

**Hélène Couprie**  
**GREQAM, 2 rue de la vieille charité, 13002 Marseille, France**  
**couprie@ehess.cnrs-mrs.fr**  
**Research Topic: Female Labour Supply**

The aim of this research project is to study mechanisms influencing female labour supply. I am particularly interested in the determinants of labour supply income-elasticity in order to evaluate the impact of welfare family allowances on peoples attitudes via intra-household monetary transfers. There are reasons to suspect that the identity of the beneficiary of family allowances has a real impact on the intra-family decision process and, consequently, on family members' labour supply decisions.

This topic is fundamental for the design of appropriate work incentives, and has already had a major impact on current fiscal reforms like the « Prime pour l'emploi<sup>1</sup> » law (voted in February 2001 in France) which proposes tax relief representing 0.1 GDP-points for those receiving low wages (less than 1.4 times the minimum wage). These economic policies concern a large proportion of women as they are more affected by the so-called « poverty trap »: women generally work fewer hours, and they are more likely to face precarious working conditions (in France one female employee out of four is a part-time worker). Moreover, the inactivity rate for 15-65 year olds in France is 39.7% for women against 25.6% for men, and their labour supply is much more elastic than that for males. Hence, labour market participation needs to be analysed jointly with hours of work.

The question of female labour supply has been widely dealt with since the 1960's. The model usually used to analyse this topic is the so-called « unitary model » which takes the household as a unique decision-making unit, facing a unique budgetary constraint pooling the income of every family member. This model is, however, not acceptable from a theoretical and an empirical viewpoint.

On the theoretical side, this model is contrary to the background of microeconomic theory. We know, since Arrow's theorem, that we cannot generally construct an aggregate utility function. Although some researchers have tried to find justifications for dictatorial preferences within the household (see, for example Gary Becker's « rotten-kid theorem », in which, in its simplest formulation, egoistic members of the family follow the preferences of an altruistic and benefactor patriarch), these explanations have not satisfactorily settled the issue.

The empirical implications of the unitary model have also been widely criticised. Two results are particularly suspect: the first, which comes from the symmetry property of the Slutsky matrix, imposes identical compensated cross substitution effects. The consequence for labour supply is the equality of the effects of spouse's wage on individual labour supply. If this property is not satisfied, it could introduce biases into the estimation of labour supply wage-elasticities for non-single individuals.

The other empirical aspect criticised is the « income-pooling » property, which ensues from the use of a family budget constraint: no matter whose non-labour income rises, the effect on labour supply decision will be the same. The consequence is that the labour supply income-elasticity is identical no matter who is the beneficiary of the change in income. Hence, according to the unitary model, the identity of the family allowance beneficiary should not affect labour supply.

All of these reasons encourage the researcher to construct models that can take into account individual preferences and produce less restrictive properties than the unitary model.

---

<sup>1</sup> Here is the mechanism of this allowance : Beneficiaries are holders of taxable labour income between 0.3 and 1.54 times the minimum wage for singles (and 3.08 times for couples). For a full-time worker, the amount of this allowance is about 1500F in 2001 (it will be 4500F in 2003). The allowance is greater if there are children in the household . The allowance takes the form of a fiscal deduction on income tax.

In this respect, Game Theory offers promising directions for research. The family can be viewed as a negotiation place where the confrontation of individual interests leads to a « co-operative » solution of negotiations (the existence of the family, proves, in some way, the existence of this co-operative issue). As in McElroy and Horney (1981), we can suppose that the intra-household negotiation process leads to a Nash solution, the issue of the negotiation (i.e. individual labour supply decisions) will be the solution of the maximisation of the gain product utility function. This depends on each member's threat point. Hence the household utility function will depend on prices, each member's income and other extra-environmental parameters influencing the threat point.

In this spirit, I follow Chiappori's collective models of household behaviour (1988 and 1992). The originality of this approach is that the negotiation process is not explicitly described. The only assumption needed is the Pareto-efficiency of the issue of the negotiation. A distribution function places the outcome of negotiations on a point of the efficiency frontier. The form of this distribution function is not described; in this sense this approach resembles a reduced form approach. The interest of this model is that we can view the negotiation process as if spouses negotiate in the first stage a « sharing rule » for income, and, in the second stage, each one takes his decision in a decentralised way, given the share of the income obtained in the first stage. The interest of Chiappori's result (1992) is that, on the basis of the observation of assignable consumption (leisure for example), we can reconstitute the shape of the derivatives of this sharing rule, hence, we can have an idea, or a representation, of the intra-household labour supply decision process. This model encompasses the unitary and the Nash-bargained models as special cases. As it also allows us to relax the symmetry of the Slutsky matrix and the income-pooling properties, we can test these properties against those implied by the collective framework. As a result of this model, labour supply decisions will depend on the standard substitution and income effects, plus a supplementary effect linked to intra-member negotiation via changes in the sharing rule.

In particular, if we enter specifically in the distribution function each member's non labour income, the individual labour supply decision will depend on the identity of the beneficiary of the additional exogenous income.

The implications of the collective model are of different orders. First, it allows us to test the validity of the unitary model, widely used in economic policy simulations, and, if the unitary specification is rejected, it can be used to obtain less biased labour supply elasticities. The household is still the basic unit of measure (for example, income tax is collected at the household level, given equivalence scales which are supposed to take into account household composition on individual welfare). Second, it allows us to elaborate « targeting policies » which « target » the beneficiary of family allowances according to the result expected on individual decision-making.

To implement this research project, I intend to model a collective model of household behaviour, strictly following Chiappori's framework in a first step, and test on British database the unitary model against the collective one. I use the British Household Panel Survey from 1991 to 1997. This database concerns 10 000 individuals in 5 500 households each year. It includes information about consumption, time use, wages, income (distinguishing labour and non-labour income), and a great number of social-demographic characteristics which can be used as heterogeneity parameters of preferences, or as distribution factors. In addition we have many opinion variables (regarding religion, politics, or the family). British databases are likely to work with collective models, because the labour market in Great Britain is more flexible and we observe a greater variability in female labour supply. Hence, if I do not take into account discrete time choices, I should use databases with greater variability in hours of work.

Domestic production is an important aspect to develop in such models, since non labour market time is not necessarily leisure time. The sharing rule's parameters and wage and income elasticities will probably be different according to the consideration of household domestic production. Apps and Rees

(1997) proposed an extension of Chiappori's model with domestic production, which can be useful to compare estimation results with and without domestic production.

Going further, discrete choice labour supply is an interesting research direction, especially when there are rigidities on the labour market. Blundell et al. (1998) take into account non-participation in the collective model, using panel data methods to remove the participation selection bias. Such estimates could be interesting to compare with my previous results. Other developments of the unitary models can be incorporated into the collective framework. Taxation, for example, which implies a non-linear budget set, would be interesting to analyse.

Finally, I can carry out analysis on the « enquête emploi du temps » database which is a survey concerning about 8 000 French households. Data concerning individual time diaries are particularly detailed. Hence, time spent in market work or household work is precisely measured. Comparisons between France and Great Britain will then be possible, on the basis of labour supply elasticities, the intra-family negotiation process and the validity of the unitary model.