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Abstract: The effects of social transfers on individual participation and working hours are theoretically shown to differ for unitary and bargaining intrahousehold allocation models. This result is attributed to both the non-transferability of in-kind social transfers and differences in control of these transfers among household members. Using elasticities of social transfers on work effort (estimated through sample selection corrected participation *probits* and working hour *OLS*), new tests on intrahousehold allocation are developed for Chile. These tests strongly reject the unitary model and exogenous bargaining, accepting endogenous bargaining only among non-poor households. Poor households may use social incomes as investments for the future rather than for short-term strategic power relations.

JEL Classification: D1, Household Behavior; I38, Provision and Effects of Welfare Programs; J22, Time Allocation and Labor Supply.

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1. INTRODUCTION

Anthropological and sociological research has long shown the existence of intrahousehold gender discrimination, thus questioning the traditional *unitary* household allocation model. Gender differences affect power relations among household members as reported, for instance, in Blumberg (1988), Pahl (1989), and Jejeebhoy (1995). The proportion of individual income contributed to the household varies significantly by gender, as documented in places as different as India, Mexico, Cameroon or Honduras. Other manifestations of power imbalance include differences in consumption patterns (see e.g., Blumberg, 1988), domestic violence (e.g., Rao, 1997), fertility decisions and social activities (e.g., Casique, 2000).

Although economic research has, since the 1960s, developed alternative models of intrahousehold allocation to the unitary paradigm,[1] intrahousehold relations still need to be further specified if they are to become relevant in policy-making. In spite of some developments in the characterization of these relations (described both as cooperative and non-cooperative games), they remain something of a 'black box'. There is, however, wide consensus on a number of factors affecting the bargaining power of household members — from dowries and pre-marriage assets, to human capital differentials among parents, or labor and social incomes. Beyond these general assumptions, this article explores the capacity of social transfers to test alternative intrahousehold allocation mechanisms. Conveniently — even without describing the

[1] See Leuthold (1968), Ashenfelter & Heckman (1974), Schultz (1990), Browning et al (1994) for some classic references.

dynamics of alternative mechanisms to the unitary model — the classical household model needs only be expanded minimally to allow for this empirical testing. In fact, distinctive properties associated with categories of social transfers make these incomes especially suitable for testing intrahousehold behavioral relations. Typically, the non-transferability of in-kind social transfers (in contrast with cash transfers) is shown theoretically to lead to differentiated impacts on the decision to work among household members. In designing bargaining tests which substantiate the distinctive nature of social transfers and their application to Chilean data, this paper casts new light on intrahousehold distribution.

The paper proceeds as follows. Section 2 builds some alternative exogenous and endogenous bargaining specifications of household behavior that predict alternative effects of social transfer categories on individual work decisions. It then details the estimating strategy that enables a proper testing of alternative intrahousehold behavior. Section 3 first estimates the value of Chilean social benefits transferred in 1996, before applying the estimating and testing strategy developed in section 2 to mid-1990s Chilean data.. Section 4 then assesses social transfer effects and conducts the proposed tests; Section 5 summarizes the findings of the paper.

2. TESTING STRATEGIES

Modeling intrahousehold allocation behavior

In addition to their properties of flexibility and tractability (Stern, 1984), the appeal of the quasi-homothetic Cobb-Douglas utility functions is the link forged between consumption, income, poverty, and individual labor supply (Chiappori, 1997). In

contrast with previous analyses of poverty and labor supply,[2] the decision to participate in work and (conditional on participation) the preferred number of working hours, are separated. As Killingsworth (1983) argues, even though both labor dimensions may result from the same decision process, their determinants do not need to have the same impacts on each decision. Cross-section evidence reported for Chile supports this characterization.[3] What remains unclear from the research of intrahousehold allocation is how the different determinants interact towards a joint decision. However (and rather conveniently), the modeling of collective forms of household labor supply does not require much additional complexity for testing purposes: that is, testing whether social transfers are relevant determinants of bargaining *vis–a-vis* other factors and other intrahousehold allocation behaviors. In effect, labor decisions can be modeled using a similar maximization program to the unitary model, except that different categories of incomes now determine bargaining. In-kind incomes are no longer pooled together with the rest of cash incomes generated; that is, not every category of income is susceptible to *redistribution* within the household. Also, non-labor incomes may well have an impact on the *generation* of household resources. In as much as this impact is significant, non-labor primary incomes and social transfers act as determinants of bargaining. This specific impact of social incomes on *generated* incomes, called here the *bargaining effect*, accompanies the traditional income effect in unitary household models.

[2] Leuthold (1968), Garfinkel et al (1990), Licona (1997)

[3] The incidence of poverty appears to be related to differentials in participation, while the depth of poverty is associated with working hour differentials. According to the CASEN 1996 household income survey (MIDEPLAN, 1996), participation rates are uniform across the working age extreme and moderate poor (45%) but are higher for the non-poor (54%). Only the extreme poor appear to work less hours than the moderate and non-poor (42 to 44 weekly hours, respectively). Men participate more and work longer hours than women (a gap of 35% and 4 weekly hours, respectively). In addition, household heads participate more (2.5%) but work similar hours (44 a week) compared to household non-heads. Other differences in work effort found by age and skill of individuals as well as number of children and location of the household indicate that individuals may adjust their labor supply differently through participation and working hours.

Collective labor supply modeling requires the inclusion of individual allocation weights, which shape the bargaining or *sharing rule*. Following the distinction in the literature, exogenous and endogenous determinants of bargaining are differentiated here. The effect that the variation of exogenous determinants has on the bargaining function is *a priori* open and can either strengthen or weaken the bargaining position of each individual. However, increases in the non-labor incomes *controlled* by an individual are expected to strengthen his or her bargaining position, while they weaken the position of remaining members. All individual weights in the sharing rule must add up to unity, and individual weights may range from zero (i.e., no control of his or her own resources) to unity (if the individual controls all the resources in the household). The resulting maximization problem under intrahousehold bargaining is then equivalent to a one-stage representation in which individuals maximize their own utility functions after some share of household income has been apportioned to them in accordance with their bargaining strength (Chiappori, 1997). The first order condition leads to the optimal participation condition. Similarly, labor reaction curves for each household member (grouped as household head and household non-head members) are derived (see Appendix 1). Both optimal conditions differ from the unitary model in that they introduce individual allocation weights from the bargaining rule and a separate treatment of cash and in-kind non-labor incomes, depending on their transferability.

The effects of social transfers on working hours under alternative intrahousehold allocation models are predicted by working out their partial derivatives on each work dimension and on each category of household members. The predicted effects reported in Table 1 show that the microeconomic effects of social transfers are not systematically negative. More important, distinctive effects of social transfers help

differentiate unitary from collective models. As individual cash transfers can be redistributed to other household members, they do not necessarily increase the bargaining power of the original recipient, but rather the power of the individual(s) who gain their ultimate control. In contrast, in-kind transfers cannot be part of intrahousehold redistribution, thus enhancing only the bargaining position of their original recipients. It may still be argued that higher social transfers associated with time spent in school or undergoing medical treatment (that is, not working) do not necessarily improve the bargaining position of their beneficiaries in the short run.[4] However, the subsidies associated with public education or medical services cannot be re-directed to other household members. As such, beneficiaries appropriate the *marginal* bargaining power associated with such transfers. Consequently, the impact that in-kind transfers and cash transfers may have on the intrahousehold distribution of power are potentially different.[5] The aggregate impact of social transfers becomes complex and ambiguous in the presence of bargaining due to counterbalancing impacts among direct, indirect, and bargaining effects.

<TABLE 1>

Estimating labor supply household models

A separate modeling of each labor dimension does not prevent sample selection bias, endogeneity, and measurement errors in wages and virtual incomes,[6] however. These

[4] In the long run, expected higher earnings from increased human capital may improve the future bargaining position within the household, or even lead to the creation of a new household.
[5] An alternative interpretation — that time spent in activities other than labor should be divided into those increasing relative bargaining power (such as human capital investment) and those decreasing it (such as leisure) — is not free of problems. For example, nutritional cash transfers should then have the same bargaining effect on labor decisions as, say, in-kind educational transfers. As seen below, however, the effects of cash and in-kind transfers on labor decisions in Chile are not equal.
[6] Virtual income is the hypothetical income that a tax-payer would find untaxed under an alternative system with the same flat tax rate that he or she pays in the current tax system. Virtual incomes are typically subject to sample selection (like wages) because individuals participating in the labor market

biases in the labor and household surveys are typically corrected using the Heckman (1979) estimation technique and instrumental variables. This paper adds to this tradition. Working hour decisions are modeled through a sample selection corrected ordinary least squares (OLS) including the same wages and virtual incomes corrected by the Heckman procedure. The *Mills Ratios* constructed from the Heckman technique are used in the estimation of the OLS only for individuals reporting positive working hours and positive labor incomes. The same explanatory variables included in the working hour model are used in the participation model, given that both dimensions are part of the same process underlying the decision to supply work effort. Three specifications for both participation and working hour models are used, gradually disaggregating non-labor income categories. The first specification disaggregates all possible categories of social incomes; the second divides transfers into individual and other household members´ categories; the last specification brings together all categories of individual and other household members' transfers. A final disaggregation singles out participation and working hours by socio-economic group. According to the position of the household with respect to the extreme and moderate official poverty lines adjusted for scale economies, households are categorized as extreme poor, moderate poor and non-poor.[7] The most disaggregated specifications for participation ([1]) and working hours ([2]) are, respectively, as follows:

$$\pi_i = \gamma_{0\,i} + \gamma_{1i} \ln \hat{w}(1-t)_i + \gamma_{2i} [\ln \hat{w}(1-t)]^2_i + \gamma_{3i} \ln \hat{VI}_i + \gamma_{4i} \ln(N_i) + \gamma_{5i} \ln(S_i^c) + \gamma_{6i} \ln(S_i^e) + \gamma_{7i} \ln(S_i^h) + \gamma_{8i} \sum_j \ln(N_j) + \gamma_{9i} \sum_j \ln(S_j^c) + \gamma_{10i} \sum_j \ln(S_j^e) + \gamma_{11i} \sum_j \ln(S_j^h) + \sum_m \gamma_{mi} Z_{mi} + \varepsilon_{\pi i} \quad [1]$$

may have a stronger taste for work and a higher inclination to "select" higher marginal tax rates and, therefore, a larger virtual income. See Hausman (1985).

[7] Official extreme and moderate poverty lines in 1996 Chile amounted to Ch$ 13,024 and Ch$ 23,108 for rural households, and Ch$ 17,136 and Ch$ 34,272 for urban households (MIDEPLAN, 2000). Household sizes were adjusted by the Rothbarth method used in World Bank (1997).

$$\ln H_i = \eta_{0\,i} + \eta_{1i} \ln \hat{w(1-t)}_i + \eta_{2i} [\ln \hat{w(1-t)}]^2_i + \eta_{3i} \ln \hat{VI}_i + \eta_{4i} \ln(N_i) + \eta_{5i} \ln(S_i^c) +$$

$$\eta_{6i} \ln(S_i^e) + \eta_{7i} \ln(S_i^h) + \eta_{8i} \sum_j \ln(N_j) + \eta_{9i} \sum_j \ln(S_j^c) + \eta_{10i} \sum_j \ln(S_j^e) + \eta_{11i} \sum_j \ln(S_j^h) + \qquad [2]$$

$$\sum_m \eta_{mi} Z_{mi} + \eta_{m+1} \lambda_i + \varepsilon_{Hi}$$

where π_i represents the individual probability of participation in the labor market; H_i, individual working hours (conditional on participation); $w(1-t)_i$, individual net labor incomes; VI_i, individual virtual incomes; N_i, individual non-labor primary incomes (i.e., financial incomes, rents, pensions and self-consumption); S_i^c, individual cash social transfers; $S_{i,j}^{e,h}$, in-kind social transfers on education (k="e") and health (k="h"), of individual "i", or, other household member "j", respectively; and Z_{im}, exogenous variables, which include individual, household and regional characteristics affecting individuals' participation. Individual exogenous determinants of labor decisions refer to human capital (i.e., years of school and linear and quadratic forms of age); marital status; gender; and the position of the individual within the household (i.e., head and non-heads). Household characteristics include the demographic composition of the household. A final characteristic is the location of the household. Additional variables are chosen specifically for non-heads in order to control for the characteristics of the household head. Such characteristics include the income of the household head; his or her labor status (and if working, whether formal or informal); his or her occupation; and the gender of the household head. These variables provide an insight into whether the gender and other conditions of the household head have different effects on non-heads. In Chile, Rubalcava and Contreras (1999) found that this was the case, based on information on the nutritional status of children.

Testing Alternative Intrahousehold Models

The testing strategy consists of comparing the signs of theoretically predicted effects of social transfers on work decisions with their observed effects estimated as elasticities from labor supply models.[8] As argued above, social transfers under unitary and collective models have different predicted effects on the decision to participate, depending on their cash or in-kind nature and who controls them. As the predicted effects on working hours are not distinctive across intrahousehold allocation models, they are unsuitable for testing bargaining specifications. Table 2 details the proposed tests.

<TABLE 2>

3. SOCIAL TRANSFERS IN CHILE

Social transfers in mid-1990s Chile were affected by the reforms of the Pinochet administration in the 1970s and 1980s and the new social agenda, 'growth with equity', of the *Concertación* administrations through the 1990s. Social policies in the 1990s adopted a more comprehensive strategy, replacing the low-priority anti-cyclical and ultra-targeted expenditures of the 1980s. Although the earlier competition and decentralization reforms were not reversed, the emphasis of social policy-making shifted towards increases in the quality of provision and a more encompassing targeting. This strategy was also used as a redistributive tool as high-income groups

[8] The underlying assumption is that there should not be a substantial gap between optimal (desired) and observed (actual) work effort. By and large, this assumption holds for the tight Chilean labor market in the mid-1990s, where work supply was typically absorbed by an increasing demand throughout a period of rapid and sustained economic growth. Job creation in Chile grew at a faster pace than did the labor force and the population. Low unemployment rates in the first half of the 1990s suggest that labor was certainly not constrained by the supply of work.

increasingly opted out of public provision systems, leaving public schools and clinics for low-income groups. Ultimately**,** the new agenda aimed at distributing the proceeds of the resumed sustainable high economic growth among all Chileans, without jeopardizing macroeconomic balances. Substantial increases of per capita social expenditures[9] were therefore not financed by increases in debt but by an unprecedented tax reform resulting from the political consensus of all parties in Congress.

At a disaggregated level, analysis of the distributive impact of these social policy changes requires that monthly unitary social transfers are first valued and then imputed to their beneficiaries. To impute such benefits, available aggregated data on costs and beneficiaries of public social services, on the one hand, and information on self-reported beneficiaries from the 1996 CASEN household survey (MIDEPLAN, 1996), on the other, are linked. Appendix 2 presents descriptive socioeconomic statistics on households as well as on the nature of transfers, their providers, beneficiaries and benefits for that year. The current valuation of benefits follows traditional practice by equating them to provision costs (Selowsky, 1979) under the principle of effective transfers. Contrary to a previous valuation in Chile (see Millán et al, 1999), only benefits effectively disbursed are imputed even when they differ from official statutory values. Specific to the Chilean context, the imputation of medical transfers distinguishes between billed and unbilled benefits. This distinction separates two components of medical subsidies: deductions in the medical bill to the patient (according to his/her socio-economic status) and the gap between real effective costs and billed costs, respectively. Finally, estimated benefits are imputed to self-reported beneficiaries on an individual basis.

[9] The increases totaled some 50% in real terms from US$ 230 to US$347 (in 1986 prices) between 1990 and 1996.

4. RESULTS

Estimating Social Transfers Effects

Estimates clearly show that social transfers have on aggregate a significant but rather small effect on working decisions. This is shown in the upper section of Table 3. At the most aggregated level, a 100% increase in total non-labor incomes would have decreased participation by only 0% to 5%, and even less for working hours (between 0% and 1%). These estimates fall within ranges reported in previous studies, although this is not especially revealing: a prudent interval for estimates reported in studies in the US and UK averages the elasticities of non-labor incomes at between 0% and 20% for male working hours and between –20% and 0% for female working hours (see Killingsworth and Heckman, 1986). Although those studies and the present one are not strictly comparable because of differences in the categories of incomes and sample groups, estimated elasticities are reassuringly close.

As expected, participation elasticities are larger than working hour elasticities.[11] Elasticities for female non-heads are lower than those for female heads. The opposite is true for men, probably indicating the responsibility of the traditional breadwinner to cater for the rest of the household. Also, this work effort may well limit their possibilities of raising additional effort to any degree. In turn, lower elasticities of female non-heads may indicate a restricted access to labor markets, which can be attributed to greater household responsibilities than those of male household members. These responsibilities include child care and maintenance

[11] Participation elasticities are expected to be larger than working hour elasticities because the direct, indirect, and bargaining effects of the former typically work in the same direction. This is not the case for working hours. See Table 1 above.

activities, as documented by Juster and Stafford (1991) and Floro (1995) for developing countries, and Rubalcava and Contreras (1999) specifically for Chile.

Estimates for disaggregated specifications of social incomes suggest that household members have different access to household incomes. In contrast with the prediction of the unitary model, elasticities of individual incomes and those of other household members clearly differ (see the intermediate section in Table 3). This holds true for men and women, heads and non-heads, and participation and working hours. Related to other household members' elasticities, both female and male elasticities have either neutral or positive effects on the individual decision to work. The size of these effects is small: an increase of between 0% and 19% in participation following increases of 100% in these incomes, and –0.4% and 6% for working hours. When some individuals within the household increase their incomes, other household members seem to react as if trying to maintain their income balance inside the household. Once again, this is at odds with the unitary model and more indicative of some bargaining process within the household.

At the most disaggregated level of social incomes (see the lower section in Table 3), in-kind transfers have generally larger effects on both participation and working hour decisions than cash transfers do. This is likely to be the result of larger incomes delivered through in-kind transfers and the inability of individuals to control other individuals' in-kind transfers. Interestingly, individual cash and in-kind transfers received by female members have a negative effect both on their participation and working hours. By contrast, the effects of other household members' transfers on their working decision are either neutral or positive. Social incomes received by men have either negative or neutral effects both on participation and working hours. This is true for both head and non-head males. Negative effects on participation suggest once

again that males are most likely to use such incomes to consume more leisure rather than to strengthen their bargaining position. Other household members' social transfers do not seem to have significant (or if statistically significant, not substantial) effects on the decision to work, either among heads or non-heads.

<TABLE 3>

Tests on Intrahousehold Allocation

Tests strongly reject the unitary model in all cases. Interestingly, tests on collective models of intrahousehold allocation (see Table 4) suggest the presence of collective behavior among Chilean households only for certain categories of members. Thus, the hypothesis of endogenous bargaining determined by social transfers holds for all groups except male household heads. Even so, neither exogenous nor endogenous bargaining seems to explain individual behavior among poor households (see Table 5). Furthermore, the endogenous bargaining hypothesis is only proven among non-poor households, which receive a lower share of social transfer *vis-à-vis* labor incomes. There may be several reasons for this. Categories other than income (such as asset ownership, as suggested by Licona, 1997) may well explain differences in behavior. Also, categories of social cash transfers may have worked in different directions. Thus, assistance cash transfers and work-related family allowances may have different impacts on the redistribution strategy of the household, given that their receipt depends on different circumstances.[12] Another possible explanation is that poor households do not use social transfers strategically to gain or enforce bargaining power within their households: rather, they may use such transfers as an investment

[12] Unfortunately, the 1996 CASEN household survey does not provide sufficient information on assets or on disaggregated categories of cash transfers to allow for exploring the relevance of these conjectures.

for the future. Poor households have fewer investment opportunities and less access to private services with which to build their human capital stocks than non-poor households. It is also likely — without contradicting previous explanations — that other sources of incomes are more important for bargaining purposes. In particular, one may expect labor incomes to be the main determinant of bargaining. The larger size of estimated wage elasticities, compared to social transfer elasticities, suggests that this may well be the case.

<TABLES 4 AND 5>

5. CONCLUSIONS

The empirical estimates of this paper confirm that social transfers in Chile can be used for redistributive purposes without eroding either macroeconomic balances or the income-generation ability of those whom they are meant to help the most. Had social transfers doubled in 1996, average labor supply would only have decreased by between 1 and 27 minutes per week! Unfortunately, there is no evidence that shifting the composition of social benefits towards in-kind transfers would automatically enhance the bargaining position of the most vulnerable members within households. Instead, evidence appears conclusive in rejecting both unitary household models and exogenously determined bargaining. In spite of an asymmetric distribution of responsibilities within the household, the hypothesis of endogenous bargaining is only accepted among the non-poor. Among poor households, social transfers are unlikely to be used in strategic power relations in the short run, but rather as investments for the long run. At the same time, more substantial sources of incomes, such as labor, may also determine endogenous bargaining.

APPENDIX 1: HOUSEHOLD MAXIMIZATION PROBLEM WITH INTRAHOUSEHOLD BARGAINING

After the classical maximization problem is expanded to include the sharing rule, the intrahousehold bargaining problem becomes:

$$\max_{C_i, L_i} U = (C_i - \chi_i)^{\alpha_i} (L_i - \lambda_i)^{\beta_i} \quad , \alpha_i + \beta_i \geq 1 \tag{A1}$$

s.t. $X = Lw + C$ (A2)

$X = Tw + N + S^c + S^k$ (A3)

$X_i = \theta_i X$ (A4)

$L_i \leq T$ (A5)

$L_i + H_i = T$ (A6)

$C_i, L_i > 0$ (A7)

$(C_i - \chi_i) \geq 0$ (A8)

$(L_i - \lambda_i) \geq 0$ (A9)

$\sum_i L_i = L$ (A10)

$\sum_i C_i = C$ (A11)

$\sum_i w_i = w$ (A12)

$\sum_i X_i = X$ (A13)

$\sum_i N_i = N$ (A14)

$\sum_i S_i^s = S^s, \quad s = c, k$ (A15)

$\sum_i \theta_i = 1$ (A16)

where C represents individual consumption; L, the leisure composite; H , work effort (measured in working hours); χ, the minimum level of consumption (whose equivalent income value can be thought as the extreme poverty line); λ, the minimum level of leisure; w, wage or unitary labor income; X, full income; T, the maximum time available; N, the non-labor primary income; S^c , cash social transfers; and S^k , in-kind social transfers on education, health, housing subsidies.

A convenient way to represent the set of partial derivatives for endogenous determinants of bargaining without loss of generality is the following:

$$\theta_i = a\,\frac{N_i + S_i^c + S_i^k}{N_j + S_j^c + S_j^k}\,, \quad a > 0 \qquad \text{(A17)}$$

$$\theta_j = b\,\frac{N_j + S_j^c + S_j^k}{N_i + S_i^c + S_i^k}\,, \quad b > 0 \qquad \text{(A18)}$$

The first order condition of the maximization problem leads to the optimal participation condition:

$$\pi_i = 1 \;\text{ if }\; w_i - \frac{\beta_i}{\alpha_i}\,\frac{\theta_i \cdot (N_i + S_i^c + N_j + S_j^c) + S_i^k - \chi_i}{T - \lambda_i} > 0$$

$$\pi_i = 0 \;\text{ otherwise} \qquad \text{(A19)}$$

Similarly, optimal working hours can be derived from solving the following reaction-curve equations:

$$H_i = \frac{1}{\alpha_i + \theta_i\beta_i}\,\left[\,\alpha_i(T - \lambda_i) - \frac{\beta_i}{w_i}[\theta_i H_j w_j + \theta_i(N_i + N_j + S_i^c + S_j^c) + S_i^k - \chi_i\,\right] \qquad \text{(A20)}$$

$$H_j = \frac{1}{\alpha_j + \theta_j\beta_j}\,\left[\,\alpha_i(T - \lambda_j) - \frac{\beta_j}{w_j}[\theta_j H_i w_i + \theta_j(N_i + N_j + S_i^c + S_j^c) + S_j^k - \chi_j\,\right] \qquad \text{(A21)}$$

APPENDIX 2: DESCRIPTIVE SOCIOECONOMIC STATISTICS OF HOUSEHOLDS AND SOCIAL TRANSFERS IN CHILE, 1996.

Household Descriptive Statistics

	Female		Male	
	Head	Non-head	Head	Non-head
Individual characteristics				
Percentage (%)	10.8	89.2	39.8	60.2
Schooling years	8.3	7.6	9.8	6.4
Age	54.5	26.9	45.1	17
Marriage Rate (%)	13.5	42.6	90.7	8.5
Location in urban areas (%)	89.3	84.5	83.4	82.8
Location in Santiago (%)	44.1	40.9	39.3	39.1
Household characteristics				
Size	3.9		4.2	
Number of children aged 0-14	0.8		1.3	
Number of children aged 0-11	0.6		1.0	
Number of elder (aged 65 +)	0.4		0.1	
Number of female elder (aged 65+)	0.3		0.1	
Number of servants	0.1		0.1	
Number of non-participant females	0.9		0.4	
Labor characteristics				
Participation (%)	45.8	33.3	82.0	43.2
Weekly working hours	41.7	41.8	46.6	44.2
Incomes (1986 US$)				
Individual incomes				
From principal occupation, net of taxes	106.5	59.0	285.8	80.8
Primary incomes other than labor *	18.6	18.0	22.5	14.5
Cash transfers	1.5	1.1	1.2	1.2
Education in-kind transfers	0.02	5.1	0.01	8.2
Health in-kind transfers	2.2	1.6	0.9	1.2
Other household members' incomes				
From principal occupation, net of taxes	208.6	444.1	171.6	430.6
Primary incomes other than labor *	3.0	4.6	3.7	5.1
Cash transfers	14.3	21.1	20.3	20.6
Education in-kind transfers	3.1	5.1	4.5	5.6
Health in-kind transfers				
All household incomes				
All primary	474.3		502.6	
All monetary	499.9		527.7	
All monetary and in-kind	526.1		553.1	

Source: Author's estimates from 1996 CASEN household survey (MIDEPLAN, 1996).
Note: * Incomes expressed in monthly 1986 US$. Primary incomes other than labor refer to pensions, financial incomes, rents and self-consumption.

Description and Valuation of Social Transfers in Chile

TYPE OF TRANSFERS	PROVIDER	BENEFITS	BENEFICIARIES	VALUE monthly 1986 US$
In-kind education transfers				
MINEDUC General Subsidy				
Municipal	MINEDUC	Total subsidies reported by MINEDUC for each level and category of public education	Students registered in and attending municipal pre-basic, basic and secondary schools	
Pre-basic				14.1
Basic				15.3
Secondary, humanities				18
Secondary, technology				20
Special				50.1
Adults				12.5
Publicly subsidized private	MINEDUC	Total subsidies reported by MINEDUC for each level and category of publicly subsidized private schools	Students registered in and attending publicly subsidized private pre-basic, basic and secondary schools	
Pre-basic				13.6
Basic				14.1
Secondary, humanities				17.1
Secondary, technology				18.5
Special				37.5
Adults				11.8
Pre-basic subsidy	JUNJI	Costs involved in provision: personnel costs, goods and services, food and material provided at centers, and investment in equipment	Students registered in JUNJI centers.	42.5
Special integration subsidy	INTEGRA	Personnel costs, goods and services, food in centers, investment in equipment	Students aged 0-6 registered in INTEGRA centers.	40.5
Books at school program	MINEDUC	MINEDUC reported total costs	Students registered in pre-basic and basic schools	0.1
School food program	JUNAEB	Simple average unitary price paid by JUNAEB on effectively disbursed rations, by categories of food rations	Students registered in basic and secondary public and subsidized schools targeted as vulnerable by JUNAEB	
Breakfast / tea				4.1
Lunch				7.7
Breakfast + lunch / lunch + tea				10.5
Breakfast + lunch + tea				14.6
Health program	JUNAEB	Total costs of provision of medical treatments that follow up initial teacher's checkups.	Students registered in first to sixth grade basic schools, both municipal and/or publicly subsidized	1.2
Oral hygiene program	JUNAEB	Total costs of provision as reported	Students registered in first to sixth grade basic schools, both municipal and/or publicly subsidized	0.7
School material program	JUNAEB	Total costs per set of school material	Beneficiaries of School food program	0.1
In-kind health transfers				
Transfers from National Health Network				
Institutional modality	National Health Network	Total billed and unbilled costs for provision of medical services reported by NHN budgets for each category of co-financing	Institutional modality public users	
Consults				4.5
Laboratory exams				1.9
X-ray exams				11.1
Surgery				68.9
Dental care				4.4
Non-Caesarean delivery				132.8
Caesarean delivery				203.4
Hospitalization				32.7
Effective modality	National Health Network	Total billed costs reported by NHN across medical categories (no co-financing categories)	Effective modality public users	
Consults				2.7
Laboratory exams				1.0
X-ray exams				6.6
Surgery				60.9
Dental care				0.0
Non-Caesarean delivery				73.8
Caesarean delivery				90.1
Hospitalization				2.1
Supplementary feeding program	Health Ministry	Unitary costs of complementary food sets comprising milk, cereal and rice	Pregnant women, mothers at nutritional risk and infants aged 0-5	
Basic feeding				
Women				4.1
0-11 month-old				4.1
12-23 month-old				4.1
2-5 year-old				1.2

Reinforced feeding				
Women				4.9
0-11 month-old				7.0
12-23 month-old				5.3
2-5 year-old				3.3
Cash Transfers				
Assistance pensions	Social Security Institute	Non-contributory monthly pensions	Elderly and disabled adults below an income threshold not affiliated to any social insurance scheme	25.4
Assistance family allowance	Social Security Institute	Non-contributory benefits paid monthly by household heads according to entitlements	Households with specific entitlements (e.g. under-15s, pregnant women in extremely poor households) whose head is not affiliated to any social insurance scheme	3.0
General family allowance	Social Security Institute	Three-tier allowance based on income level	Workers with entitlements: (under-18s, unemployed spouse, widowed mother, orphan children, over-65s)	(0.0; 1.0; 2.9)
Severance benefit	Social Security Institute	Three-tier benefit based on duration of unemployment	Laid-off workers satisfying conditions of employment duration and contributions	(10.6; 14.2; 21.3)
Water subsidy	Municipalities	Discounts in municipal water bill according to socioeconomic classification	Low-income private consumers of water	2.8
University credits	MINEDUC	Subsidized credits at below-market rates	Low-income students enrolled in universities receiving State funds	22.7
Grants	MINEDUC	Scholarships of various amounts	Postgraduate students abroad, indigenous students, and sons of the missing and detainees	(44.8; 71.2)

Source: Author's estimates from JUNAEB (1998), JUNJI (1998), INTEGRA (1998), MINEDUC (1996), MINSAL (1999), Superintendencia de la Seguridad Social (1996). JUNAEB, Council for scholarships and school food programs; JUNJI, Kindergarten National Council; INTEGRA, INTEGRA Foundation; MINEDUC, Ministry of Education; MINSAL, Ministry of Health.

APPENDIX 3: PARTICIPATION AND WORKING HOUR ESTIMATES

ALL HOUSEHOLDS

	Female				Male			
	Participation		Working Hours [1]		Participation		Working Hours [1]	
	Head	Non-Head	Head	Non-head	Head	Non-head	Head	Non-head
Individual characteristics:								
Age	**0.047	**0.022	-0.006	0.006	**-0.005	**0.002	-0.001	**-0.039
Age squared[2]	**-0.001	**-0.0004					0.00001	**0.0004
Marriage dummy	**-0.232	**-0.040	-0.049	0.002	**0.009	0.025	0.004	0.017
Household characteristics:								
Number of children, 0-11	**-0.101	**-0.051	-0.017	0.007	0.002	**0.028	0.004	-0.007
Number of children, 12-14	**-0.093	**-0.058	0.021	0.016	**0.010	**-0.074	0.0004	**0.031
Number of single women out of the labor market	**-0.512	**-0.123	**0.094	**0.046	*0.006	-0.008	0.007	**0.025
Number of elderly women	**0.211	**0.066	-0.046	**-0.049	**-0.025	-0.030	-0.006	-0.008
Number of servants	**0.294	**0253	-0.071	0.008	-0.005	**0.052	0.0001	0.006
Individual labor income variables:								
Estimated wage, log	**0.219	**0.216	0.601	**0.589	**0.020	**0.525	**0.863	**1.027
Estimate wage squared, log[2]			-0.052	**-0.052			**-0.064	**-0.074
Estimated virtual income, log	0.153	-0.153	-0.331	0.472	**-0.115	**-3.499	-0.015	-0.477
Individual non-labor incomes:								
Primary	**0.044	**0.034	0.003	0.002	**-0.003	**0.005	**0.003	**0.007
Cash transfers	**-0.011	**0.035	*-0.010	**-0.007	-0.001	**-0.004	**-0.023	**0.005
In-kind education	**-0.016	**-0.009	**-0.015	*-0.007	**-0.004	**-0.021	-0.001	0.004
In-kind health	**-0.059	**-0.036	**-0.066	**-0.061	**-0.017	** -0.079	0.005	**-0.046
Non-labor incomes from other members:								
Primary	-0.005	**0.038	-0.010	**0.043	**0.001	**0.037	0.0004	**0.047
Cash transfers	**-0.011	-0.001	-0.008	*-0.004	**-0.003	**-0.005	**-0.002	0.001
In-kind education	**0.021	-0.007	0.003	*-0.004	0.0002	**0.006	-0.0002	-0.002
In-kind health	**0.023	**0.005	0.002	**-0.006	0.001	*0.002	*0.001	-0.0004
Household head characteristics:								
Kinship		0.001		**-0.012		**-0.023		**-0.008
Male dummy		**-0.151		0.001		**-0.078		**0.033
Estimated wage, log		**0.016		**0.046		**0.111		**0.100
Estimated wage squared, log[2]		**-0.004		**-0.009		**-0.018		**-0.016
Labor status:								
Unemployed		**0.147		-0.124		0.062		0.010
Informal		**-0.176		0.099		-0.057		0.032
Formal		**-0.183		*0.111		-0.106		0.061
Occupation:								
Employer		**0.322		0.045		**0.159		**0.156
Self-employed		**0.282		0.008		**0.128		0.062
Worker		**0.238		-0.041		0.056		-0.005
Sector:								
Agriculture		**-0.031		-0.004		**0.182		-0.014
Manufacture		**-0.040		0.002		0.032		-0.021
Services		0.005		-0.031		**-0.081		0.015
Mills Ratio			-0.081	**-0.008			-0.112	**-0.477
Constant	-3.516	0.001	6.464	-4.541	**1.698	**41.020	1.188	6.675
No. Observations	6,370	39,919	2,573	10,884	23,461	20,797	19,546	9,485
Log Likelihood	-2,129	-10,512			-4,678	-7,828		
Observed participation	0.465	0.335			0.891	0.501		
Predicted participation	0.401	0.247			0.960	0.431		
F(n,d)			**3.0	** 5.5			**7.7	**6.1
R^2			0.0457	0.0480			0.0126	0.0939

Source: Author's estimates from 1996 CASEN household survey (MIDEPLAN, 1996).

Note: [1] Working hour models for the extreme and moderate poor are jointly estimated, as the separated sample for extreme poor was not sufficiently large for consistent estimation.

[2] Only the preferred version between the linear and non-linear specification form is reported.

Non-labor primary incomes refer to pensions, rents and financial incomes. All elasticities estimated at the mean of all variables in the model. (*) indicates statistical significance at 10% level; (**) statistical significance at 5% level.

EXTREMELY POOR

	Female				Male			
	Participation		Working Hours [1]		Participation		Working Hours [1]	
	Head	Non-Head	Head	Non-head	Head	Non-head	Head	Non-head
Individual characteristics:								
Age	0.008	**0.022	**0.024	0.003	**0.028	**0.056	**-0.006	-0.009
Age squared [2]		-0.0001		0.0001	**-0.0003	**-0.001		
Marriage dummy	-0.255	-0.057	0.087	-0.142	0.114	-0.036	**0.132	-0.007
Household characteristics:								
Number of children, 0-11	-0.091	-0.023	-0.028	0.017	-0.003	-0.070	0.021	-0.012
Number of children, 12-14	0.182	-0.017	-0.038	0.002	0.139	0.075	0.014	-0.090
Number of single women out of the labor market	** -0.352	-0.026	**0.193	0.078	*-0.070	0.004	**0.056	-0.006
Number of elderly women	0.071	**0.143	-0.027	-0.101	*0.348	0.004	0.135	0.023
Number of servants	**0.524	**0.324	-0.032	0.077	*0.131	0.124	-0.008	0.037
Individual labor income variables:								
Estimated wage, log	0.003	**1.241	0.026	0.233	-0.032	**3.546	1.085	0.096
Estimate wage squared, log [2]		**-0.101		-0.021		**-0.277	-0.083	
Estimated virtual income, log	1.179	**1.599	*2.140	0.696	-1.308	-1.282	0.721	-0.067
Individual non-labor incomes:								
Primary	**-0.049	*-0.010	-0.002	** -0.134	** -0.031	** -0.166	**0.058	-0.008
Cash transfers	0.013	**-0.014	**-0.536	**0.012	-0.005	* -0.019	0.003	-0.002
In-kind education	-0.011	**0.146	*-0.023	** -0.053	** -0.036	**0.427	0.004	-0.008
In-kind health	M.C.	**-0.042	M.C.	* -0.058	M.C.	**-0.062	**0.049	-0.011
Non-labor incomes from other members:								
Primary	-0.009	0.003	**-0.039	-0.021	0.009	* -0.015	0.018	-0.004
Cash transfers	0.002	-0.003	-0.006	-0.004	-0.008	*-0.015	-0.006	0.000
In-kind education	0.020	**0.011	-0.001	-0.007	-0.002	0.014	-0.003	0.004
In-kind health	0.015	-0.002	0.014	-0.008	0.001	-0.005	-0.005	0.013
Household head characteristics:								
Kinship		0.004		0.005		-0.018		-0.020
Male dummy		**-0.145		0.099		**-0.318		0.084
Estimated wage, log		0.031		*-0.198		-0.041		0.110
Estimated wage squared, log[2]		-0.010		0.016		0.006		**-0.029
Labor status:								
Unemployed		0.019		-0.235		-0.005		0.093
Informal		-0.216		**0.599		-0.152		**0.638
Formal		*-0.219		**0.707		-0.260		*0.521
Occupation:								
Employer		M.C.		-0.157		M.C.		-0.170
Self-employed		**0.274		-0.034		0.334		-0.248
Worker		**0.235		-0.049		0.399		-0.217
Sector:								
Agriculture		0.021		-0.175		0.033		-0.137
Manufacture		-0.204		-0.015		0.003		0.023
Services		-0.091		0.002		-0.129		-0.194
Mills Ratio			*-0.286	-0.041			*-0.201	**-0.365
Constant	** -14.951	**-24.150	*-24.185	-5.829	**16.475	4.637	-8.918	4.355
No. Observations	254	596	377	622	339	321	1,462	576
Log Likelihood	-50	-175			-135	-118		
Observed participation	0.609	0.238			0.759	0.367		
Predicted participation	0.817	0.123			0.822	0.226		
F(n,d)			**3.6	** 3.2			**24.6	**2.8
R^2			0.0859	0.1167			0.0531	0.0690

Source: Author's estimates from 1996 CASEN household survey (MIDEPLAN, 1996).
Note: [1] Working hour models for the extreme and moderate poor are jointly estimated, as the separated sample for extreme poor was not sufficiently large for consistent estimation.
[2] Only the preferred version between the linear and non-linear specification form is reported.
Non-labor primary incomes refer to pensions, rents and financial incomes. All elasticities estimated at the mean of all variables in the model. (*) indicates statistical significance at 10% level; (**) statistical significance at 5% level. (M.C.) indicates that the variable is dropped due to multiple collinearity.

MODERATELY POOR

	Female				Male			
	Participation		Working Hours [1]		Participation		Working Hours [1]	
	Head	Non-Head	Head	Non-head	Head	Non-head	Head	Non-head
Individual characteristics:								
Age	**0.058	**0.014	**0.024	0.003	*0.007	**0.066	**-0.006	-0.009
Age squared[2]	**-0.001	**-0.0001		0.0001	**-0.0001	**-0.001		
Marriage dummy	**-0.450	-0.029	0.087	-0.142	0.008	0.055	**0.132	-0.007
Household characteristics:								
Number of children, 0-11	**-0.111	**-0.022	-0.028	0.017	-0.001	**0.050	0.021	-0.012
Number of children, 12-14	-0.070	-0.013	-0.038	0.002	0.011	*0.072	0.014	-0.090
Number of single women out of the labor market	**-0.327	*-0.019	**0.193	0.078	0.007	0.008	**0.056	-0.006
Number of elderly women	-0.071	-0.017	-0.027	-0.101	0.008	**-0.181	0.135	0.023
Number of servants	**0.335	**0.172	-0.032	0.077	-0.013	0.037	-0.008	0.037
Individual labor income variables:								
Estimated wage, log	**0.199	**-0.832	0.026	0.233	-0.018	*1.604	1.085	0.096
Estimate wage squared, log[2]		**0.079		-0.021		*-0.133	-0.083	
Estimated virtual income, log	0.676	**0.596	*2.140	0.696	0.278	0.006	0.721	-0.067
Individual non-labor incomes:								
Primary	0.011	**0.007	-0.002	** -0.134	** -0.009	0.008	**0.058	-0.008
Cash transfers	-0.009	-0.003	**-0.536	**0.012	0.002	0.001	0.003	-0.002
In-kind education	*-0.014	-0.009	*-0.023	** -0.053	** -0.009	**-0.013	0.004	-0.008
In-kind health	M.C.	**-0.035	M.C.	* -0.058	*-0.019	** -0.071	**0.049	-0.011
Non-labor incomes from other members:								
Primary	-0.018	0.012	**-0.039	-0.021	0.002	**0.013	0.018	-0.004
Cash transfers	**-0.023	0.001	-0.006	-0.004	-0.0001	0.004	-0.006	0.000
In-kind education	**0.038	0.0001	-0.001	-0.007	-0.0003	0.001	-0.003	0.004
In-kind health	**0.029	0.001	0.014	-0.008	0.003	**-0.011	-0.005	0.013
Household head characteristics:								
Kinship		-0.002		0.005		**-0.017		-0.020
Male dummy		*-0.060		0.099		-0.038		0.084
Estimated wage, log		**0.052		*-0.198		0.063		0.110
Estimated wage squared, log[2]		**-0.008		0.016		-0.010		**-0.029
Labor status:								
Unemployed		*0.067		-0.235		0.057		0.093
Informal		**-0.258		**0.599		-0.116		**0.638
Formal		**-0.257		**0.707		-0.094		*0.521
Occupation:								
Employer		**0.320		-0.157		M.C.		-0.170
Self-employed		**0.261		-0.034		0.135		-0.248
Worker		**0.179		-0.049		-0.064		-0.217
Sector:								
Agriculture		-0.012		-0.175		*0.120		-0.137
Manufacture		**-0.080		-0.015		0.121		0.023
Services		-0.002		0.002		0.095		-0.194
Mills Ratio			*-0.286	-0.041			*-0.201	**-0.365
Constant	-10.459	-5.942	*-24.185	-5.829	-3.296	-5.857	-8.918	4.355
No. Observations	645	3,476	377	622	1,762	1,719	1,462	576
Log Likelihood	-215	-1,325			-383	-118		
Observed participation	0.481	0.218			0.901	0.367		
Predicted participation	0.432	0.141			0.948	0.226		
F(n,d)			**3.6	** 3.2			**24.6	**2.8
R^2			0.0859	0.1167			0.0531	0.0690

Source: Author's estimates from 1996 CASEN household survey (MIDEPLAN, 1996).
Note: [1] Working hour models for the extreme and moderate poor are jointly estimated, as the separated sample for extreme poor was not sufficiently large for consistent estimation.
[2] Only the preferred version between the linear and non-linear specification form is reported.
Non-labor primary incomes refer to pensions, rents and financial incomes. All elasticities estimated at the mean of all variables in the model. (*) indicates statistical significance at 10% level; (**) statistical significance at 5% level. (M.C.) indicates that the variable is dropped due to multiple collinearity.

NON-POOR

	Female				Male			
	Participation		Working Hours [1]		Participation		Working Hours [1]	
	Head	Non-Head	Head	Non-head	Head	Non-head	Head	Non-head
Individual characteristics:								
Age	**0.047	**0.023	-0.009	0.006	**-0.004	**0.003	0.011	**-0.040
Age squared[2]	**-0.001	**-0.0004		-0.0002			-0.0001	**0.0005
Marriage dummy	**-0.215	**-0.038	-0.038	0.007	*0.007	0.017	0.011	0.017
Household characteristics:								
Number of children, 0-11	**-0.105	**-0.057	-0.007	-0.001	0.001	**0.023	0.009	-0.005
Number of children, 12-14	**-0.111	**-0.065	0.014	0.018	0.005	**-0.088	0.008	**0.045
Number of single women out of the labor market	**-0.535	**-0.139	**0.084	0.031	0.004	-0.013	*0.015	**0.032
Number of elderly women	**0.227	**0.070	-0.076	**-0.047	**-0.019	-0.036	-0.027	-0.019
Number of servants	**0.199	**0.271	-0.081	0.009	0.002	*-0.058	-0.001	0.007
Individual labor income variables:								
Estimated wage, log	**0.212	**0.221	0.352	**0.548	*0.011	**0.502	**0.466	**0.998
Estimate wage squared, log[2]			-0.029	**-0.050			**-0.037	**-0.070
Estimated virtual income, log	0.137	**-0.345	0.559	0.361	-0.035	**-3.647	0.044	*-0.604
Individual non-labor incomes:								
Primary	**-0.008	**0.012	-0.004	** 0.021	** -0.002	** 0.509	0.00004	**0.006
Cash transfers	**-0.010	**-0.004	-0.010	**0.094	**-0.001	* -0.005	-0.003	**0.005
In-kind education	**-0.016	**0-0.010	**-0.014	-0.005	** -0.003	**-0.019	-0.003	0.004
In-kind health	**-0.062	**-0.034	**-0.065	**-0.063	**-0.013	** -0.079	**0.531	**-0.048
Non-labor incomes from other members:								
Primary	-0.006	**0.043	-0.003	**0.054	0.0004	**0.032	0.003	**0.045
Cash transfers	**-0.010	-0.002	-0.008	-0.003	**-0.002	**-0.005	-0.002	0.002
In-kind education	**0.019	**0.003	-0.003	-0.003	0.0002	**0.008	-0.002	-0.003
In-kind health	**0.024	**-0.005	-0.001	**-0.005	0.0002	**0.004	-0.001	-0.001
Household head characteristics:								
Kinship		0.001		**-0.011		**-0.021		**-0.006
Male dummy		**-0.167		-0.014		**-0.084		**0.034
Estimated wage, log		**0.028		**0.061		**0.131		**0.106
Estimated wage squared, log[2]		**-0.006		**-0.011		**-0.021		**-0.017
Labor status:								
Unemployed		**0.182		-0.042		**0.137		-0.005
Informal		*-0.083		0.058		0.085		0.041
Formal		*-0.006		0.069		0.206		0.074
Occupation:								
Employer		**0.251		0.063		-0.006		**0.121
Self-employed		**0.212		0.041		-0.011		0.031
Worker		**0.169		-0.131		-0.089		-0.041
Sector:								
Agriculture		**-0.034		0.001		**0.205		-0.004
Manufacture		**-0.038		-0.002		0.031		-0.024
Services		0.005		-0.027		**-0.085		0.022
Mills Ratio			-0.067	-0.062			0.017	**-0.471
Constant	-3.234	2.394	10.057	-3.144	0.699	**43.117	1.526	*8.351
No. Observations	5,410	34,965	2,178	10,062	20,932	18,169	17,860	8,571
Log Likelihood	-1,792	-16,081			-3,795	-6,732		
Observed participation	0.461	0.348			0.897	0.504		
Predicted participation	0.389	0.261			0.970	0.440		
F(n,d)			**2.5	** 5.3			**4.0	**5.6
R^2			0.0407	0.0573			0.0531	0.1017

Source: Author's estimates from 1996 CASEN household survey (MIDEPLAN, 1996).
Note: [1] Working hour models for the extreme and moderate poor are jointly estimated, as the separated sample for extreme poor was not sufficiently large for consistent estimation.
[2] Only the preferred version between the linear and non-linear specification form is reported.
Non-labor primary incomes refer to pensions, rents and financial incomes. All elasticities estimated at the mean of all variables in the model. (*) indicates statistical significance at 10% level; (**) statistical significance at 5% level.

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Table 1. Predicted Effects of Social Transfers in the Intrahousehold Decision to Work

	Direct		Indirect		Bargaining				Total			
Type of Effect:	Effects of controlled incomes on work effort		Effects of other household members' controlled incomes on work effort		Effects on the controlled incomes				All effects combined			
Household member:	Individual		Other household members		Individual		Other household members		Individual		Other household members	
Type of social transfer:	Cash	In-kind	Cash	In-kind	Cash	In-kind	Cash	In-kind	Cash	In-kind	Cash	In-kind
PARTICIPATION												
Unitary	<0	<0	<0	<0	n.a.	n.a.	n.a.	n.a.	<0	<0	<0	<0
Exogenous Bargaining	<0	<0	<0	0	0	0	0	0	<0	<0	<0	<0
Endogenous Bargaining	<0	<0	<0	0	<0	<0	either	>0	<0	<0	either	>0
WORKING HOURS												
Unitary	<0	<0	<0	<0	>0	>0	>0	>0	either	either	either	either
Exogenous Bargaining	<0	<0	<0	0	>0	0	>0	>0	either	<0	either	>0
Endogenous Bargaining	<0	<0	<0	<0	>0	>0	either	either	either	either	either	either

Source: Author
Note: unitary models predicted effects are calculated assuming that equal bargaining power among household members, that is, $\theta_i = 1/n$, where n is the number of members in a household. 'n.a.', not applicable.

Table 2. Tests on Intrahousehold Behavior

	Unitary Household Model	Exogenous Bargaining Model	Endogenous Bargaining Model with social transfers as determinants
$\mathbf{H_o:}$	$\gamma_{5i} < 0$	$\gamma_{5i} < 0$	$\gamma_{5i} < 0$
	$\gamma_{6i} < 0$	$\gamma_{6i} < 0$	$\gamma_{6i} < 0$
	$\gamma_{7i} < 0$	$\gamma_{7i} < 0$	$\gamma_{7i} < 0$
	$\gamma_{9i} < 0$	$\gamma_{9i} < 0$	$\gamma_{10i} > 0$
	$\gamma_{10i} < 0$	$\gamma_{10i} = 0$	$\gamma_{11i} > 0$
	$\gamma_{11i} < 0$	$\gamma_{11i} = 0$	
$\mathbf{H_A:}$	otherwise	otherwise	otherwise

Source: Author
Note: tests defined over participation elasticities in specification (1)

Table 3. Participation and Working Hour Elasticities of Non-labor Incomes

		Female				Male			
		Participation		Working Hours		Participation		Working Hours	
		Head	Non-Head	Head	Non-head	Head	Non-head	Head	Non-head
All non-labor incomes		** -3.60	*0.58	-0.37	0.08	**-0.30	**-4.96	0.02	**-0.62
All individual non-labor incomes		**-4.31	0.02	-0.33	-0.03	**-0.38	**-5.32	**-0.16	**0.63
All non-labor from other household members		-0.99	**19.02	-0.63	**5.23	**0.18	**6.51	0.18	**4.16
Individual non-labor incomes:									
Primary	γ_4	**1.34	**8.98	0.32	0.23	**-0.31	**1.25	**0.26	**0.67
Cash transfers	γ_5	**-2.06	**9.87	*-1.09	**-0.67	-0.09	**-1.07	**-1.67	**0.47
In-kind education	γ_6	**-4.09	**-3.97	**-1.49	*-0.74	**-0.45	**-4.85	-0.14	0.35
In-kind health	γ_7	**-1.37	**-14.37	**-6.62	**-6.19	**-1.79	**-18.36	0.49	**-4.58
Non-labor incomes from other household members:									
Primary	γ_8	-1.37	**15.71	-1.05	**4.29	**0.13	**8.57	0.04	**4.75
Cash transfers	γ_9	**-0.28	-0.59	-0.81	*-0.42	**-0.26	**-1.14	**-0.20	0.14
In-kind education	γ_{10}	**5.28	-1.02	0.31	*-0.37	0.02	**1.51	-0.02	-0.23
In-kind health	γ_{11}	**5.77	**1.89	0.18	**-0.61	0.07	*0.39	*0.14	-0.04
No. Observations		6,370	39,919	2,573	10,884	23,461	20,797	19,546	9,485
Log Likelihood		-2,129	-10,512			-4,678	-7,828		
Observed participation		0.465	0.335			0.891	0.501		
Predicted participation		0.401	0.247			0.96	0.431		
F(n,d)				**3.0	**5.5			**7.7	**6.1
R^2				0.0457	0.0480			0.0126	0.0939

Source: Author's estimates from 1996 CASEN household survey (MIDEPLAN, 1996).
Note: Non-labor primary incomes refer to pensions, rents, financial incomes and self-consumption. All elasticities estimated at the mean of all variables in the model. (*) indicates statistical significance at 10% level; (**) statistical significance at 5% level.

Table 4. Tests on the Specification of Intrahousehold Allocation Models

	Female		Male	
	Head	Non-head	Head	Non-head
Unitary household model	H_o Rejected	H_o Rejected	H_o Rejected	H_o Rejected
Exogenous Bargaining Model	H_o Rejected	H_o Rejected	H_o Rejected	H_o Rejected
Endogenous Bargaining Model with Social Transfers as determinants	H_o Accepted	H_o Accepted	H_o Rejected	H_o Accepted

Source: Author
Note: tests from estimated elasticities of participation in specification [1].

Table 5. Tests on the Specification of Intrahousehold Allocation Models By Socio-economic Group

	Exogenous Bargaining Model			Endogenous Bargaining Model with Social Transfers as Determinants		
	Extreme Poor	Moderate Poor	Non-Poor	Extreme Poor	Moderate Poor	Non-Poor
Female Head	H_o Rejected	H_o Rejected	H_o Rejected	H_o Rejected	H_o Rejected	H_o Accepted
Female Non-head	H_o Rejected	H_o Rejected	H_o Rejected	H_o Rejected	H_o Rejected	H_o Accepted
Male Head	H_o Rejected	H_o Rejected	H_o Accepted	H_o Rejected	H_o Rejected	H_o Rejected
Male Non-head	H_o Rejected	H_o Rejected	H_o Rejected	H_o Rejected	H_o Rejected	H_o Accepted

Source: Author

Note: tests from estimated elasticities of participation in specification [1].