

Pocket money and child effort at school

Christine Barnett-Verzat
LEN, University of Nantes

François-Charles Wolff
LEN, University of Nantes; CNAV and INED, Paris

Abstract

In this paper, we study the relationship between the provision of parental pocket and the level of effort undertaken by the child at school. Under altruism, an increased amount of parental transfer should reduce the child's effort. Our empirical analysis is based on a French data set including about 1,400 parent-child pairs. We find that children do not undertake less effort when their parents are more generous.

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1. Introduction

During the last twenty years, several studies have evidenced the importance of private intergenerational transfers (Laferrère and Wolff, 2006). Parental assistance can take various forms across the life cycle. While previous studies have mainly focused on transfers received in the form of financial help, donations and bequests (i.e. transfers made after the children have left the parental home), less attention has been devoted to support received during younger ages, in particular during school age. This is probably due to the fact that schoolchildren live with their parents and are unable to be financially independent, so that their own consumption cannot be distinguished from that of their parents.

Recently, a few papers have addressed the question of pocket money, showing that it is an important resource for young children especially at school ages (Furnham, 1999, 2001; Barnet-Verzat and Wolff, 2002, 2003; Dustmann and Micklewright, 2001; Dustmann et al., 2004)¹. For instance, Barnet-Verzat and Wolff (2002) show that irregular allowances are more frequent than fixed amounts of money regularly given to the children and that parents who provide help to their children are better off financially. When children are young, irregular allowances are more frequent than regular ones, but their amounts are also lower compared to regular pocket money. As children grow up, pocket money becomes more common and both kinds of transfers are equally used.

These parental transfers have many implications. First, they may condition the future attitudes of children towards money. Pocket money is expected to hasten autonomy and recipients may develop sparing habits (Furnham, 1999). Second, these transfers may have disincentive effects for children. With more money, current consumption will increase and the child may do less effort at school. Also, a child may choose to work less in order to receive more money, as shown by the case of the Rotten Child described in Bergstrom (1989). Finally, parents do not have perfect information on the child's needs. This asymmetry of information between generations will influence the pattern of transfers from parents and effort from the children (Chami, 1996, 1998).

From an empirical perspective, a few papers have studied the interaction between the labor force participation of schoolchildren and the amount of pocket money that they receive from their parents. Both in the US and in France, Kalenkoski and Pabilonia (2004) and Wolff (2006) find that parental transfers have no effect on the child's labor supply. Conversely, in Britain, financial assistance significantly reduces the labor force participation of teenagers (through an income effect), while parents do not adjust their transfer payments to the child's labor supply (Dustmann and Micklewright, 2001). These family decisions remain complex as they include allocation decisions between labor supply, other kinds of works like schoolwork and transfers to parents.

Understanding the relationship between parental transfer and child's effort is mainly an empirical matter. While the provision of money is supposed to give the child incentives to work hard (as in the efficiency wage theory), she can as well take advantage of this money to work less and devote it for more leisure activities to the detriment of schoolwork. Also, parents may choose to observe the behavior of their children's before rewarding them, depending on their results at school (Barnet-Verzat and Wolff, 2002). In this paper, we further investigate the potential interaction between pocket money and child's effort using data collected in 2003 on about 1,400 child-parents pairs in France. We estimate a simultaneous

¹ In addition to these descriptive studies, there have been some attempts to explore the role of pocket money on social behavior. Abramovitch et al. (1991) and Fan (2000) show that the receipt of an allowance is likely to facilitate the development of monetary competence and, in turn, of cooperation.

equations model to further understand the complex relationship between parental transfers in the form of pocket money and child's effort.

The remainder of this paper is organized as follows. In Section 2, we present a simple model of transfers with endogenous effort and altruistic parental gift. We describe the data in Section 3 and present our estimation strategy in Section 4. Results on the relationship between the child's effort and pocket money are discussed in Section 5. Finally, Section 6 concludes.

2. A simple model of pocket money and child effort

We consider a setting in which the level of effort chosen by the child is presumably affected by the parental decision to transfer money. We rely on a simple theoretical model of transfers with two decision-makers, one parent and one child².

Let us begin with the child's situation. We consider the case of a schoolchild living with her parent, without opportunity to undertake any paid activity during schooling. The child derives some satisfaction from private consumption. Her resources are given by the sum of a fixed income H (corresponding to housing costs and food consumption paid by parents) and a parental transfer T , with the non-negativity constraint $T \geq 0$. The child's time is devoted to leisure activities and homework, with a preference for leisure. Let e be the child's effort. We normalize to 1 the child's full time, so that $1 - e$ is the amount of leisure. The motive for undertaking effort at school is to increase future income when being adult.

The child's utility function is defined over two periods, denoted by 1 and 2 as upscript. Let v^1 and v^2 be the corresponding functions. The child's utility is expressed as:

$$v = v^1(H + T, 1 - e) + \frac{1}{\delta} v^2(w(e)) \quad (1)$$

where δ is equal to one plus the discount rate, and $w(\cdot)$ is the expected child's wage which depends on the child's current choice of effort. With more effort today, the child is expected to get higher future earnings. We have $w_1(e) > 0$ and $w_{11}(e) < 0$. Consumption and leisure activities are normal goods ($v_1^1 > 0$, $v_{11}^1 < 0$, $v_2^1 > 0$, $v_{22}^1 > 0$). We assume that consumption and leisure are complementary goods, which implies $v_{12}^1 > 0$. Finally, we have $v_1^2 > 0$. The problem for the child is to choose the level of effort that maximizes her own utility function. The corresponding first-order condition is:

$$-v_2^1(H + T, 1 - e) + \frac{1}{\delta} w_1(e) v_1^2(w(e)) = 0 \quad (2)$$

According to (2), the child's optimal effort is such that its marginal cost v_2^1 is equal to its marginal benefit $w_1 v_1^2 / \delta$. The child's effort function thus depends on level of income H , parental transfer T , discount rate δ and on the shape of the expected earnings profile. Let us investigate the effect of the transfer on the child's effort. By differentiating the first-order condition $v_e = 0$, we deduce that $v_{ee} de + v_{eT} dT = 0$, so that $de/dT = -v_{eT} / v_{ee}$. We get:

$$\frac{de}{dT} = \frac{v_{21}^1}{v_{22}^1 + \frac{1}{\delta} w_{11} v_1^2 + \frac{1}{\delta} w_1 v_{11}^2} < 0 \quad (3)$$

This derivative is negative given the complementarity between leisure and consumption. With more parental transfer, the child is expected to devote less time to homework, thereby leading

² We neglect here potential strategic interactions between siblings.

to lower future opportunities. Note that this result does not hold when assuming separability between private consumption and leisure. With $v_{21}^1 = 0$, it follows that $de/dT = 0$.

We now turn to the parental problem. We assume that the parent is altruistic and takes the well-being of the child into account (Becker, 1991). Although other transfers mechanisms are possible, the idea according to which parents care for their children when the latter are young seems not unrealistic *a priori*. Let β be the caring parameter ($0 < \beta < 1$). The parent seeks to maximize his own utility function $u(C)$, C being the private consumption with $C = Y - T$. The parental consumption is equal to the parent's level of income Y (labor supply is exogenous) minus the transfer made to the child. The parent thus seeks to maximize:

$$\max_{T \geq 0} u(Y - T) + \beta \left[v^1(H + T, 1 - e) + \frac{1}{\delta} v^2(w(e)) \right] \quad (4)$$

The first-order condition is:

$$-u_1(Y - T) + \beta v_1^1(H + T, 1 - e) = 0 \quad (5)$$

meaning that the parent seeks to equalize the marginal disutility u_1 involved by a lower income with the weighted marginal gain of transferring resources βv_1^1 . By differentiating (5), we obtain the optimal transfer rule T for the parent, which depends on the child's effort decision. So, by combining the first-order conditions (2) and (5), we deduce the optimal effort-transfer solution. Clearly, both variables of interest e and T are interdependent³.

3. Data and descriptive statistics

We use data from the Education and Family Survey conducted in France in 2003, which focuses on family investments in children's education. It is based on a representative sample of households interviewed in October and November 2003, all the selected households having at least one child between 2 and 25 years old, living or not with parents, and attending school or university in October 2003 (see Gouyon, 2004).

These data allow us to match information collected separately from children and from their parents. Parents were first interviewed about their own characteristics (like education attainment, resources, marital status, etc) and provided a description of their children. Then, separate interviews have been performed with children when the latter were attending secondary schooling (786 observations) or postsecondary schooling (631 observations). Using the 'child' questionnaire, we obtain information on school attendance, money received from parents and attitudes towards school. When merging the characteristics of both generations, we obtain a sample of 1,380 parent-child pairs after deleting missing values.

To study the relationships between pocket money and effort at school, we rely on the following information. On the one hand, the child indicates whether she has received any financial support from her parents: "Do you regularly receive any pocket money from your parents?". The second endogenous variable, related to the child's level of effort, is much more difficult to measure as it is subjective and may be assessed very differently from one person to another. For instance, using information on the effort outcome (say educational attainment)

³ The above framework is a Nash bargaining game. Another possibility would be to assume that there is only one dominant player, for instance the parent. In such a Stackelberg game, the underlying assumption is that the child perfectly observes the gift value, which is made by the parent. Then, the timing of the game would be as follows. First, the parent makes a commitment rule for financial transfers. Second, knowing the parental rule, the child is expected to choose a level of effort to maximize her own utility. Such a model is slightly different, since it leads to a recursive model instead of a fully simultaneous one.

may be problematic because of differences in ability. Some children can do very well with little effort, whereas others have to work very hard to only obtain good results. In order to measure child's effort, we choose to use the following question: "what is your attitude toward marks? 1) you are not interested in marks, 2) you aim at getting half mark, 3) you try to get as good marks as possible". We build a dummy variable which is equal to one when the child tries to get as good marks as possible.

To explain these outcomes, we rely on the following explanatory variables. For the parent, sex of the respondent, age and education are likely to influence attitudes towards education along with the provision of pocket money. The capacity to help the child is also expected to depend on living or not with a partner, being homeowner, and household income. Information remains scarce for the child. We select sex, age, number of siblings and rank within the sibship. We also account for characteristics on the local environment. On the one hand, the child indicates how she assesses the quality of school and teachers. On the other hand, we know whether the child may work quietly at home or whether she is disturbed during homework.

In France, more than one-half of the children receive regularly pocket money from their parents: 58% of pupils get regular allowances, the proportion being slightly higher for postsecondary pupils (65.5%) than for secondary ones (53.1%). The proportion of children receiving pocket money increases steadily as they grow up: 50% at the age of 11, 57% at 13, 63% at 15, 70% at 16 (Figure 1). These figures tend to lower afterwards. This may be explained by the fact that after 16, children have the possibility to earn their own money outside the family, parents consequently adjusting the level of transfers. Concerning effort, the data show that 28.8% of children make no effort to obtain good marks, whereas 71.2% do their best. We calculate the proportion of children making effort to achieve good marks as a function of the receipt of pocket money. As shown in Figure 2, we find no clear correlation between effort and parental transfer from a descriptive viewpoint.

4. Econometric model

A simultaneous model is needed to fully understand the interplay between child's effort and pocket money. Specifically, we rely on a simultaneous equations framework with latent variables. Let us briefly describe the underlying methodology, the econometric model including two equations for each observation.

The first equation indicates the probability for a child to receive money. The pocket money variable is explained by a set of exogenous variables and by a latent variable corresponding to the child's effort. Let T^* be the latent variable (either negative or positive) measuring the propensity to receive money work and e^* be the latent variable associated to child's effort. The pocket money equation for the child can be expressed as:

$$T^* = X_T \beta_T + \gamma_T e^* + \varepsilon_T \quad (6)$$

where X_T is a set of variables explaining the probability to be helped, β_T is the vector of associated parameters, and γ_T picks up the effect of effort on pocket money. The second equation indicates that the latent child's propensity to undertake effort e^* depends on a set of exogenous covariates and on the latent variable associated to pocket money:

$$e^* = X_e \beta_e + \gamma_e T^* + \varepsilon_e \quad (7)$$

where X_e is the set of variables explaining the child's level of effort, β_e is the vector of associated parameters, γ_e measures the impact of parental transfer effort.

Note that we do not observe the latent variables T^* and e^* , but we have information on their observed counterparts. Let T be a dummy variable related to the receipt of pocket money. We have $T=1$ when $T^* > 0$ and $T=0$ otherwise. In the same way, the child's effort is equal to one when the child tries to achieve the best school results. We have $e=1$ when $e^* > 0$, and $e=0$ otherwise. This defines a simultaneous model with two Probit equations, one for pocket money and one for child's effort. The model is logically consistent if the inequality $1 - \gamma_D \gamma_W > 0$ holds (Heckman, 1978, Maddala, 1983). To estimate the model, we rely on a maximum likelihood method⁴.

Identification restrictions are needed to properly estimate the simultaneous equations model. Explanatory variables introduced in the pocket money equation include both child and parental characteristics. Among those covariates, family income and wealth (here a dummy for home ownership) are expected to enhance the propensity to give money to the child. Conversely, the number of brothers and sisters should have a negative effect as parents have to divide their resources between several children. A priori, both parental resources and number of siblings should not affect the level of effort undertaken by the child. That the amount of parental income plays no role is a prediction of the theoretical model, it will have an indirect effect on effort only via the endogenous transfer variable. In the effort equation, we again introduce both child and parental variables as well as characteristics related to the quality of schooling and teaching. These variables are supposed to have no influence on the parental decision to give money to the child.

5. Empirical results

We first estimate the probability for a child to receive money using a Probit model (Table 1). The main determinant of the transfer receipt is child's age. The older she is, the higher the probability of receipt. The negative sign of the squared term shows that this probability reaches a maximum at about 16. We find no significant role for the child's gender and the number of siblings. While having several siblings tends to reduce the provision of money (as expected given scarce parental resources in that case), this effect is not significant at conventional level. The rank within the sibship has a positive influence, although it is hardly significant (at the 10 percent level)⁵.

Parental characteristics strongly matter. The main result is that more educated parents give more often money to their children, as do wealthier parents. In an altruistic model of transfers, a rich parent is more likely to help the child. The positive effect of parental education may also be the sign that pocket money is part of family human capital investment. Other parental characteristics like age, gender or living conditions (having a partner, being homeowner) have no influence. As shown in Barnet-Verzat and Wolff (2002), the decision to give pocket money is mainly driven by the needs of the child and by the wish to make her more responsible with respect to money considerations. We also introduce in the regression our measure of the child's effort. We find a negative effect when the child attempts to get good marks, but the relationship is hardly significant.

⁴ The log-likelihood of the model is given by a sum of terms involving the bivariate normal distribution function.

⁵ This could be due to the fact that within a family, younger children tend to benefit from the experience of older brothers and sisters in extorting parental money.

We also estimate a Probit equation to study the determinants of child's effort. Young children are much more concerned by the desire to obtain good results at school. Boys and girls behave in the same way, and effort is an increasing function of the number of siblings. The parental level of education has a positive influence on the child's effort. It may be that high educated parents spend more time with their children to inculcate how important are success and effort at school for future job opportunities. We also get positive coefficients when the respondent lives with a partner and is a woman, which may be due to the higher involvement of women in child care.

The educational environment is of great importance when explaining effort. Children going to school considered as very good or good tend to work harder and do more effort. A similar relationship holds with the self-rated quality of the class teachers. As expected, interruptions during the child's homework do exert a negative influence on school effort. Finally, we add in this equation an exogenous dummy variable related to the receipt of pocket money. We find a negative relationship between pocket money and effort, but again the coefficient is not really significant at conventional level.

To overcome the problem of endogeneity, we now turn to the estimation of the simultaneous Probit models (see Table 1). Results from the latent specification framework show that the provision of pocket money is absolutely not significant in the effort equation, while the level of effort undertaken by the child does not influence the generosity of the parent. It is rather difficult from the data to understand why parents decide to give pocket money to the child. As schoolchildren have no personal resources, parents may be tempted to choose between giving money to their children or directly paying for all their personal expenditures. However, parents do not really take effort at school into account.

6. Concluding comments

In this paper, we have investigated the relationship between the provision of pocket money from parents and the level of effort undertaken by the child at school. Using information collected in France on matched child-parent pairs France, our empirical analysis sheds light on the importance of pocket money for schoolchildren. We estimate the relationship between pocket money and effort using a simultaneous model of two Probit equations. Our main result is that there is no significant relationship between pocket money and child's effort. This suggests that children are not really concerned with a trade-off between consumption and effort when being young. While pocket money is only related to short term preoccupations, children certainly know that effort at school will have positive effects all over their life cycle in terms of permanent income.

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Table 1. Probit models and simultaneous equations model of pocket money and child effort

Variables	Probit		Probit		Simultaneous Probit			
	Pocket money		Child's effort		Pocket money		Child's effort	
	coef	t-test	coef	t-test	coef	t-test	coef	t-test
Constant	-3.960***	-3.15	5.977***	4.57	-3.826*	-2.40	5.452***	2.83
<i>Child characteristics</i>								
Female	-0.042	-0.61	0.015	0.20	-0.042	-0.60	0.009	0.12
Age	0.313**	2.12	-0.747***	-4.36	0.300	1.56	-0.697***	-3.05
Age squared (10 ^{e-2})	-0.093*	-1.86	0.221***	3.86	-0.089	-1.44	0.206***	2.83
Number of siblings	-0.049	-1.40			-0.054	-1.53		
Rank	0.001*	1.68	0.000	-0.76	0.001	1.29	-0.000	-0.35
<i>Parental characteristics</i>								
Female respondent	0.335	1.16	0.641**	2.21	0.331	1.09	0.678**	2.06
Age	0.008	1.27	-0.005	-0.84	0.008	1.25	-0.004	-0.55
Lives with partner	0.123	0.45	0.669**	2.42	0.130	0.44	0.683**	2.29
<i>Level of education</i>								
No diploma	Ref				Ref		Ref	
Secondary	0.137	1.36	0.046	0.45	0.141	1.38	0.071	0.56
Baccalaureate	0.260*	1.92	0.156	1.11	0.269*	1.93	0.202	1.00
Graduate studies	0.332**	2.19	0.295*	1.82	0.344**	2.14	0.355	1.44
Postgraduate studies	0.357***	2.58	0.341**	2.44	0.373**	2.47	0.407*	1.66
Parental income (log)	0.113**	2.07			0.104**	2.05		
Home ownership	-0.020	-0.26			-0.037	-0.48		
<i>Scholarship environment</i>								
School considered to be very good			0.564***	3.84			0.560***	3.77
School considered to be rather good			0.291***	3.62			0.285***	3.50
Teachers considered to be the best			0.426**	2.47			0.435**	2.49
Child interrupted during homework			-0.142*	-1.73			-0.143*	-1.74
<i>Parental transfer and effort</i>								
Pocket money – exogenous			-0.118	-1.54				
Child's effort – exogenous	-0.118	-1.50					-0.189	-0.42
Pocket money – endogenous					-0.049	-0.31		
Child's effort – endogenous								
Coefficient of correlation (t-test)							-0.073 (-1.53)	
Number of observations	1380		1380		1380			
Log likelihood	-911.9		-772.3		-1685.2			

Survey INSEE-INED Education 2003.

Note: The dependent variables are respectively the receipt of pocket money from parents and the fact that the child tries to get the best possible marks. The simultaneous model is estimated using a ML method. Significance levels are respectively 1% (***), 5% (**) and 10% (*).

Figure 1. Receipt of pocket money from parents, by child's age and educational level

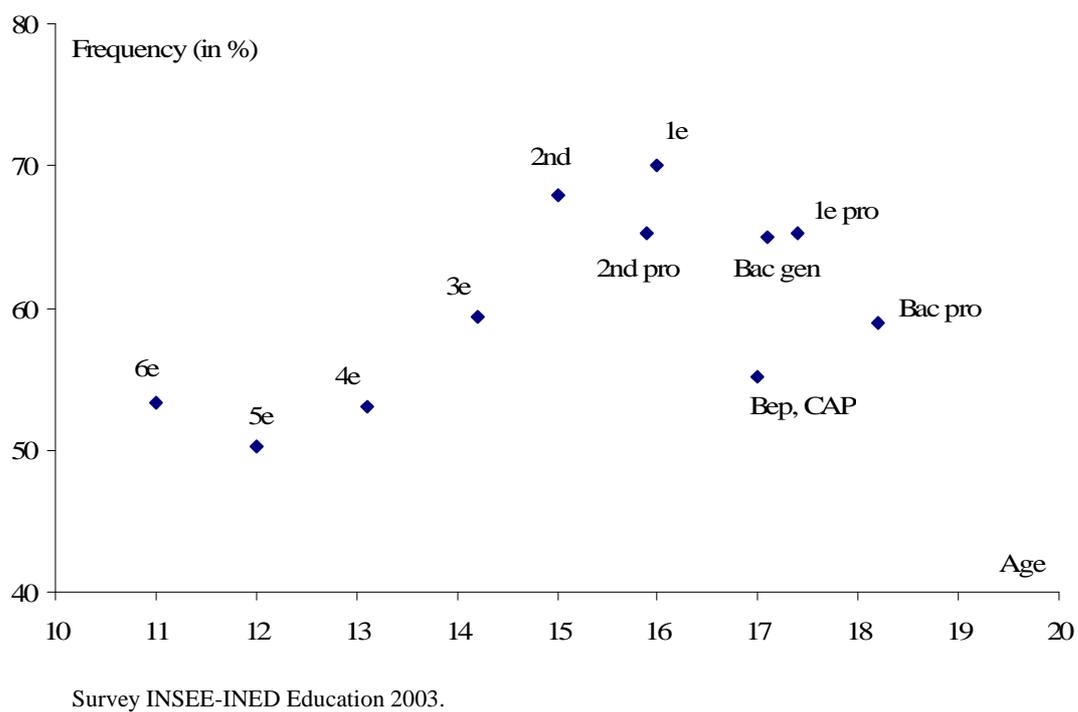


Figure 2. Relationship between effort and pocket money

