as in a non-joint household income regime.

2.1 Income pooling for economic psychologists

Economic psychologists and sociologists have long studied decision-making processes and power relations within the family (see, for example, McDonald 1980; Mizan 1994; Vogler and Pahl 1994; Pahl 2005; Vogler et al. 2008a, b). Hence, they have been focusing on the association between a household's financial organization and inequalities between partners in decision making (see, for

example, Blood and Wolfe 1960; Blumstein and Schwarz 1983; Treas 1993). Most studies argue that the power balance in a family relates to the comparative resources, such as income, education and occupational status, of the husband and the wife. Some authors have tested this resource theory (McDonald 1980; Mizan 1994).

Financial management of households involves an assortment of decisions of different importance, occurring at different frequencies and involving different amounts of money. For example, Dobbelsteen and Kooreman (1997), Vogler and Pahl (1994) and Woolley (2003) make a distinction between strategic control and executive management. That household management impacts outcomes is confirmed by experiments with different information and communication between partners, see e.g. Ashraf (2009). Here, we ask questions relating to management, usually referred to as income pooling regime questions, and investigate whether responses to these questions on power and income pooling bear any relation to individual access to consumption.

2.2 Income pooling for economists

The question of individual consumption within couple households has been of interest to economists at least since Becker's (1973) theory of marriage. This model differs from earlier models of consumption and labor supply, as well as from Becker's (1965) theory of allocation of time as it was assumed that households behaved as if they were a single unit. Those older models are now known as "unitary models".

Theoretical models analyzing individual consumption in couple households include market models such as Becker (1973), Heer and Grossbard-Shechtman (1981) and Grossbard-Schechtman (1993), cooperative bargaining models (Manser and Brown 1980; McElroy and Horney 1981) and non-cooperative models (Ulph and Ulph 1988; Woolley 1993). These models all include the idea that individual power and command over economic resources will influence individual consumption.

The income pooling prediction has been tested through observed individual incomes in household surveys (see, for example, Bourguignon et al. 1993; Browning et al. 1994; Browning and Chiappori 1997; Lundberg et al. 1997; Phipps and Burton 1998; Thomas 1990). However, in most cases the information is only on expenditures on clothing or on very aggregate expenditure measures, with the exception of Lee and Pocock (2007) and Phipps and Woolley (2008), who investigate spouses' contributions to retirement savings plans.[1] In this article the focus is on all household expenditures, although we also use goods and services on a

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[1] Using experimental data Bruyneel et al. (2012) provide empirical support for considering non-unitary models to describe the behavior of households allowing for individual preferences to impact on the consumption quantities for the individual household member, and Chiappori (2011) shows that it is possible within a "collective" model of labor supply framework to infer the respective income-elasticities of the husband's and the wife's demand for e.g. food, even though the spouses' individual food consumptions are not observed.

more disaggregated level (see Bonke and Browning (2010) for further details about the different expenditure categories in the data).

3 Research question—hypotheses

The focus of this study is on the interactions between the income distribution, the pooling regime and the allocation of expenditures. Hence, the important question is whether pooling of income within the household has any impact on the spouses' distribution of consumption. That is, does it matter who earns the money for how the income/consumption is distributed and is there any variation between households belonging to different income distributional regimes.

By applying the spouses' relative income shares, we have

$$\text{CONSF} = f\ (\text{POOL, INCSF}),$$

where CONSF is female consumption relative to female and male consumption, POOL is distributional regime (pooling: 1, non-pooling: 0), and INCSF is female income relative to female and male incomes.

We hypothesize that

$$\Delta\ \text{CONSF}/\Delta\ \text{INCSF} = 0\ \text{if POOL} = 1\ \text{and}$$
$$\Delta\ \text{CONSF}/\Delta\ \text{INCSF} > 0\ \text{if POOL} = 0,$$

which implies that the distribution of income among non-pooling spouses impacts the distribution of their relative spending due to a "skewed" bargaining power relationship, whereas pooling implies no internal bargaining for access to goods.

To our knowledge there is no systematic analysis of the effect of pooling on the allocation of expenditures, one reason being that there have been no available data on how assignable consumption, and not only clothing, is distributed within the household. An exception is Cherchye et al. (2012), who investigate the impact of spouses' wages on the distribution of some very broad goods categories. We expect—our second hypothesis—that pooling does not necessarily imply a different allocation of expenditures, but that the variation in the allocation is smaller among pooling households than among non-pooling households. This follows from the argumentation that shared management and a common household budget, usually found within income pooling households, makes the distribution of consumption more equal between the spouses (Vogler et al. 2008a, b).

That income shares impact the distribution of consumption has been found in several studies (Bourguignon et al. 1993; Browning et al. 1994; Browning and Chiappori 1997; Lundberg et al.1997; Phipps and Burton 1998; Thomas 1990) and this finding has been used to reject the unitary model. However, in most cases these findings rely on information on a small subset of assignable goods. In contrast, our data include a large number of goods assigned to the individuals in the household. We expect that the distribution of all assignable goods depends on the income distribution in non-pooling households, whereas this is not the case for income pooling households because of the presence of the economists' pooling, cf. the first hypothesis.

The relationship between the distribution of assignable goods and the income distribution will depend not only on the pooling regime but also on the spouses' attachment to the labor market. Hence, the expectation is that spouses working full-time, have a stronger say in management decisions than do spouses not working full time, even when the income resources are pooled.

4 Data

The data were collected in conjunction with the (DHES). This is a continuous survey of approximately 1,000 households per year. After a pilot survey during September–November 1998, surveying began in early 1999 and, given our sample selection, we have information on 1747 households at the end of 2004. We sample only households 'headed' by a married or cohabiting couple. Further, to reduce heterogeneity, our sample includes only couples with both spouses aged between 18 and 59 years. Because the Expenditure Survey sample was drawn (randomly) from the Personal Identification Register in Statistics Denmark it was possible to merge information on income, household characteristics, etc. from administrative registers in Statistics Denmark with the survey data.

The DHES includes a questionnaire and an accounting book ('diary'), which is self-administered and used for registering the purchases of each household member over a month. Our data collection is novel inasmuch as for each diary entry, the respondent records in the booklet whether the item was bought: 'for the household', 'mainly for the wife', 'mainly for the husband', 'mainly for the children in the household' or 'for others'. Overall, this extra reporting presented no difficulties for the respondents, see Bonke and Browning (2010) for a detailed analysis of the response rates and other aspects of the survey, and Bonke and Browning (2011), who focus on spending on children. These responses provide the basis for our analysis of consumption sharing, which has not been possible until now because, to our knowledge, such information has not been previously collected in a large, representative survey and for a wide range of expenditure categories[2] . Specifically, we consider 'assignable' expenditure as goods and services (food, alcohol, non-alcohol, tobacco, clothes, services, transportation, recreation and personal) that are allocated to the husband or the wife (Bonke and Browning 2010, Table 3).

The questionnaire yields information about the spouses' management of their incomes. Thus, the respondents were asked whether they: 1) pool all their incomes without distinguishing between 'his' and 'her' money, 2) pool only a part of their incomes and regard other parts as 'his' or 'her' money, 3) allocate some money for the partner's disposal, or 4) have completely separate economies with each spouse's earnings belonging exclusively to him or herself. These so-called income pooling regimes have been used by economic psychologist, see, for example, Pahl (1989), Vogler (2005) and Ashby and Burgoyne (2008). Most studies find that a majority of

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[2] In a module of the 2008-wave of the Dutch LISS-panel Cherchye et al. (2012), 212 couples with children were asked to indicate how much of the expenditures of nine, broad categories of goods and services they personally consumed. In ordinary expenditure surveys only clothing is assigned to individuals within the family based on the age and sex of the consumer.

households pool their incomes, which we also find here with around two-thirds belonging to this distributional regime (Table 1). As the remaining regimes are similar in their orientation towards individuality within the relationship (Burgoyne et al., 2007) and appear very infrequently, we collapse them into a non-pooling regime, which was also done by Bonke and Uldall-Poulsen (2007) using the same dataset. Bonke and Uldall-Poulsen (2007) also applied an indirect measure based on questions asking spouses about their personal consumption reactions to a change in their relative income (increase/decrease) (ibid, p. 117). The correlation between the direct and the indirect income-pooling measures is very high ($\chi^2 = 281$, df $= 1$) and only the direct measure is used in the following.

The questionnaire also included a number of questions used as controls in the analyses below. These questions give information about the husband's and wife's upbringing and marriage career.

Lastly, the respondents were asked about who replied to the questions in the survey. We found that in most cases the husband and wife completed the questionnaire together (75 %), while 12 % of women and 13 % of men completed it alone. There was no correlation, however, between the sex and individuality of the respondent(s) and the reported sharing of consumption or the regime belonging (pooling or non-pooling). From administrative registers we know whether couples are married or cohabiting (75 and 25 %), but we do not use that distinction in the analyses because it is highly correlated with years of partnership (corr. 0.43; mean years 16.9 for married and 8.0 for cohabitants), i.e. cohabitation is seen as a prelude to marriage in Denmark[3].

Having separate bank accounts has also been used as a proxy for the spouses' jointness in household management, but seemingly there is not a high correlation between belonging to an income-pooling household and having joint accounts (Burgoyne et al. 2007), and neither does it seem that separate accounts are more often held by men than by women (Woolley 2003).

The descriptive statistics for the information/variables applied in the following analyses are shown in Table 1, where the controls are expected to impact the distribution of income within households. The spouses' attachment to the labor market is also included in the data stemming from administrative registers at Statistic Denmark as it might influence the needs, preferences and tastes for specific goods, that is, more expenditure on clothing and transportation for men and women in employment.

5 Non-parametric analyses

The distribution of goods and services among the spouses using three different measures of which only the first one has been used before, see Bonke and Browning (2010) is presented in Table 2. The first distributional category/measure uses the

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[3] Treas & Widmer (2000) show that a pooling arrangement with a common pot is more prevalent than a non-pooling arrangement with separate purses within married couples than within cohabiting couples, which is in line with Bonke & Uldall-Poulsen (2007) and Laporte & Schellenberg (2011) who show that years of marriage increases the likelihood of pooling the resources.

Table 1 Descriptive statistics—distributional regimes, income, consumption, controls and labor market attachment 1999–2004

Regimes (POOL)	Distribution # cases	
Pooling[a]	1,186 (68 %)	
Non-pooling[b]	561 (32 %)	
Labor market attachment	# cases	Pct. pooling
Husband full-time work/wife full-time work (double career)	801	71.8
Husband no full-time work/wife no full-time work (non-career)	627	66.7
Husband or wife full-time work/spouse no full-time work	319	60.5
	Mean	St. dev.
Income (1,000 DKK per year)		
Gross individual incomes	532.3	217.0
Wife's share of wife and husband's gross incomes	0.419	0.141
Gross household incomes	609.3	279.0
Net individual incomes	298.8	106.4
Wife's share of wife and husband's net incomes (INCSF)	0.431	0.155
Net household income (HHINC)	360.4	177.5
Expenditures (1,000 DKK per year)		
Assignable[c]	122.4	63.8
Individual	53.0	42.2
Wife's share of wife and husband's consumption (CONSF1)	0.533	0.293
Joint	69.3	40.7
Non-assignable (NONASS)	161.7	97.7
Controls		
Husband has a non-common child (CHILDHUSB)	0.063	0.243
Wife has a non-common child (CHILDWIFE)	0.064	0.244
Husband's mother was full-time worker (HUSBMOTHFTIME)	0.431	0.495
Wife's mother was full-time worker (WIFEMOTHFTIME)	0.451	0.498
Years of marriage and cohabitation in present marriage (YEARSMARR)	13.11	10.15
Child in household (CHILD)	0.551	0.243
House owner (HOMEOWNER)	0.656	0.498
Capital or major cities (URBAN)	0.609	0.488

[a] Pooling all incomes not distinguishing between his and her money

[b] Only some part of all incomes is pooled, other parts are regarded as his or her money; some money is allocated for the partner's disposal; completely separate economies with each spouse's earning belonging exclusively to him or herself

[c] Food, vices (alcohol non-alcohol drinks, tobacco etc.), clothing, services, transportation, recreation and personal

proportion of expenditures for which the respondents report an allocation, i.e. individually assigned goods such as cloth, tobacco, leisure-time goods and services, etc. (Table 1; Mean: 53,000 DKK). We find that the wife's proportion of the goods

reported as consumed by either the wife or the husband (CONSF1) amounts to 53 percent. Next we include jointly assigned goods such as most foodstuffs, some transportation costs, etc. (Mean: 69,300 DKK) reported as consumed by both spouses by dividing these expenditures by the square root of the number of spouses, i.e. the assumption is that there are economies of scale here benefiting both spouses (CONSF2). In this case the wife's proportion of goods obviously becomes smaller and constitutes 50 percent. Finally, we also include non-assignable goods such as housing costs, electricity, etc. (Mean: 161,700 DKK) divide these expenditures by the square root of the total number of people in the household—spouses and children—(CONSF3), and add them to the wife's as well as to the husband's assigned goods. This gives the wife 60 percent of the wife's and husband's aggregated consumption. For a complete list on how different goods and services are distributed within the household, see Bonke and Browning (2010).

From Table 2 we see that the wife's share of consumption—mean and median— is only significantly smaller within the non-pooling regime (all the other categories collapsed) than within the pooling regimes for the CONSF3 consumption measure (mean: t-value of 3.45, and median: t-value of 3.68). Moreover, we find that the non-pooling distribution is somewhat more dispersed than the pooling distribution, while there is little difference in the inter-quartile ranges. A Kolmogorov–Smirnov test for equality between the two distributions gives probability values of 0.011 and 0.000 for the CONSF2 and CONSF3 measures, respectively, which implies that the two distributions differ significantly and, thereby confirms the second hypothesis stated above. Hence, these nonparametric analyses suggest that the location of the wife's share of expenditure and its dispersion depend on the income pooling regime only if joint assignable and non-assignable consumer goods and services are distributed between the spouses (CONSF2 and CONSF3).

6 Empirical models

We regress the wife's share of consumption (CONSF) with her income share (INCSF), a dummy for regime (POOL), the interaction between the wife's income share and the distributional regime, the total disposable household income (HHINC) and a number of controls (CONTR), either stepwise or in one routine (see variables in Table 1).

1. $CONSF = \alpha + \beta INCSF + \mu HHINC + \delta CONTR + \varepsilon$
2. $CONSF = \alpha + \beta INCSF + \sigma POOL + \mu HHINC + \delta CONTR + \varepsilon$
3. $CONSF = \alpha + \beta INCSF + \sigma POOL + \varphi INCSF*POOL + \mu HHINC + \delta CONTR + \varepsilon$

The form of the equation is designed to capture the differential effects discussed above. For example, a finding that the income share is important only for those who do not pool ('significant' coefficients on 'INCSF' and on 'INCSF*POOL' cancel each other out) would indicate that the regime has the effect expected according to the first hypothesis stated above. Conversely, a finding that the crossed variable is insignificant but the income share is significant would indicate that pooling plays no role in the sharing of expenditures. Finally, if pooling does not become significant, it

Table 2 The distribution of different consumption shares within pooling and non-pooling regimes 1999–2004

Wife's share of total consumption

	Assignable individual consumption (CONSF1)		Assignable individual and joint couple consumption[a] (CONSF2)		Assignable individual and joint couple consumption, and non-assignable consumption[b] (CONSF3)	
	Pooling	Non-pooling	Pooling	Non-pooling	Pooling	Non-pooling
Mean (st.dev.)	0.538 (0.299)	0.523 (0.282)	0.504 (0.083)	0.503 (0.098)	0.603 (0.066)	0.591* (0.076)
		0.533 (0.293)		0.504 (0.088)		0.599 (0.069)
1. Quartile	0.312	0.299	0.468	0.455	0.560	0.547
2. Quartile/median	0.549	0.536	0.505	0.506	0.599	0.585*
3. Quartile	0.779	0.730	0.541	0.560	0.643	0.636
Kolmogorov–Smirnov test: p value	0.133		0.011		0.000	
N:	1,186	561	1,186	561	1,186	561

* Significantly different from pooling on 0.05-level in a t test

[a] The joint consumption (both partners) divided by the square root of the number of spouses

[b] The joint consumption divided by the square root of the number of spouses, and the non-assignable consumption divided by the sq rt of the number of all family members (adults and children)

means that the distributional regime per se has no impact on the sharing of resources within the household.

Because there are some wives and husbands who report no individually assigned consumption during the month of diary accounting, two-sided censored regression methods would be the most appropriate (see Bonke and Browning 2011). However, here we ran OLS-regressions because the results are virtually the same as when using the two-sided censored regressions, and the OLS coefficients are easier to interpret (Steward 2009).

7 Regression analyses

In Table 3 we investigate the implication of assigning different goods—individual, joint and non-assigned—to the spouses on the correlation between the wife's share of income and the wife's share of consumption, while controlling for total household income. From the regression analyses we see that only the distribution of assigned goods (CONSF1) and the assigned plus the non-assigned goods (CONSF3) are significantly correlated with the wife's share of income. We also find that this correlation is not influenced by including the pooling/non-pooling variable—the coefficients in Model 2 are equal to those in Model 1 for both measures, whereas the correlation increases when interacting the income-share*pooling term (Model 3) using the CONSF3-measure. The interaction term, however, does not become significant, indicating that the income-consumption relationship is not influenced by the household's pooling regime, so even within income pooling households the income distribution matters for the distribution of consumption between spouses. Nonetheless, the pooling regime in itself (POOL) is positively correlated with the consumption sharing when applying the CONSF3 measure (Models 2 and 3), but only on a 10 percent level in Model 3. In contrast, the aggregated household (logHHINC) income is not correlated with the distribution of consumption when jointly assigned (CONSF2) and also non-assigned goods (CONSF3) are included in the consumption measure, whereas this income impacts the distribution of assignable goods (CONSF1) positively, implying that the richer the household the more goods are assigned to the woman, independently of who contributes to the household's income.

That the correlation between the distribution of income and the consumption sharing is the same for households that pool and do not pool their incomes is confirmed when including controls in the regressions using CONSF3 (Column 1 in Table 4).[4] In this case, the pooling information in itself no longer matters when explaining the distribution of consumption. In contrast, the household income now becomes negatively and significantly correlated with the distribution of consumption.

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[4] When using relative wages (her wage rate divided by her spouse's wage rate) instead of relative incomes, the correlation between these wages and the distribution of consumption becomes non-significant, which is also the case for pooling and relative wages*pooling.

Table 3 Wife's consumption share explained by income shares, distributional regimes and household income

N:1747	Model 1		Model 2		Model 3	
	Coef.	t-values	Coef.	t-values	Coef.	t-values
Wife's consumpton share (CONSF1)						
INCSF	0.107*	2.31	0.107*	2.30	0.131	1.62
logHHINC	0.031$^+$	1.84	0.030$^+$	1.75	0.030$^+$	1.75
POOL			0.013	0.85	0.029	0.64
INCSF*POOL					−0.036	−0.37
Constant	0.095	0.43	0.103	0.47	0.093	0.42
Adj. R2	0.003		0.003		0.003	
Wife's consumption share (CONSF2)						
INCSF	0.016	1.12	0.016	1.12	0.030	1.23
logHHINC	0.004	0.81	0.004	0.80	0.004	0.80
POOL			0.0002	0.05	0.009	0.70
INCSF*POOL					−0.021	⁻0.72
Constant	0.446***	6.80	0.446***	6.79	0.440***	6.64
Adj. R2	−0.0002		−0.0002		−0.0002	
Wife's consumption share (CONSF3)						
INCSF	0.036**	3.25	0.035**	3.20	0.045*	2.38
logHHINC	0.001	0.29	−0.0002	−0.04	−0.0002	−0.04
POOL			0.012***	3.45	0.019$^+$	1.80
INCSF*POOL					−0.015	−0.67
Constant	0.570***	11.07	0.578***	11.26	0.573***	11.07
Adj. R2	0.005		0.005		0.005	

OLS-regression, 1999–2004

No controls, see Table 1

$^+$, *, **, *** Significant on 0.1-, 0.05-, 0.01- or 0.001-levels

When we look at the correlation between the distribution of income and consumption separately for pooling and non-pooling households and include controls (Columns 2 and 3 in Table 4), they both become positive and significant—only at a 10 percent level for the correlation for the non-pooling households—and even significantly different from each other in a Chow-test. From Fig. 1 we also see that the slope of the curves associating predicted values of the wife's consumption share and her income share for pooling and non-pooling households don't overlap completely. Particularly at the ends of the distributions the scatter plots show a less dispersed form in the first case than in the latter. This suggests that one cannot reject the hypothesis raised above, that pooling plays a role some households' income-consumption relationship. Nonetheless, income pooling within the household does not prevent the spouses' individual consumption from being influenced by their relative income contributions.

A surprising result appears when distinguishing between households with different combinations of attachments to the labor market and including controls.

Table 4 Wife's consumption explained by income shares, household income, and controls within pooling and non-pooling households

	Wife's consumption share (CONSF3)			
	All Coef. (t-values)	Pooling Coef. (t-values)	Non-pooling Coef. (t-values)	Diff f-test[a]
INCSF	0.0417* (2.20)	0.0311* (2.49)	0.0385[+] (1.81)	+
POOL	0.0097 (0.92)	–	–	–
INCSF*POOL	−0.0011 (−0.50)	–	–	–
logHHINC	−0.0087* (−2.06)	−0.0076 (−1.52)	−0.0115 (−1.49)	–
HUSBMOTHFTIME	−0.0049 (−1.42)	−0.0038 (−0.96)	−0.00697 (−1.04)	–
WIFEMOTHFTIME	0.0019 (0.55)	0.0030 (0.76)	0.00003 (0.05)	–
YEARSMARR	0.0004* (2.14)	0.0005* (2.14)	0.0001 (0.32)	–
CHILD	0.0184*** (5.22)	0.0167*** (4.04)	0.0225** (3.27)	–
CHILDHUSB	0.0069 (1.02)	0.0007 (0.08)	0.0187 (1.48)	–
CHILDWIFE	−0.0088 (−1.29)	−0.0126 (−1.53)	−0.0031 (−0.25)	–
HOMEOWNER	0.0074[+] (1.85)	0.0065 (1.40)	0.0086 (1.14)	+
URBAN	0.0048 (1.35)	0.0073[+] (1.80)	−0.0013 (−0.19)	–
Cons	0.662*** (12.29)	0.655*** (10.25)	0.710*** (7.24)	
N:	1747	1186	561	
Adj. R2	0.0305	0.0203	0.0247	

OLS-regression, 1999–2004

[a] Chow-test

[+] , *, **, *** Significant at 0.1-, 0.05-, 0.01- and 0.001-levels

Table 5 shows that for double-career households—both partners work full time—the association between the distribution of income and the distribution of consumption becomes significant only when they pool their resources (Panel A). In contrast, this holds true only for non-pooling households in non-career couples—neither partner works full time (Panel B). For couples where only one spouse works full time (Panel C), the income distribution matters for the distribution of consumption within pooling households and nearly to the same extent as within double-career households pooling their resources. How this relationship is within one-career households not pooling their resources, we don't know because this model is rejected based on an F-test.

The distribution of income between the partners thus seems to have an impact on the distribution of expenditure among double-career couples, where the wives are believed to have a stronger say in household management affairs than do wives in other couples, and in one-career couples. Among the same double-career couples for those who do not pool their income the distribution of income does not matter for their distribution of consumption. This contradicts our prediction. However, our prediction is confirmed for couples in which no spouse works full time. In this case wife's relative income only affects her relative consumption if the couple does not pool its income.
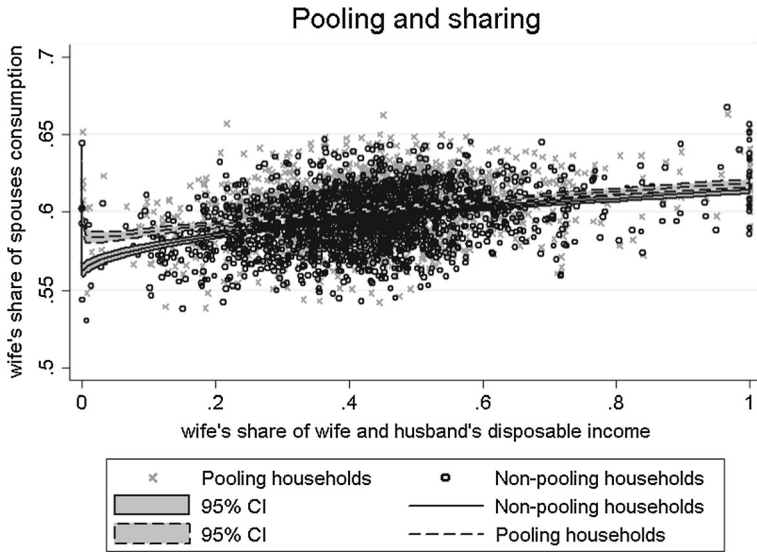
Fig. 1 Predicted values of wife's consumption share explained by income shares and other factor. Pooling and non-pooling households 1999–2004. The model includes all the variables from the regressions of pooling and non-pooling in Table 4

7.1 Controls

Among the different controls included in the regressions in Table 4 we find that children in the household (CHILD) have a significant impact on the distribution of consumption by increasing the mother's share independently of the household's income pooling regime. Years of marriage (YEARSMARR) and living in an urban setting (URBAN) are also positively correlated with her share of consumption, but only within the pooling regime. The same holds for homeownership, which is also associated with a higher share of consumption –more so if they have a non-pooling regime relatively to a pooling regime, i.e. significant Chow-test scores.

From Table 5 we see that having a child (CHILD) increases her share of consumption within double career households with a pooling or a non-pooling regime. This is also the case within households where none of the spouses work full time and resources are pooled. In contrast, if these households do not pool their resources having a child does not impact the association between the distribution of income and the distribution of consumption. Moreover, if the mother has a child from a previous marriage (CHILDWIFE)—a stepchild from the father's perspective—her share of consumption decreases within a double career income pooling household.[5]

Lastly, we find that for non-career households, being a home owner (HOME-OWNER) and living in an urban setting (URBAN) are positively correlated with her

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[5] The impact of children on the parent's distribution of consumption is not due to children's consumption as this is not here included in the assigned consumption, and the joint consumption is equalized with the number of children and adults in the household.

Table 5 Wife's consumption explained by income shares, distributional regimes, and controls within double career, non-career, and one-career couples

	Panel A		Panel B		Panel C	
	Double-career couples husband full-time work/wife full-time work		Non-career couples husband no full-time work/wife no full-time work		One-career couples husband or wife full-time work/spouse no full-time work	
	Pooling Coef. (t-values)	Non-pooling	Pooling Coef. (t-values)	Non-pooling	Pooling Coef. (t-values)	Non-pooling[b]
INCSF	0.0747** (2.81)	0.0248 (0.56)	0.0015 (0.08)	0.1033** (2.96)	0.0515* (2.15)	–
logHHINC	0.0025 (0.29)	−0.0292* (−2.05)	−0.0184* (−2.37)	−0.0066 (−0.52)	−0.0034 (−0.29)	–
CHILD	0.0176** (3.11)	0.0275** (3.11)	0.0157* (2.23)			
CHILDWIFE	−0.0245* (−2.00)					
HOMEOWNER			0.0172* (2.25)	0.0265* (2.19)		
URBAN			0.0134+ (1.96)			
Cons	0.5304*** (4.59)	0.9502*** (5.05)	0.7835*** (7.99)	0.6181*** (3.81)	0.6149*** (4.12)	–
N:	575	226	418	209	193	
Adj. R2	0.0279	0.0485	0.0287	0.0500	0.0152	
F-values	5.12**	4.83**	3.05**	4.65**	2.48+	1.49

Stepwise OLS-regressions, 1999–2004

[a] Stepwise Ols-regression with INCSF, INCSF*POOL, POOL and logHHINC as lockterms. For the other variables, see the list in Table 1

+ , *, **, *** Significant at 0.1-, 0.05-, 0.01- and 0.001-levels

[b] F-value not significant

share of consumption if the spouses pool their resources, and also for home owners in non-pooling households.

None of the other controls mentioned in Table 1 are significantly correlated with the income-consumption relationships within any of the labor market attachment combinations.

7.2 Different categories of goods and services

For the distribution of specific goods and services, Table 6 shows that in some cases the model is rejected because of non-significant F-test values and in other cases there are no correlations between the distribution of income and the expenditures regardless of the pooling regime. This finding holds true whether we use OLS regressions or explicitly take the many zero expenditures into consideration by doing Tobit regressions (the latter not shown here).

However, for the distribution of clothing, which is the only assigned good also found in previous expenditure surveys, we find a negative coefficient for the pooling*income share interaction term only within non-career households—neither husband nor wife works full time. This means that for this good, relative to wives in a non-pooling regime wives in a pooling regime benefit less from earning a higher proportion of the couple's aggregated income. The aggregated income in itself plays no role here as opposed to within double-career households—husband and wife both work full time—where it increases the wife's share of spending on clothing, controlling for different factors.

For the distribution of food there is no impact of the distribution of income, the pooling regime or the aggregated income within any of the labor market attachment combinations. However, within double career households her share of vices—non-alcohol and alcohol beverages and tobacco—increases with the aggregated income of the spouses, while there is no impact of distributional regimes. For the other labor-market attachment combinations neither the distributional regime nor the income distribution or income level are affecting the distribution of these goods.

We also find that the only model for services (incl. medical products and outpatient treatments) that passes the F-test is that for double career households. Distribution of income, pooling regime or the aggregated income do not matter.

Within non-career households we find a positive correlation between the distribution of income and the spouses' relative spending on transportation and that pooling of the resources has the same effect. However, the interaction term between the distribution and the spending on these goods and services is negative, showing that the more she earns relatively to her husband the more she spends on transportation if they do not pool their resources, whereas there is no such effect within the pooling regime, i.e. the coefficients nearly cancel each other out.

For personal spending (hairdressing, personal hygiene etc.) the wife's share of consumption is smaller within the pooling regime than within the non-pooling regime independently of the income and expenditure distributions within one-career households. The aggregated income in such households also impacts on the distribution of these spending, but positively so that the richer the household is the higher is her share of personal spending.

Table 6 Wife's share of different consumption goods and services explained by income shares, distributional regimes and controls

Coef. (t-values)	Food[a]	Vices[b]	Clothing	Services	Transportation	Recreation	Personal
Wife's share of wife and husband's consumption of goods and services (CONSF1)							
Double-career couples: husband full-time work/wife full-time work (N: 801)							
INCSF	0.257 (0.99)	0.0963 (0.40)	−0.306 (−1.01)	0.182 (0.78)	−0.352 (−1.42)	–	–
POOL	0.0391 (0.29)	−0.160 (−1.27)	−0.123 (−0.77)	−0.0873 (−0.71)	−0.177 (−1.36)	–	–
INCSF*POOL	−0.240 (−0.79)	0.273 (0.97)	0.272 (0.77)	0.116 (0.43)	0.309 (1.06)	–	–
LogHHINC	0.0729 (1.61)	0.112** (2.65)	0.0870+ (1.64)	−0.0467 (−1.15)	0.0048 (0.11)	–	–
Constant	−0.662 (−1.09)	−1.140* (−2.02)	−0.495 (−0.70)	0.708 (1.30)	0.174 (0.30)	–	–
Adj. R2	0.005	0.016	0.006	0.007	0.018	–	–
F-values	2.01+	3.56**	1.84+	2.36+	3.39**	–	–
Non-career couples: husband no full-time work/wife no full-time work (N:627)							
INCSF	0.0387 (0.24)	−0.0126 (−0.08)	0.179 (0.94)	–	0.267+ (1.73)	–	0.268 (1.43)
POOL	−0.0304 (−0.34)	0.0891 (1.09)	0.112 (1.10)	–	0.198* (2.36)	–	−0.0577 (−0.57)
INCSF*POOL	0.0736 (0.39)	−0.228 (−1.29)	−0.384+ (−1.72)	–	−0.380* (−2.10)	–	−0.0535 (−0.24)
LogHHINC	−0.00718 (−0.19)	0.0364 (1.09)	0.0034 (0.08)	–	−0.0371 (−1.05)	–	0.0188 (0.47)
Constant	0.530 (1.11)	−0.113 (−0.26)	0.261 (0.48)	–	0.464 (1.02)	–	0.149 (0.28)
Adj. R2	0.021	0.013	0.010	–	0.071	–	0.040
F-values	2.94**	2.35*	2.09+	–	7.84***	–	4.28***
One-career couples: husband or wife full-time work/spouse no full-time work (N:319)							
INCSF	–	−0.1599 (−0.98)	–	–	−1.2298 (−0.71)	–	0.0754 (0.37)
POOL	–	0.0153 (0.15)	–	–	−0.0304 (−0.29)	–	−0.2517* (−2.01)
INCSF*POOL	–	−0.0543 (−0.26)	–	–	0.0595 (0.27)	–	0.2215 (0.85)

Table 6 continued

Wife's share of wife and husband's consumption of goods and services (CONSF1)

Coef. (t-values)	Food[a]	Vices[b]	Clothing	Services	Transportation	Recreation	Personal
LogHHINC	–	0.059 (1.27)	–	–	−0.4241 (0.68)	–	0.1071[+] (1.84)
Constant	–	−0.3174 (−0.53)	–	–	−0.4241 (−0.68)	–	−0.8190 (−1.09)
Adj. R2	–	0.0205	–	–	0.0196	–	0.0715
F-values		2.33*			2.06[+]		5.90***

Stepwise OLS-regression with INCSF, INCSF*POOL, POOL and logHHINC as lockterms. For the other variables, see the list in Table 1, 1999–2004

See specifications and proportions etc. in Bonke and Browning (2010)

[+], *, **, *** Significant at 0.1-, 0.05-, 0.01- and 0.001-levels

[a] Assigned food include canteen food, sweets, etc. bought for immediate consumption, while most foodstuff is considered joint consumption

[b] Non-alcohol, alcohol, tobacco etc

What we have seen is that pooling the resources within the household only has an impact on the association between the distribution of income and the expenditures for a few goods and services, and only within no or one-career households. Within double-career households only the aggregated household income matters for some of the goods and services.

8 Conclusion

This article investigates the correlation between decision making and intra-household allocation within households and thereby tries to bring together the economic psychology literature and the economic literature on this issue. While economic psychology analyzes who makes what decisions and what characterizes the decision-making process, economics analyzes how spouses' incomes are distributed within the household and with what result.

Our data are from the Danish Household Survey, where additional questions are asked about who different goods are purchased for, and about which distributional regime the household belongs to. Having both types of information for the same household allows investigation of both income pooling and consumption sharing. Furthermore, the data allow for distinguishing between different factors, while administrative register information from Statistics Denmark makes it possible to split up the sample according to the spouses' labor market attachment.

The results show that a great majority of households pool their incomes, whereas pooling only some fraction of the incomes or running independent economies rarely happens. We also find that although the wife's income share is on average 43 percent, she gets 53 percent of the assigned consumption, which might be due to different needs or preferences, or to an unequal distribution of the spouses' bargaining power.

We found that the wife's share of consumption—mean and median—was only significantly smaller and somewhat more dispersed in the non-pooling regimes rather than in pooling regimes when consumption includes assigned and non-assigned goods and services. Moreover, the results showed that there is a positive correlation between the wife's share of income and the wife's share of consumption, i.e. the more she earns the more is spent on her, even when controlling for total household income. We also found that this correlation is not influenced by including the pooling/non-pooling variable, and that the interaction of income share with pooling does not contribute significantly to explaining the distribution of consumption. Hence, even for income pooling households, the income distribution matters for the spouses' distribution of their consumption.

Looking at the correlation between the distribution of income and consumption separately for pooling and non-pooling households and including different controls, both correlations become positive and significant and even significantly different from each other. This indicates that one cannot reject that pooling affects the income-consumption relationship, although pooling of income within the household does not prevent the spouses' individual consumption from being influenced by

their relative income contributions. Hence, bargaining power seems to play a role even when spouses declare that they pool their incomes.

When considering different combinations of attachment to the labor market and including different controls, the correlation between the distribution of income and the distribution of consumption becomes significant for double-career households pooling their resources, whereas this holds true for non-pooling households only within non-career couples. For couples with one full time working spouse the income distribution does matter only for the pooling households.

We also found that pooling resources within the household only had an impact on the association between distribution of income and expenditures for a few goods and services, and only within no or one-career households. Within double-career households only the aggregated household income matter and only for some goods and services.

The conclusion is that in most households the income distribution is correlated with the sharing of consumption—the economic approach—and that this holds true even if the household pools its resources—the economic psychology approach, implying that there is no strong relationship between the two approaches.

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