E C O N O M I C S B U L L E T I N

Labor opportunities against family intergenerational exchange

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Abstract

We study a model of domestic transfers based on exchange in which children can either work or provide services to their parents to earn some money. Using a French survey, we show that there exist attention−payment mechanisms to the young children from the parents, but these exchanges disappear when children can enter the labor market.

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1. Introduction

When they attempt to understand the motives underlying intergenerational family transfers, economists usually define two types of behavior. According to the altruistic hypothesis, caring parents give out some of their resources to their children in order to compensate differences in standards of living (Becker, 1991). According to the exchange model, money given by parents fits in a reciprocity structure and is the counterpart of a transfer done by the children. Payment for children's attention is one of the most frequent kinds of exchange (Cox, 1987, Cox and Rank, 1992).

However, empirical studies are rather incompatible with the hypothesis that exchanges occur between generations (see Laferrère and Wolff, 2003). Why do we observe so little exchange between generations? Two main difficulties have been previously suggested in the previous literature. First, the sign of the recipient's income on the amount of money received (which is used to provide a test to tell various motivations apart) cannot provide any reliable information (Altonji et alii, 1997). Second, cross-sectional data does not allow taking into account any possible delayed reciprocity. Parents can all at once give some money to reward services which have been given over a long period of time.

In this paper, we put forward another reason to explain the absence of exchange observed in the data. Parents offer their children a certain payment for their services, but children have the choice between two activities. They can earn money either by helping their parents or by turning to the labor market. Thus, participation in domestic exchanges depends on the relative payment for these two activities.

To study the influence of outside opportunities on money-services exchanges, we use a survey completed in France in 1992 on parental investments in children's education and focus on pocket money given by parents to schoolchildren[1]. In France, holding a job before the age of 16 is illegal. But moonlighting work exists and children can find job opportunities like baby-sitting for example before this age. Yet, the easiest way to earn money before 16 is still to work inside the family. After this age, children can either carry on helping at home or find a paid job. The data shows that family reciprocities disappear as soon as the children have the possibility of obtaining an outside income by working on their own.

The remainder of the paper is organized as follows. In section 2, we display a model of transfers based on exchange in which children share their time out of school between market work and paid home services. In section 3, we describe the occurrence of family exchanges. An econometric analysis is performed in section 4. Section 5 concludes.

2. An exchange model of transfers

Let us consider a family consisting of one parent and one child, respectively indicated by p and k. Following Cox (1987) and Cox and Rank (1992), the exchange mechanism is as follows. The parent gives a certain amount of money T to his child and he receives a volume of services S in return. The parent derives satisfaction from his own consumption C_p and from the services he receives from his child. Furthermore, he is altruistic and derives utility from the child's satisfaction. The child is selfish. He draws utility from his own consumption C_k,

[1] Up to now, economists have neglected this type of intrafamily transfers, with a few exceptions (Barnet-Verzat and Wolff, 2002, Dustmann and Micklewright, 2001, Furnham, 1999, 2001).

but he suffers a loss of well-being when helping the parent. Let U and V be the utility functions of the parent and child respectively; they can be expressed as $U(C_p,S,V(C_k,S))$ and $V(C_k,S)$, with $U_c>0$, $U_s>0$, $U_v>0$, $V_c>0$ and $V_s<0$. We assume that U and V are continuous, twice differentiable and concave.

The resources constraints are as follows. The parent gets an exogenous income Y_p that he devotes to his consumption C_p and to a transfer T to the child, so that $C_p=Y_p-T$. The child's resources are of two types, wage and transfer. He can either work at a wage rate w or provide services to his parent. We admit that the total time of the child is equal to 1, 1-S being the time devoted to the labor market. Hence, the child's budget constraint is $C_k=w(1-S)+T$. Let $U^0=U(Y_p,0,V(w,0))$ and $V^0=V(w,0)$ be respectively the parent's and the child's reservation utilities. They fit a situation characterized by an absence of time and money transfers. The optimal choices for T and S are determined under the hypothesis of a dominant parent[2]. In case of money-service exchange, the child's level of satisfaction is given by his threat point utility level $V^0=V(w,0)$. For a utility function U such that $U(C_p,S)+\beta_p V(C_k,S))$ with β_p the parental degree of altruism, the maximization program under exchange is[3]:

$$\max U(Y_p-T,S)+\beta_p V(w(1-S)+T,S) \text{ s.t. } V(w(1-S)+T,S))=V^0(w,0) \quad (1)$$

In this model, exchange occurs when the marginal rate of substitution of the financial help with regard to the services to the parent MRS_p^0 is higher than the marginal rate of substitution of the transfer with regard to the services for the child MRS_k^0, these marginal rates being estimated for $S=0$ (Cox, 1987). If one admits the absence of crossed effects ($U_{cs}=0$, $V_{cs}=0$), we have:

$$MRS_p^0=U_s^0/U_c^0 \quad (2)$$

$$MRS_k^0=w-V_s^0/V_c^0 \quad (3)$$

Thus, from (3), we observe that the market wage competes with the realization of exchanges within the family. When outside opportunities are profitable, the child has no interest to take part in transfers except when the parent agrees to pay a high price for his help. Let us examine the effect of an increase in w on the child supply price for the first unit of services. The derivative $\partial MRS_k^0/\partial w$ is:

$$\partial MRS_k^0/\partial w=1+wV_s^0V_{cc}^0/(V_c^0)^2>0 \quad (4)$$

The sign of this derivative is strictly positive since $V_s^0<0$ and $V_{cc}^0<0$. The probability of observing an interior solution in case of exchange decreases with the level of market wage. Clearly, when w is sufficiently high, the child prefers a wage-earning work because the parent is unable to offer a sufficient price of attention.

3. Data and descriptive statistics

Our empirical investigation relies on a survey completed in France in 1992 by Insee and Ined on parental investments in children's education. This data set turns on a representative sample of 5300 households, including at least one schoolchild from 2 to 25. The data provides

[2] We could also consider a Nash bargaining model where both generations maximize $(U-U^0)(V-V^0)$, but this does not affect our theoretical results (see the discussion in Cox, 1987, Cox and Rank, 1992).

[3] Let λ be the corresponding Lagrange multiplier. Given the existence of exchange, one has $\lambda>0$ and the first-order conditions are $-U_c+\beta_p V_c+\lambda V_c=0$ and $U_s-\beta_p wV_c+\beta_p V_s-\lambda wV_c+\lambda V_s=0$.

information on the parental economic position and the children's personal resources. For them, we know whether they have their own source of income and whether they get pocket money, regularly or not, and how much. The survey provides some information on the circumstances under which irregular allowances are given: in return for services or jobs done by children, as rewards for school results.

The data are original in the following ways. First, by considering the case of schoolchildren, we can study how opportunities resulting from labor market income gradually influence individual decisions of upstream services. To date, previous studies have mainly been interested in transfers between generations not living together. Yet, the amounts of money that circulate between young children and parents are of considerable importance (see Barnet-Verzat and Wolff, 2002, Furnham, 1999). Second, the questionnaire allows us to directly identify the payment of services and domestic tasks realized by the children. Clearly, this type of intergenerational exchange matches the mechanism of attention payment initially described by Cox (1987).

After deleting missing values, the sample includes 6050 parent-child pairs. According to the data, 74 % of the children receive some money from their parents for an average amount of about 460 euros per recipient. 44.7% receive some money regularly, while 36.0% receive irregular payments. Besides, among the recipients, 25.1% of children get both forms of help. For unsteady transfers, 10% of the children receive some money for the services and 9.8% are rewarded for their good results at school.

The fact that a high proportion of children benefit from regular payments comes rather against an altruistic motive, since altruistic parents should fit their financial effort to the needs of their offspring. The data rather points out that there are forms of money-services exchange such as those described by Cox (1987). However, households' behaviors are heterogeneous. The population includes at the same time cases of altruism (punctual sums are given to meet the children's need) and situations more in agreement with the exchange hypothesis. Reciprocity may occur either through the use of regular gifts being paid off latter on in the future or through the payment of non-market services.

4. Econometric analysis

We explore the relationship between exchange-motivated transfers and the characteristics of the donor and the recipient through an econometric analysis. We estimate a Probit model with the dependent variable equal to one if the child receives some money against services and zero otherwise, then a Tobit model for the gift value[4].

According to Table 1, children with young parents tend to be more often concerned with that kind of exchange. The payment of services is more likely to appear when the child has got siblings and is a boy, and the amount of money offered is more substantial. Our main result is that the child's age is of considerable importance to explain the existence of exchange. Both for the probability and the amount of gift, the age profile is characterized by an U-inverted form. The occurrence of a services payment begins to increase with the age, with a maximum around 14, and falls down afterwards. After 20, the probability of money-services reciprocity is very low. Our results suggest that the exchange motive of family

[4] In the regression, the child's education is not introduced given its very high correlation with age.

transfer is relevant, but mainly applies to young children. For families with two children, we have also controlled for unobserved heterogeneity using Probit and Tobit random-effect models, and the U-shaped age profile still holds (see Table 1).

Our interest is now to give an explanation for the decline of exchange transfers with the age. We argue that money-services exchanges compete with labor work as the child grows up. For this purpose, we examine the child's age profile for different types of transfers: payment of services, school rewards, irregular pocket money, regular. Given these four specific forms of help (payment of services, school reward, irregular pocket money, regular allowances), we estimate a quadrivariate Probit model using the GHK simulator, and then use these estimates to compute the age profile for each type of transfer. According to the data, the age profile of the probability of exchange is U-shaped, but it is significantly different from that observed for regular or irregular payments which increase steadily (Figure 1). In these cases, parents try to meet children's needs, which get regularly higher as they grow up.

Pocket money given to buy services fits in a different logic. The payments are only linked to the amount of work done, and it is obvious that children do not increase their domestic work supply as they age. One reason can be found in the existence of opportunities to earn more money elsewhere, particularly in the labor market. Teenagers can for example baby sit, and be better paid than by setting the table or washing their parent's car. As they grow up, the range of accessible jobs widens and the potential wage increases. Thus, the choice between home services and outside opportunities is done at the detriment of the former, so that exchange-motivated transfers within the family tend to lessen at an older age. In Figure 1, we also report the estimated probability that a child earns money by working. The data shows that this probability is very low till the age of 14, less than 10%, but there is a steep increase after this threshold level. Remarkably, the participation in job market activities coincides with the decline of payment-services family exchange, while regular allowances and irregular pocket money are not affected by the rise of child's labor[5].

5. Conclusion

In this paper, we explain why previous studies on family transfer motives have widely rejected the exchange model in which parents buy their children's services (Cox, 1987). Using data on pocket money in France, we show that there exist mechanisms of purchase of attention from the youngest age within the family, but these exchanges tend to disappear when children can make more money outside of it. Our analysis suggests that it would be constructive to consider the possibility that the altruism and exchange models may be more appropriate to characterize the behaviors of particular subgroups of population.

[5] We have also attempted to estimate the effect of child's labor participation on the probability of receiving an exchange transfer from the parent. The decision of child's labor is instrumented using child's characteristics, sex and age (quadratic), and parent's characteristics (education and income). The estimated probability of child's labor as a regressor is negatively related to the receipt of an attention payment. The effect is significant at the 5 percent level when the child's age is excluded from the exchange transfer equation.

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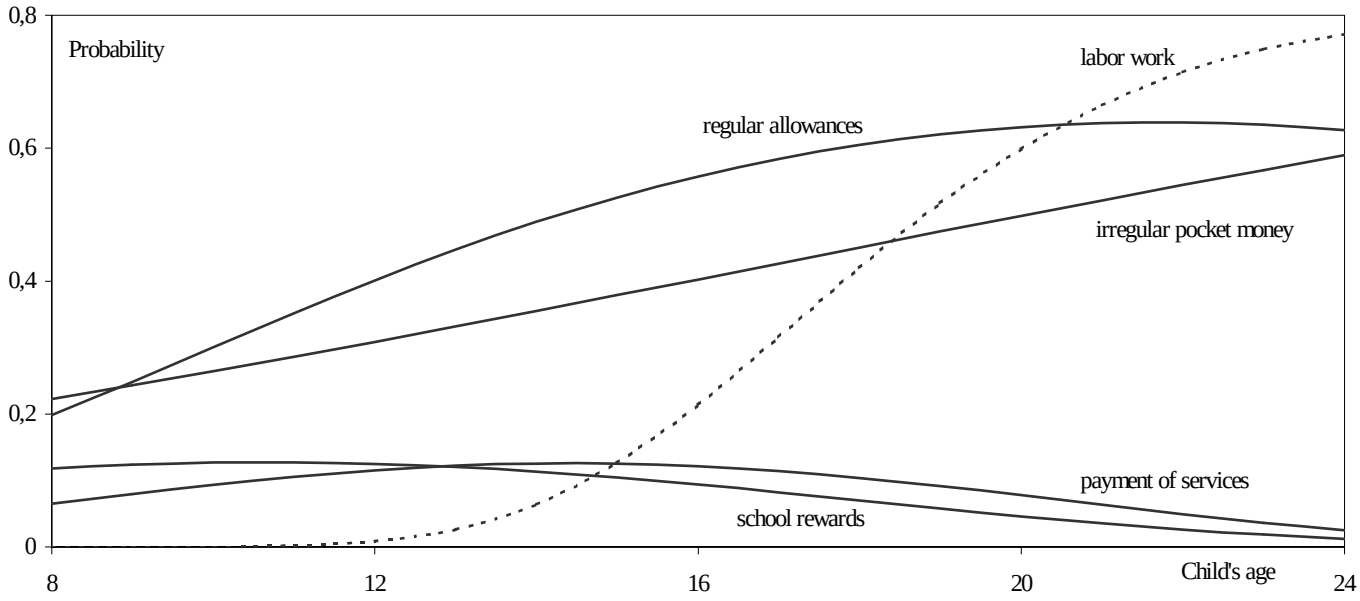
Table 1. Determinants of exchange-motivated pocket money

Variables	Probit		Random effect Probit		Tobit		Random effect Tobit	
	coef	t-test	coef	t-test	coef	t-test	coef	t-test
Constant	0.214	0.35	2.174	1.00	35.452	0.08	-510.618	-0.84
Characteristics of the child								
Female	-0.060	-1.35	-0.281	-2.17	-59.349	-1.76	-66.917	-2.18
Age								
Less than 9 years	-0.406	-4.95	-1.505	-5.87	-329.259	-5.22	-302.900	-5.18
10-11 years	-0.059	-0.75	-0.500	-2.14	-90.200	-1.49	-143.677	-2.71
12-13 years	-0.061	-0.76	-0.346	-1.54	-71.501	-1.18	-99.189	-1.84
14-15 years	ref		ref		ref		ref	
16-17 years	0.050	0.61	-0.052	-0.23	95.013	1.56	83.802	1.51
18-19 years	-0.226	-2.47	-0.523	-2.13	-101.208	-1.49	-16.633	-0.26
20 years and more	-0.369	-3.77	-0.999	-3.82	-154.316	-2.15	-111.483	-1.61
Characteristics of parents								
Age	-0.048	-1.74	-0.224	-2.19	-33.341	-1.60	-18.158	-0.68
Age squared (10^{e-2})	0.028	0.91	0.147	1.34	18.350	0.79	2.261	0.08
Married	-0.066	-1.06	-0.150	-0.64	-20.070	-0.43	-30.067	-0.56
Number of children								
One	ref		ref		ref		ref	
Two	0.297	3.53	1.045	3.53	207.600	3.26	224.677	3.22
Three	0.314	3.53	1.190	3.65	230.659	3.43	229.178	3.02
At least four	0.314	3.17	1.253	3.51	217.561	2.90	233.371	2.79
Education	-0.027	-1.37	-0.119	-1.65	-20.386	-1.40	-15.353	-0.98
Level of income (10^{e-6})	0.440	1.90	1.511	1.84	250.500	1.44	117.707	0.61
Number of observations	6050		6050		6050		6050	
Number of recipients	602		602		602		602	
Log likelihood	-1896.2		-1640.5		-6004.8		-5819.0	

Source : Survey Education Insee-Ined 1992.

Figure 1. The effect of child's age on the receipt of parental transfers



Source : Survey Education Insee-Ined 1992.