"My Father Was Right":[1]

The Transmission of Values between Generations

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Abstract: The influence of parents' savings behaviour on that of their children has often been remarked. This paper attempts to explain this "poids d'Anchise" via a unique French dataset collected by DELTA and TNS-Sofres in 2002, which contains both savings and subjective information for two or three generations of the same family. Parents' and children's risk and discounting preferences are significantly positively intergenerationally correlated. The correlation coefficients are around 0.25, so that the two preferences are nonetheless far from identical. In addition, the elasticity of children's wealth with respect to that of their parents is around 0.22. This correlation is corrected for the influence of age on wealth, and concerns only co-existing generations, that is before the most significant intergenerational transfers have taken place. The analysis of the raw correlations with a series of explanatory variables reveals that over 40% of this elasticity can be explained by the permanent incomes of the two generations. Each of education and preferences separately account for about 20%, and previous intergenerational transfers for about 13%. When permanent income is controlled for, the contribution of savings preferences is around 13%. The transmission of preferences therefore plays a non-negligible role in the intergenerational transmission of wealth inequalities, but is far from being the most important factor.

January 2009

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[1] "My Father Was Right" is the title of a play (and a movie) by Sacha Guitry: "I was like you and you will be like me. My father was right". I would like to thank Amédéo Spadaro for his detailed comments. This paper is part of a research programme on savers' preferences carried out jointly with André Masson.

Are our own values also those of our ancestors? Does reality get mixed up with the etymology of the word patrimony ("goods of the father")? Just how much of our wealth do we "owe" to our parents? In Economics, these very broad questions fed a famous controversy in the 1980s between the "father" of the life-cycle hypothesis, Franco Modigliani, and one of his young colleagues, Larry Kotlikoff (see Kessler and Masson, 1989). The Nobel Prize winner of 1986 put forward the figure of 20% for this correlation, as against that of 80% claimed by his opponent. Commenting on this debate, Blinder (1988) criticised the over-wide definition of inherited wealth used by Kotlikoff (which included in particular all of the cost of education) and noted ironically that in the end all that we are is inherited: "Where would I be without my genes?"

Without going to quite these extremes, this debate did bring up a number of interesting questions about the intergenerational transmission of inequality. Are "Daddy's Boys" just as rich as Daddy?[2] And if they are, what explains this phenomenon? Do well-off parents invest more in the human capital of their children, which education consequently allows the latter to enjoy higher incomes and save more? Do they transfer more wealth directly to their children via donations or inheritance? Does parents' wealth serve as collateral for their children's borrowing, thereby easing capital constraints? Do both generations have the same savings preferences? Answering these questions requires us to both measure and explain the intergenerational correlation in wealth.

Work on the intergenerational transmission of the inequality of wealth remains sparse, and that on the intergenerational instillation of preferences even more so. Consequently, research combining the two is very rare indeed.

In this article, we appeal to data from a unique French dataset collected by DELTA and TNS-Sofres in 2002, in which we have information on both wealth and individual characteristics for two to three co-existing generations. More fundamentally, using a battery of different questions, we are able to measure attitudes with respect to risk and time of both parents and their children, and therefore calculate the similarity across generations with respect to these two savings preferences, and thus evaluate the extent to which this similarity explains the intergenerational correlation in wealth.

The paper is organised as follows. The first section outlines the context in which the article is situated. We then briefly present the survey which allows us to measure savers' risk and time preference using the methodology developed in Arrondel *et al.* (2004). Before considering the intergenerational correlation in wealth, we will take a detour via the same correlation in preferences.

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[2] In Schumpeter (edition of 1972), for example, the rich are characterised by a hotel or a bus "always full, but always full of different people".

I. The intergenerational transmission of wealth inequality: goals and measures

This article contributes to the literature on wealth inequalities and their transfer between generations, as well as the resulting implications for redistributive policies. A key element in this debate is how to measure inequality and its after-effects.

I.1. The contours of the debate

Intergenerational mobility has been the subject of particular controversy for the entire 19th and 20th centuries, with the two extremes being represented by those in favour of a free market, and those inspired by Marxist thought. The former called for substantial social mobility and the equality of opportunity, in order to render the Economy as efficient as possible. The latter argued along the same lines, but in order to fight against the social reproduction of inequality (Piketty, 2000).[3] Many consider this ideological opposition now outdated, and have adopted more moderate positions on the optimal degree of social mobility. Part of the debate has then moved on to the measure of the inequalities in question.

The measure of the transmission of inequality between generations is an old problem. Galton (who invented the term "regression") was already working on the intergenerational transmission of height at the end of the 19th century (1889). The first work on the transmission of resources, carried out for the most part in the United States, most often revealed only a weak correlation between the social status of children and their parents (Blau & Duncan, 1967, Bowles & Gintis, 2002). In the middle of the 1980s, Becker & Tomes (1986) and Berhrman & Taubman (1985) estimated for example that the intergenerational elasticity of income and wages was only around 0.15-0.20.[4] In other words, parents who earned a dollar more than did the average of their generation had children who received at most 20 cents more than the average of theirs. These relatively old estimates, which are thought to suffer from a number of biases, have now been revised upwwards. A recent thorough survey by Mulligan (1997) proposed a figure of 0.68 for the intergenerational elasticity of consumption, with corresponding figures of 0.43, 0.34, and 0.29 for income, wages and number of years of schooling respectively.

In the context of the current paper, we now consider household wealth and its intergenerational transmission.

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[3] Regarding inheritances, Lepage (1985), a noted free-marketeer, wrote that "The great virtue of property and competition is to ensure that scarce resources are permanently directed to those who know best how to use them". Bertaux (1977) is a perfect example of the "socialist" position when he talks of the "financial oligarchy": "When we left Lyon, we had to make sure that we would find a relay with fresh horses every ten leagues. In the same way we can conceive the course of capital over the centuries as a series of stages in which the horses are the capitalists who are ridden by the capital. And their children are the horses of the following".

[4] Becker (1988) affirms as much in his *American Economic Association* presidential address: "…low earnings as well high earnings are not strongly transmitted from father to sons…" (p. 10).

I.2. Wealth: Like Father Like Son?

The empirical literature has appealed to a number of different methods to explain wealth inequalities between households (inequality indices, calibration models, econometrics, and simulation methods, to name just some). At the most basic level, we can contrast macroeconomic quantitative approaches to those of a more microeconomic inspiration.

Most of the macroeconomic work which has tried to calibrate intergenerational models (under uncertainty) based on an initial homogeneous population to recreate the observed distribution of wealth has systematically run into the problem of the richest segment of the population (Castaneda *et al.*, 2003): it is at best difficult, if not impossible, to correctly mimic the top end of the wealth distribution from standard savings theories (*i.e.* the life-cycle hypothesis expanded to include wealth transfers). Nonetheless, if we imagine that individuals do not have the same preferences regarding saving, the gap between the simulated and the real distributions shrinks (Krusell & Smith, 1998).

Along the same lines, micro-econometric work on household wealth accumulation only explains a small part of the dispersion of the latter. In France, for example, the household characteristics put forward by standard savings theory only explain at the most around half of the variance in observed wealth. Again, appealing to agent heterogeneity vis-à-vis saving preferences improves the model fit (Arrondel *et al.,* 2004).[5]

To further develop the explanation of the household distribution of wealth, it may well be useful to back up and consider the influence of parents' savings behaviour on that of their children. Existing empirical work has found a substantial intergenerational correlation in savings behaviours, in a regression framework, with respect to the amount and type of wealth, as well as the transmission of wealth to one's children.

Research on portfolio choice in France, has shown that the probability of owning shares rises by 50% if the individual's parents were also shareholders (Arrondel & Masson, 2003*a*). Equally, individuals are more likely to hold life assurance policies if their parents did so as well (Arrondel & Masson, 2003*b*). Regarding wealth transmission, those who have themselves inherited are more likely to pass wealth on to their children, and the probability of

[5] Americk *et al.* (2003) propose another dimension of preferences – the "propensity to plan" – in order to explain savings behaviours. Venti and Wise (2001) are more radical, proposing to distinguish, in household accumulated savings for retirement, the part that results from factors outside of the household's control (*chance*) from that which results from its own decisions (*choice*), which latter reflects household preferences. The effect of the "chance" factor is evaluated via a regression of wealth on a set of variables which are assumed to represent chance (inheritances and gifts received, but also "demographic" variables in the broad sense of the term: marital status, family composition, health, and so on). These regressions have, unsurprisingly, only limited explanatory power; the unexplained part of wealth (around 85%) is then allocated in its totality to agents' decisions (*choice*). Any interaction between the two types of factors is not taken into consideration. Venti and Wise conclude that: "… the bulk of the dispersion must be attributed to differences to in the amount that households *choose* to save".

writing a will is greater when the individual's parents had written one. Arrondel & Grange (2006) use 19th Century data to show that the transmission of wealth of one Franc over the generational mean is associated with children's transmission of wealth that is 40 to 50 centimes greater than their generational mean. Arrondel & Masson (2006) estimate, from a number of different surveys, that individuals who have received a donation are twice as likely to give one themselves, and that the probability of helping one's children financially is 50% higher for individuals who were gift beneficiaries themselves. The challenge is then to explain these similarities in behaviours between generations: do these reflect the transmission of preferences or of information, financial education, or something else?

In other countries, the empirical literature on intergenerational wealth transmission is more scant, probably due to the lack of suitable data. Harbury & Hitchens (1979) and Menchik (1979) consider the relationship between wealth inheritance and that left to one's children by rich individuals in the UK and the US respectively. They obtain elasticities of 0.50 for the British and around 0.70 for Americans. Mulligan (1997) finds an intergenerational wealth elasticity of 0.32 to 0.43 in American data on co-existing generations, i.e. *before* any transmission of wealth has taken place. Again using American data, Chiteji & Stafford (2000) analyse the intergenerational similarity in portfolios, and Hurst & Lusardi (2004) consider the effect of parents' wealth on the children's probability of becoming self-employed. Both underline the influence of parents on their children's savings behaviour. Knowles & Postlewaite (2005) also find a significant effect of parents' saving on the savings rate of their children.

Last, Charles & Hurst (2003) use a number of different waves of the Panel Study of Income Dynamics (PSID) to estimate that the intergenerational elasticity of wealth, before transmission, of two co-existing generations is 0.37. They also ask whether this similarity comes from the intergenerational correlation of earnings, education, or preferences.

We wish to carry out a similar analysis on French data. Why should we be interested in the wealth profiles of two co-existing generations when we have emphasised the key role played by inheritances in wealth inequality? However, this transmission from parents increasingly occurs at later points in the life cycle (at an average age of 47 in 2000), so that it is of interest to ask if, and if so why, parents and their children show such contemporaneously similar savings behaviour. Does the inheritance of wealth go hand in hand with the inheritance of preferences?

II. The 2002 DELTA-TNS-Sofres Survey: Three Generations of Respondents

The data used in the current analysis were collected in 2002 by DELTA, in collaboration with TNS-Sofres, using a representative sample of households whose head was aged between 35 and 55 (the "Lifestyles and Savings" survey). The originality of this survey, which explains the restriction on the age of the household head, so that they were more likely to have parents who were still alive and independent children, consists in interviewing two generations of the same family (Arrondel & Masson, 2007). The main aim of the survey, using a series of quantitative and qualitative questions, was to measure individual attitudes regarding both risk and time preferences, as well as a number of values and opinions concerning social relations, equity and social justice.

II.1. The "Lifestyles and Savings" Survey and the Constitution of the Parents-Children Survey

The first phase of this survey concerned the main respondents, who were aged between 35 and 55; this produced 2 460 usable responses (out of 4 000 attempted interviews, giving a response rate of 63%).[6] This first phase, apart from its role in collecting survey information, allowed us to identify respondents' parents and children (of which we identified 1 141). Survey information in this first phase covered seven different themes: 1) Work, professional career, and income; 2) Investments and money management; 3) Retirement; 4) The family and intergenerational transfers; 5) Health and the management of health capital; 6) Consumption, leisure and travel; and 7) Other themes. The questions in this survey aimed to collect information on both the socio-demographic and economic characteristics of the household, notably with respect to income and wealth, as well as their preference parameters. An additional advantage of this survey is that it picks up information that is only rarely collected in the French Wealth ("*Patrimoine*") surveys, such as health, religious education, political opinions, and the possession of durable goods.

The second phase of the survey covered the parents and children of the first-phase respondents. This produced information on 199 parents and 241 children (for a response rate of 39%). The questions asked of parents and children in the second phase were identical to those asked of the respondents in the first phase. Table A1 in the Appendix describes the three samples: the respondents aged between 35 and 55, their parents and their children.[7] We

[6] The first phase of this postal survey was carried out between May 14th and July 3rd 2002, and the second phase between the 13th of June and the 22nd of July.

[7] The first-phase respondents are designed to be representative of the French population aged between 35 and 55. They are equally divided by sex, two-thirds are married, one-quarter have the baccalauréat and one-third over the baccalauréat level, and one-third earn less than 14 400 Euros per year. Sixty percent of the respondents' parents (who are aged over 50) were women, and were more likely to be widows or widowers than were the respondents (25% against 2%) and were less educated (18% have education over the baccalauréat level, against 33.7% of first-phase respondents). Children, who were aged under 40, were naturally more likely to be single than were the first-phase respondents, were better educated, but earned less than did the other two generations. Two thirds of those in the children's database were women.

therefore have information on 440 parent-children pairs, which we can use to analyse intergenerational relationships.

Table 1 presents the characteristics of the two generations (parents and their children) in our sample. The children are on average just under 34 years old, while their parents are on average about 59 years old. There is only little difference in household labour earnings: around 26 000 Euros for children, compared to 27 700 Euros for their parents. There is a substantial difference in education between the generations, with children being twice as likely to be graduates as their parents. The gap in wealth between the two generations is also large: over 192 000 Euros for the parents, but less than half of that amount for their children.[8] This naturally reflects the different position of the two generations in the life cycle, notably with respect to housing: around 44% of children own property, as against 68.6% of parents. On the other hand, the rate of risky-asset ownership is similar (30%) across the generations.

II.2 Measuring Preferences: A Scoring Method

The standard theory of saving is that of the life cycle introduced by Modigliani (1986), which assumes the exponential discounting of future utility levels, and relies on expected utility with respect to risk. This theory requires only two preference parameters to explain savings behaviour: risk aversion and time preference (Arrondel & Masson, 2007). In the simplest versions of the model, there is a clear division of labour: the consumption/savings choice depends only on time preferences, which determines the global level of wealth over the life cycle, while risk aversion only affects portfolio choice.

In this theoretical set-up, wealth only serves to smooth consumption over the individual's life cycle (by foresight) and as a precautionary measure in the face of an uncertain future (Kimball, 1990). Generalising the model to allow for intergenerational transmissions makes wealth also depend on the degree of altruism (Becker, 1991).

Starting from the INSEE "Patrimoine 1998" survey, we have developed an original approach to measuring individual risk and time preferences, as described in Arrondel *et al.* (2004) and Arrondel & Masson (2008). This method is based on an individual questionnaire including a wide variety of questions covering different life dimensions (consumption, leisure, health, investments, work, retirement, family, etc.) which take many different forms, from the seemingly superficial (taking an umbrella in case of rain, parking in no-parking zones) to the more traditional (lottery questions), to more serious outcomes (such as health, retirement and the environment). This questionnaire allows us to calculate qualitative scores

[8] Both financial and global wealth were measured in bands in the survey. We have reconstructed continuous wealth values using the method of simulated residuals, first for financial assets, and then, conditional on these assets, for total wealth (Gouriéroux *et al.*, 1987, and Lollivier and Verger, 1989).

for each respondent regarding their attitude to risk, their degree of long-term foresight, and their altruism (with respect to their descendants).

Each of these three preferences is measured by a certain number of questions; some of the latter, more polysemous in nature, apply to more than one preference (for example to both γ and δ, which denote risk-aversion and time preference respectively). The replies to each question are assigned a numerical score (with respect to δ, -1 = lacking foresight, 0 = a middle position, and +1 = provident). The sum of these grades for each individual produces a total score, where this sum is calculated only using the items which, *ex post*, form a statistically coherent whole (according to Cronbach's alpha, which drops the questions that contribute the least to the whole). The resulting qualitative and ordinal scores are "average" measures which summarise the individual's responses to a wide variety of questions.

This methodology has been shown to be both relevant and operational for the measurement of individual preferences and savings behaviour (Arrondel & Masson, 2007). In particular the results have shown that, *ceteris paribus*, the least risk-averse are younger, single, educated, male, high-income, and with parents who were either company directors or self-employed. The far-sighted are older, married with children, and educated. The preference scores are significantly correlated with wealth, in the expected direction: being more prudent (a high value of γ) or more far-sighted (a low value of δ) is associated with greater amounts of wealth, as are higher values of family altruism. Household wealth thus appears in its multi-faceted form: precautionary saving, saving for old age, and saving for one's family.[9]

This preference-measurement methodology via scores is here applied (with fewer questions) to the 2002 DELTA-TNS-Sofres survey (see the Appendix). The set of questions used for the construction of these scores was determined using the first-phase respondents (i.e. those aged between 35 and 55), who constitute a representative sample. As our goal here is to compare the preferences of different generations, the preference scores of children and parents were constructed in the same way as those of the first-phase respondents, without judging their intrinsic coherence (Arrondel & Masson, 2007). The distributions of the different scores across generations are depicted in Figures 1a to 1c.

III. The Transmission of Tastes: "You shall be a saver, my boy"

Economists have only relatively recently turned to the endogeneity of tastes and the dynamics of preferences. Opening this black box is nonetheless of great interest for a number of reasons: to better understand how individual tastes come about (preferences are most often

[9] The decomposition of the distribution of wealth using the Theil indicator reveals that the preference parameters have a joint explanatory power of the order of 10 to 15%, which is greater than that accruing to variables such as social origin, education, household type, town size, and liquidity constraints; only the classic determinants of wealth (age, income, social class, and inheritance) do better.

imposed *ad hoc* in Economics models); and to analyse the phenomena of social mobility and the cultural transmission of inequality.

Cultural transmission would seem to play a key role in the formation of preferences such as risk-aversion, time-preference and altruism. Bisin and Verdier (2005) note that in the Economic literature, this is modelled as a direct transmission via the family ("vertical socialisation" by nature and nurture), and a more indirect transmission via social relations and education ("horizontal and oblique socialisation"). We are here interested in the first of these dimensions.

In the first instance, when we ask households about the financial education that they received from their parents, or that they gave to their children, the great majority confess to a partisan approach to savings attitudes. More than three-quarters of first-phase respondents say that their parents "tried to teach them to spend less and to save more". Symmetrically, more than nine out of ten (93%) say that they themselves frequently encouraged their children to save.

This cultural transmission has not however inspired a particularly large literature. Jellal & Wolff (2002) propose a quantitative analysis of the transmission of cultural characteristics relating to altruism. Knowles & Postlewaite (2005) find that the propensity to plan for the future is transmitted from parents to their children. Charles & Hurst (2003) consider the transmission of risk preferences (using the lotteries in Barsky *et al.*, 1997: see below), and find a statistically significant relationship. Dohmen *et al.* (2006) come to the same conclusion with respect to intergenerational risk-transmission, here measured using the answers to qualitative scales.

Our analysis of the correlation between parents' preferences and those of their children will use the scores described above with respect to risk, time preference and altruism calculated for the three samples: first-phase respondents, their parents and their children. These scores are directly comparable as they have been constructed in the same way using the same questions for the three different generations.

III.1. The Intergenerational Correlation in Savers' Preferences

Tables 2a and 2b present the intergenerational correlation in our three preference scores. These correlations are statistically significant for all of risk, time-preference and altruism attitudes. The correlation seems to be the strongest with respect to risk (0.22), followed by time preference (around 0.15) and altruism (around 0.11). The same hierarchy prevails when we instead calculate rank correlations in Table 2b, which are more appropriate for this kind of variable: this produces values of 0.16 for risk, 0.10 for time preference, and 0.08 for family altruism.

We can refine these estimates by considering only parents and children who themselves have children as well (which gives us roughly 250 three-generational families), which avoids a certain number of endogeneity problems: we might imagine for example that altruistic parents are likely to have more children. The correlations in this restricted sample are much larger, especially with respect to altruism: 0.30 for risk, and 0.19 for time preference and altruism. The rank correlations are also larger (at 0.22, 0.13 and 0.14 respectively). This underlines, particularly for altruism, that the similarity of family situations is essential for the similarity of preferences.

With respect to risk preferences, another more orthodox indicator in the realm of career choice was initially proposed by Barsky *et al.* (1997) in the American "Health and Retirement Survey". This was also asked of all respondents in the DELTA-TNS-Sofres survey. By asking individuals to express their preferences over a series of lotteries over permanent incomes, it is possible to infer their relative risk aversion under certain hypotheses (maximisation of expected utility, temporally additive and isoelastic preferences), or rather to infer intervals in which the parameter γ falls. The protocol consists in repeatedly asking the respondent if she would renounce her current income (which is supposed to be her permanent income) in favour of alternative contracts which appear as lotteries: with a 50% chance of doubling her income, and a 50% chance of having it cut by one third (contract *A*), by one half (contract *B*), or by one fifth (contract *C*). Contract C is therefore the most advantageous, followed by contracts A and then B.[10]

Table 2c presents the distributions of the responses to this question across the two generations. We can immediately see that children are bolder than their parents, reflecting an age effect on risk attitudes that is often found in different circumstances (Arrondel *et al.*, 2004). Table 2c also shows the correlation between the lottery responses given by parents and their children. Charles & Hurst (2003) obtain a positive correlation in American households, but only for the children of parents who are particularly risk-loving: these children are effectively less likely to be risk-averse, and more likely to be tolerant of risk. Contrary to this finding, our data reveal no statistically significant correlation, even after correcting for the difference in age, between the risk-aversion of the two generations.[11]

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[10] Relative risk aversion is less than 1 if the individual successively accepts contracts *A* and *B*; it is between 1 and 2 if she accepts *A* but refuses *B*; between 2 and 3.76 if she refuses *A* but accepts *C*; and finally greater than 3.76 if she refuses both *C* and *A*.

[11] This measure of relative risk aversion has been subject to a number of criticisms (See Arrondel & Masson, 2008). The choice between different contracts may be too complicated and abstract for some respondents (the non-response rate is about 10% for this question). Further, the replies given will likely depend on the individual's wealth: *ceteris paribus*, greater wealth provides greater protection against misfortune, and allows the individual to take greater risks over their income; but at a given level of wealth, riskier portfolios make certain income levels more attractive.

III.2. The Intergenerational Elasticity of Savers' Preferences

In order to establish more precisely the intergenerational correlation in preferences, we carry out a number of regressions on the child's preference score, using that of the parents as a an explanatory variable. With a logarithmic specification, the estimated coefficient directly provides us with an estimate of the elasticity of children's preferences relative to those of their parents (See Tables 3a and 3b).

In a first series of regressions, we look at the relationship between the two generations' preference scores, only controlling for children's and parents' ages.[12] As preferences evolve systematically with age, we need to calculate our intergenerational transmission conditional on both respondents' ages. The second set of regressions then also controls for permanent income and education in both generations.

With respect to risk attitudes, the correlation between children's' and parents' scores is 0.25. This implies that the child of a parent who has the maximum risk score (+15) will have a risk score that is five and a half points higher than the child of a parent with the greatest risk-loving score (-7). The estimated elasticity is around 0.19, so that a parent who has a risk score one unit higher than the mean of his generation has children who have risk scores that are on average 0.19 units higher than the average score of the children's generation. Within three-generation families, this elasticity is somewhat higher, at around 0.24. These figures are not greatly affected by the introduction of other parents' or children's characteristics (such as income or education), even though the explanatory power of the regression increases.

The correlation between parents' and children's time-preference scores is somewhat lower (at 0.17): the child of a parent who is very improvident (with a score of +8) will have a time-preference score that is three points higher than a child of a far-sighted parent (with a score of -9). The elasticity of children's scores relative to those of their parents is 0.13. We can also see in this regression that a larger difference in age between parents and their children negatively affects the child's time preference score, so that a greater age gap reduces the parent-child preference elasticity. For example, this elasticity is 0.15 if the parents are 20 years older than their children, but only 0.12 when the gap is 30 years. This elasticity is higher for three-generation families (0.19). The elasticities are only little reduced by the introduction of other control variables, although again the explanatory power of the regression rises (increasing by a factor of two).

Last, concerning family altruism, the impact of parents' attitudes, perhaps surprisingly, seems somewhat weaker, notably relative to that for time preference. The estimated value of the coefficient on parents' preferences is 0.10: very altruistic parents (with a score of +12) have children with altruism scores two points higher than parents who are very egotistical

[12] Section IV describes how age and other variables are controlled for (in equations 1 and 2).

(with a score of -10). In elasticity terms, a parent with an altruism score one point over the mean for their generation has children with altruism scores that are 0.07 points higher than the mean of theirs. Again, the age difference between the two generations mitigates the intergenerational link in altruism: this is 0.10 for young parents (with an age gap of 20 years) and 0.06 for older parents (with a 30-year age gap). When we restrict the sample to children who themselves have children, the elasticity between the parents' and the children's scores is significantly larger, at 0.13. Controlling for the difference in ages, we obtain a score of 0.16 for the 20-year age gap and 0.13 for the 30-year age gap. As before, a greater age gap between parents and their children weakens the similarity in their preferences. The introduction of other characteristics (such as income and education) as control variables does not change these results qualitatively.

We therefore have strong evidence of a preference correlation between parents and their children. This correlation seems larger for risk attitudes (where the intergenerational elasticity is between 0.19 and 0.26) than for time preferences (between 0.12 and 0.19) and particularly than for altruism (between 0.07 and 0.14). It is of interest to compare these figures to those for the intergenerational correlation in other characteristics. These are presented in Table 4.

Controlling for the difference in age, the intergenerational elasticity of labour income is 0.27 and that of household permanent income 0.17.[13] Having a parent who is a graduate increases the probability that the child be a graduate by 17.4 percentage points (relative to the average probability of 57%), with an analogous figure for a post-graduate degree or having attended a "grande école" of 16.6 percentage points (relative to the average probability of 9%). The probability that the children hold risky assets is also 19.4 percentage points higher if their parents hold them too (relative to the average figure for holding risky assets of around 30%). This correlation is reduced, but is still significant (at 14.5 percentage points), when we also control for the differences in permanent income and education between the two generations. Home ownership also seems to be transmitted from parents to children, being around 14.4 percentage points higher for the children when their parents own their own homes (controlling for age, permanent income, and education).

The intergenerational elasticity of wealth between parents and their children is around 0.22. This figure, which is lower than those often found in the literature, can be explained by the fact that we observe both generations at the same date, and therefore at very different positions in the life cycle, and in particular before any inheritances are received.[14] Arrondel &

[13] The way in which household permanent income is constructed is explained below.

[14] The "3 generations" survey of the CNAV in 1992 is the only French database which allows us to make this comparison. This survey covers one thousand families with three coexisting generations, with the key respondent aged between 49 and 53, where each generation (parents, key respondents, and their children) were separately interviewed (see Attias-Donfut, 1995). We thus have the same information for three different cohorts, notably regarding their wealth. For the key respondents and their parents, (1 213 observations, with the parents being aged between 66 and 94), the intergenerational elasticity of wealth (correcting for the difference in age) is only

Grange (2006) note that at that time of death (and thus at the time of inheritances) the elasticity between the wealth of sons and their fathers is much higher, at around 0.45. The same phenomenon can be observed in the US: Charles & Hurst (2003) produce a figure of 0.37 for the intergenerational elasticity of wealth between two coexisting generations, while Menchik (1979) calculates the same figure to be around 0.70 comparing the estates of children and their parents.

We now turn our attention to the nature of this wealth relationship between generations, to try to explain why parents and their children have similar wealth profiles over the life cycle.

IV. The Wealth Correlation between Generations

As noted above, Charles & Hurst (2003) obtain a figure of 0.37 for the intergenerational elasticity of wealth between two coexisting generations, controlling for their difference in age. Around half of this elasticity is explained by the simple correlation with permanent incomes of parents and their children. The analogous figure for the composition of the wealth of the two generations, which is supposed to represent their savings propensities, is about one-third of the elasticity.[15] Controlling for both variables at the same time explains two-thirds of the correlation in wealth between parents and children, with other variables (such as education, and past and future transfers) contributing much less.

Charles and Hurst then ask how the remaining third of the correlation can be explained, and consider that it in part represents individual preferences. They appeal to a sub-sample of their data for which they have relative risk-aversion scores for the parents and their children using the approach of Barsky *et al*. (1997) described above. However, these risk preferences only explain a very small part of the intergenerational elasticity.

In this section we carry out the same analysis as Charles and Hurst on French data which contains a much wider variety of preference information. These measures, particularly with respect to risk, will be shown to be more relevant to wealth behaviours than those derived uniquely from the approach in Barsky *et al*. (Arrondel & Masson, 2008).

0.13. For the key respondents and their children (1 322 observations, with the children being aged between 19 and 36), who are closer in age to our sample, this elasticity is 0.16.

[15] It is possible that correlation between wealth composition and the intergenerational elasticity reflect reverse causality, as portfolio choice theory suggests that the composition of wealth depends on the level of wealth. In order to evaluate the importance of preferences in determining wealth, it may well be preferable to have a direct measure of the former, as is our case here.

IV.1. The Intergenerational Elasticity of Wealth

To calculate the wealth elasticity between parents and children (corrected for age effects), we estimate the following regression:[16]

$$W_f = \alpha + \beta_1 W_p + \alpha_{1f} age_f + \alpha_{2f} age_f^{\,2} + \alpha_{1p} age_p + \alpha_{2p} age_p^{\,2} + \varepsilon_f \qquad (1)$$

where W_f and W_p are respectively the logarithms of household wealth for the child (*f*) and the parent (*p*), age_f, $age_f^{\,2}$, age_p and $age_p^{\,2}$ are quadratic terms in age for the parent and the child, and ε_f corresponds to the error term.

The OLS estimation of equation (1) produces an elasticity of children's wealth relative to that of their parents of 0.22, with an associated t-statistic of over 4.5. Parents who have wealth 1% greater than the mean of their generation have children with wealth 0.22% greater than the mean of theirs. The explanatory power (R^2) of this regression is 23%, so that the correlation between the wealth of parents and children, corrected for age effects, is 0.49. This means that parents' wealth explains one quarter of the variation in their children's wealth, once the difference in age is taken into account. Consequently, three-quarters of the variation in children's wealth must be explained by other factors.

The same conclusion can be inferred from the intergenerational wealth mobility matrix once age effects are controlled for, as shown in Table 5.[17] Here 37% of parents in the first quartile of the wealth distribution have children in the same wealth quartile. However, this similarity is by no means inevitable: 22% of children of the poorest parents end up in the top quartile of the wealth distribution. Equally, 31% of "rich kids" are also rich themselves, but the mirror image of this social climbing is the 16% of rich kids who end up in the lowest quartile of the wealth distribution.

IV.2. The Constituents of the Intergenerational Elasticity of Wealth

To evaluate the factors behind the intergenerational correlation in wealth detailed above, we re-estimate equation (1) including, for parents and their children, a number of other individual characteristics, included in the *X* vector below:

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[16] Equation (1) results from the functional form that we hypothesise between the level of wealth, W, and the life-cycle position, $f(age)$. If we imagine that each generation's wealth is described by a quadratic relationship in age, $W = W' + \alpha_1 \hat{a}ge + \alpha_2 \hat{a}ge^2 + \varepsilon$, where W' denotes wealth corrected for age effects, it is then easy to show that the correlation between W'_f and W'_p is described an equation such as (1). Alternative functional forms were tested (such as third-degree polynomials), and produced similar qualitative results to those in Table 6.

[17] We construct this mobility matrix by estimating a wealth equation as a quadratic function of age for each generation. The residuals from these regressions represent wealth levels corrected for age. We then cut these residuals up into quartiles; the intersection of the distribution of quartiles produces Table 5.

$$W_f = \alpha + \beta_2 W_p + \alpha_{1f}\hat{a}ge_f + \alpha_{2f}\hat{a}ge_f^{\,2} + \alpha_{1p}\hat{a}ge_p + \alpha_{2p}\hat{a}ge_p^{\,2} + \delta_f X_f + \delta_p X_p + \varepsilon_f \qquad (2)$$

These parental variables will likely influence children's wealth via the intergenerational correlations in variables other than wealth. These are the correlations that we described in the previous section.

The relationship between the elasticity in the simple model (1) and that including other explanatory variables (2) can be written as:

$$\hat{\beta}_1 = \hat{\beta}_2 + \hat{\delta}_f \hat{\rho}_{W_p X_p} + \hat{\delta}_p \hat{\rho}_{W_p X_f} \qquad (3)$$

where the coefficients $\hat{\rho}_{W_p X_p}$ and $\hat{\rho}_{W_p X_f}$ denote the relationships (estimated by OLS) between parental wealth and the other explanatory variables for parents and children respectively. Equation (3) assumes that the other correlations between the explanatory variables are zero.

For example, if the income of parents is positively correlated with the wealth of both the parents and that of their children, then the size of the intergenerational elasticity will fall once parents' income is controlled for in the regression.[18] If the introduction of parent characteristics produces a value of β_2 that is lower than that of β_1, we can conclude that these parental characteristics explain part of the "crude" intergenerational elasticity estimated in equation (1).

We also introduce a number of characteristics of the children which are likely to affect their wealth, such as education. If these child variables are correlated positively (negatively) with their parents' wealth, then the size of the estimated elasticity will fall (rise), and we can again evaluate the portion of the intergenerational elasticity which is explained by individual characteristics.

The variables included in equation (2) for both generations are permanent income, education, and preferences over risk and time, as well as any *inter vivos* donations already given by the parents. These four characteristics are key in explaining savings behaviour in standard theory (see above). To what extent do they explain the intergenerational correlation in wealth?

Wealth may simply be transferred from parents to children, which is why we control for donations in equation (2). As we do not measure the exact amounts transferred, we include a simple dummy variable for such transfers having taken place.

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[18] It is entirely possible that the intergenerational wealth elasticity in equation (2) be higher than that in equation (1). This depends entirely on the sign of the direct and indirect effects of the variables on children's wealth in equation (3). For example, if parents' income increases their own wealth positively but reduces that of their children, then β_2 will be greater than β_1.

The introduction of the permanent income of parents and children in this equation picks up a number of different phenomena. The first is a direct effect of the child's human capital on her savings rate. Further, under an imperfect capital market, the permanent income of parents may allow them to guarantee their credit-constrained children's loans. Last, the intergenerational correlation in income may also reflect the transmission of certain work-related values.

Parents and children may therefore have similar wealth profiles due to similarity in their preferences which act on the three principal causes of savings: consumption-smoothing over the life cycle, as a precaution in the face of uncertainty, and wealth transmission to one's children. The previous section showed that these preferences seem to be at least partly inherited from one's parents.[19]

Permanent labour income for each generation is calculated from a labour income regression including a number of socio-economic control variables: age, education, social class of the household head, town size, marital status, expectations of future household income, and income risk.[20] Education is measured in six levels: primary, secondary, baccalauréat, graduate, and post-graduate or grandes–écoles.

Table 6 decomposes the intergenerational wealth correlation into its constituent parts. The first column presents the value of the elasticity between the wealth of parents and their children, estimated from equation (2) and controlling for a number of other parent and child characteristics. The second column then shows the percentage of the elasticity which is explained by the different control variables. The third column lists the additional percentages explained by the control variables after controlling for the difference in age and permanent income between the generations. Finally, the variance explained by the different specifications is shown in column 4.

As noted above, the estimation of equation (1) produces a value for the intergenerational elasticity of wealth, before inheritances and controlling for the difference in age, of 0.217. This figure appears at the top of column 1. Controlling for the permanent income of both parents and children in equation (2) reduces this figure by over 40%, to 0.125. The intergenerational correlation in wealth therefore picks up something more than just correlations in lifecycle resources.

In line 4 of Table 6, controlling for parents' and children's education reduces this elasticity to 0.171, which is a drop of 21.2% (as shown in column 2). This lower elasticity

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[19] Note that we assimilate household preferences to those of the individual respondent. Previous work has shown (Arrondel & Masson, 2008) that the correlation in savings preferences between partners is relatively strong (at around 0.40).

[20] As labour income is measured in bands, we use ordered probit estimation, from which we calculate predicted values.

value could reflect the correlation between parents' wealth and the education of both the parents and their children. Line 5 shows that pre-existing donations explain 13.4% of the elasticity. Last, controlling for the preferences of both parents and children reduces this elasticity figure to 0.174, which represents a fall of about 20% from the initial figure.

To evaluate the way in which these different variables affect the intergenerational wealth elasticity, it is useful to distinguish their direct effects from any indirect effects that work through permanent income. This is what we do in the bottom panel of Table 6. For example, the first line of this bottom panel shows the joint effect of age, permanent income and education. The last two variables explain 48% of the intergenerational correlation in wealth. By comparing the figure when age, education and permanent income are controlled for to that when only age and permanent income are controlled for, we can see that elasticity drops from 0.125 to 0.113. As such, independently of its effect on permanent income, education explains about 5% of the elasticity (see column 3). The majority of the previous effect of education then works via permanent income. By way of contrast, the effect of pre-existing donations and preferences remain substantial even after permanent income is controlled for, with each explaining around 13% of the elasticity.

The last line of Table 6 shows what happens when we include all of the explanatory variables at the same time. The intergenerational elasticity of wealth drops to 6%, suggesting that most of the observed correlation is picking up permanent income, pre-existing donations, education, and savings preferences. The one-quarter of the effect that remains thus reflects other transmission mechanisms (although it is worth noting that this "residual" correlation is no longer significantly different from zero).

V. Conclusion

The influence of parents' wealth on that of their children has often been noted, even controlling for observable individual characteristics. This "poids d'Anchise" has been documented in both the riskiness of portfolios and the demand for life insurance policies, as well as in the amounts of wealth passed on in different ways (gifts, donations, inheritances). Explanations of these intergenerational correlations have appealed to the intergenerational transfer of information or financial education, or of attitudes towards saving.

Empirical tests of these different hypotheses are scarce, due to the lack of suitable data. We require information on the savings behaviour of both parents and their children. In addition, testing the intergenerational transmission of preferences necessitates data on both wealth and preferences across two generations, which is rarer still. In this article, we are able to use data which contains just this information: an original French dataset collected by DELTA and TNS-Sofres in 2002, in which we have wealth and preference information for a sample of parents and their children.

The risk-aversion and time preference of parents and their children are indeed significantly correlated, but far from perfectly so: the preference elasticities of children with respect to those of their parents are around 0.15 for time preference and family altruism, and 0.25 for risk-aversion.

The analogous wealth elasticity in this sample is around 0.22. This figure is corrected for the differences in age, and reflects the wealth of two co-existing generations, i.e. before the greatest part of wealth transmission takes place. This latter explains the relatively small value of this elasticity, compared to that of legacies (which is around 0.45).

Over 40% of this wealth elasticity is explained by the simple correlation with the permanent incomes of the two generations. Introduced one at a time, education and preferences each account for one-fifth, and pre-existing intergenerational transfers for 13%. The contribution of savings preferences is estimated to be around 13% once permanent income is controlled for. The similarity of savings preferences thus represents a non-negligible part of the similarity of wealth between generations. However, it is far from being the only cause of this similarity, and previous work which has appealed to (unobserved) similarities in tastes across generations may have oversold their explanatory power. The root of the main part of intergenerational wealth transmission does not lie in the similarity of preferences.

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Appendix: The measure of risk and time preferences

We here briefly present the method used to construct the scores in the 2002 DELTA-TNS-Sofres survey. The list of questions used to construct these scores was the same for the first-phase respondents (aged between 35 and 55) and both their parents and their children.

A1. Risk Attitudes

We have 32 questions in the survey to measure risk attitudes, of which 27 were deemed to be pertinent for the first-phase respondents using Cronbach's alpha (Arrondel & Masson, 2007). In the construction of the risk score for this sample (Arrondel & Masson, 2007, Appendix F), the most pertinent question turned out to be that on taking precautions in case the weather turned out nasty (55.9% of this sample took such precautions: see Table A2). Immediately following this in importance were questions on gambling (one-armed bandits and the casino). Buying plane or train tickets well in advance was also correlated with the risk score (19.3 % of the sample do so, whereas 8% buy them at the last minute). Other significant questions are the desire to inculcate either risk-taking or prudent attitudes in young children (2.6% of the sample incite them to take risks), parking in no-parking zones (61.7% never do so, and 10.6% do so sometimes).

The value of Cronbach's alpha for these questions is 0.51. This score thus exhibits an acceptable degree of consistency, even though some psychometricians would find this value low. Arrondel & Masson (2008) show that Cronbach's alpha is only one of a number of validity scores for preference measures, and that the scoring method should also meet other criteria (principal components analysis, déterminants des scores, pouvoir explicatif des mesures...). They also note that the relative weakness of Cronbach's alpha scores partly reflects the multidimensional nature of the risk score (both day-to-day choices and fundamental long-term choices), which multidimensionality is however essential for the explanation of savings behaviours.

Theoretically, the maximum score for someone who is risk-averse is +23, and the minimum score for a risk-lover is -29. In our survey, the observed values for this score are found between -13 and +14 for the first-phase respondents, between -5 and +17 for their parents, and between -10 and +13 for their children. The distribution of risk scores for the three generations is presented in Figure 1a. Unsurprisingly, younger generations are more risk-loving than older generations. The mean risk score is 4.0 for the first-phase respondents (with a median value of 4), as against 3.2 for their children (3), and 6.2 for their parents (6).

A2. Time Preference

For time preference, 16 questions out of the initial set of 18 (see Table A3) were retained. For first-phase respondents, the questions covering long-term and family concerns were the most important for the construction of this score (Arrondel & Masson, 2007, Appendix F): sensitivity to

environmental problems, (79.2% say that they are), the desire to inculcate savings attitudes in one's children (which we find in 91% of respondents), and having received such an education from one's own parents (75.4% say that their parents gave them such a savings education). Also important, but less so, were the fact of buying plane or train tickets in advance (19.3% do so well in advance, and 20.1% arrive well before their plane or train), Achilles' dilemma (9.6% prefer a sacrifice today in order to live longer, 9.5% want to enjoy life today, and the rest are somewhere between these two extremes), and a healthy life by playing sports (25.9% play regularly, but 54.4% never play). The Cronbach's alpha score for these questions is 0.40.

The maximum score that an individual can obtain is +15, and the minimal value for someone who is a long-term planner is -11. The distribution of these time-preference scores is shown in Figure 1b. This score varies between -10 and +13 for first-phase respondents, from -9 to +6 for their parents, and from -7 to +7 for their children. There is no particularly striking generational difference in the distribution of time-preference scores: in particular the average values of these scores are not significantly different by generation (-1.12 for the children, -1.53 for first-phase respondents, and 1.27 for the children).

With respect to altruism, the maximum score for the most altruistic individual (from the seven questions retained from the eight initial questions)[21] is +12, and the minimum value is -12 (See Table A4). The distribution of these altruism scores is shown in Figure 1c. The recorded values of this score vary between -12 and +11 for first-phase respondents, between -9 and +12 for their parents, and between -10 and +9 for the children. The figures show that it is the parents who are the most altruistic: over 30% of them have a score of over 3, against 20% of their children. The same pattern is observed in the average altruism score, which is 0.11 for children and the first-phase respondents, but 0.99 for the parents.

[21] Given the relatively restricted number of questions available to create this score, the altruism measure is sometimes coded over five values only (from +2 to -2). The questions used to create this score are described in Table A4.

Table 1

The Parents-Children Sample

Variables	**Children**	**Parents**
Age	33,79	58,88
Labour Earnings (Mean)	25974,42	27652,00
(Standard Deviation)	(14 294)	(14 972)
Baccalauréat or more (%)	56,80	28,60
Higher Education (%)	9,30	5,90
Wealth (Mean)	81417,00	192221,76
(Standard Deviation)	(159 291)	(588 118)
Financial Wealth (Mean)	14565,37	43284,00
(Standard Deviation)	(42 290)	(111 976)
Home Owners or Buyers (%)	43,90	68,60
Percentage Holding Risky Assets	30,50	27,70
Number of Observations	440,00	

*Source: DELTA-TNS-Sofres Survey,*2002

Table 2a

The intergenerational correlation in preference scores

	Risk-aversion	Time Preference	Family altruism
Parents and Children	**0,22**	**0,15**	**0,11**
Three-generation families	**0,30**	**0,19**	**0,19**

Correlations which are significant at the 5% level are in bold.

Source: The 2002 *DELTA-TNS-Sofres* Survey

Table 2b

The intergenerational correlation in preference scores

	Risk-aversion	Time Preference	Family altruism
Parents and Children	**0,16**	**0,10**	**0,08**
Three-generation families	**0,22**	**0,13**	**0,14**

Correlations which are significant at the 5% level are in bold.

Source: The 2002 *DELTA-TNS-Sofres* Survey

Table 2c

Relative risk-aversion of parents and their children

	Relative risk-aversion of parents (%)					
Relative risk-aversion of children (%)	Very Weak	Weak	Medium	Strong	*Total*	*Total (%)*
Very Weak	16,7	9,5	5,2	7,8	**28**	8,2
Weak	27,8	26,2	23,7	25,3	**86**	25,2
Medium	22,2	40,5	32,0	30,1	**106**	31,1
Strong	33,3	23,8	39,2	36,7	**121**	35,5
Total	**36**	**42**	**97**	**166**	**341**	100,0
Total (%)	10,6	12,3	28,4	48,7	100,0	

Note: The χ^2-statistic is 8.83 with 9 degrees of freedom (critical value = 0.45).

Source: The 2002 *DELTA-TNS-Sofres* Survey

Table 3a

The elasticity of children's preferences relative to those of their parents (corrected for differences in age)

	Risk-aversion	Time Preference	Family altruism
Parents and Children	**0,193**	**0,132**	*0,073*
Standard Error	(0.048)	(0.053)	(0.043)
R^2 (%)	4,8	4,5	2,9
Three-generation families	**0,238**	**0,185**	**0,128**
Standard Error	(0.062)	(0.074)	(0.061)
R^2 (%)	9,0	8,8	3,6

The elasticities which are significant at the 5% level are in bold; those significant at the 10% level are in italics. These correlations take into account the correction for age.

Table 3b

The elasticity of children's preferences relative to those of their parents (corrected for differences in age, education and permanent income)

Parents and Children	**0,196**	**0,120**	0,066
Standard Error	(0.049)	(0.055)	(0.046)
R^2 (%)	6,0	9,0	5,8
Three-generation families	**0,255**	**0,148**	**0,127**
Standard Error	(0.063)	(0.076)	(0.063)
R^2 (%)	13,6	18,7	9,3

The elasticities which are significant at the 5% level are in bold; those significant at the 10% level are in italics. These correlations take into account the correction for age, education and permanent income.

Source: The 2002 *DELTA-TNS-Sofres* Survey

Table 4

The intergenerational correlation in income, education, wealth and portfolios

Dependent variables (for children)	*Estimated coefficient on the corresponding variable for the parents (standard error)*
Wealth (in log, controlling for age)	0.217 (0.046)
Labour income (in log, controlling for age)	0.270 (0.049)
Permanent income (in log, controlling for age)	0.170 (0.047)
Education higher than the Bac (binary variable, controlling for age)	0.174 (0.053)
Post-graduate education or Grandes-Ecoles (binary variable, controlling for age)	0.166 (0.061)
Holding risky assets (binary variable, controlling for age)	0.194 (0.047)
Holding risky assets (binary variable, controlling for age, education and permanent income)	0.145 (0.050)
Homeowner (binary variable, controlling for age)	0.144 (0.045)
Homeowner (binary variable, controlling for age, education and permanent income)	0.137 (0.046)

Note: This table shows the results of regressions of the child's characteristic, using the parent's value of the same characteristic as an explanatory variable. All regression include quadratic terms in age for both children and their parents. The wealth and income regressions are estimated by OLS; the other (binary) variables are estimated via linear probability models.

Source: The 2002 *DELTA-TNS-Sofres* Survey

Table 5

The intergenerational wealth mobility matrix (corrected for age effects)

Quartiles of children's wealth corrected for age	*Quartiles of parents' wealth corrected for age*			
	1st quartile	**2nd quartile**	**3rd quartile**	**4th quartile**
1st quartile	37	28	18	16
2nd quartile	23	28	26	23
3rd quartile	17	24	29	30
4th quartile	22	20	27	31
Total	100	100	100	100

Note: These figures are corrected for age via log wealth regressions including age and age-squared as explanatory variables. The residuals from this regression correspond to wealth corrected for life-cycle effects; these residuals are then split up into quartiles, and crossed with the analogous measure for the other generation.

Source: The 2002 DELTA-TNS-Sofres Survey

Table 6
Decomposing the intergenerational elasticity of wealth

	Estimated elasticity (standard error)	**Percentage of the elasticity explained (%)**	**Additional percentage of the elasticity explained (%)**	**Adjusted R^2**
Wealth elasticity controlling for age	0.217 (0.046)			0,229
Wealth elasticity controlling for age and:				
Permanent income	0.125 (0.051)	42,4		0,332
Education	0.171 (0.049)	21,2		0,248
Pre-existing donations	0.188 (0.047)	13,4		0,260
Preferences (risk aversion, time preference and altruism)	0.174 (0.048)	19,8		0,266
Wealth elasticity controlling for age, permanent income and:				
Education	0.113 (0.052)	47,9	5,4	0,332
Pre-existing donations	0.095 (0.051)	56,2	13,8	0,346
Preferences (risk aversion, time preference and altruism)	0.096 (0.052)	55,8	13,4	0,348
Wealth elasticity controlling for age and all other variables.	0.059 (0.052)	72,8		0,372

Source: The 2002 DELTA-TNS-Sofres Survey

Table A1

Structure of the samples

	First-phase respondentss	*Their Parents*	*Their Children*
Sex			
Male	49,7	40,0	38,0
Female	50,3	60,0	62,0
Age			
Under 25			26,3
25-29			44,9
30-34			24,1
35-39	29,2		4,8
40-44	26,6		
45-49	18,6		
50-54	25,4	1,5	
55-59		6,3	
60-64		21,5	
65-69		28,3	
70-74		22,0	
74-79		15,2	
80 or over		5,2	
Marital status			
Married	62,3	64,7	35,2
Living as a couple	10,0	1,6	30,1
Single	16,0	2,1	32,2
Divorced	9,8	6,8	2,5
Widowed	1,9	24,7	
Education			
No education	0,2		
Primary education	4,7	29,3	
Secondary education	4,8	11,2	0,8
Professional education	34,0	20,7	16,0
Baccalaureat	23,6	21,3	27,9
Graduate studies	11,8	4,3	18,1
Post graduate studies (first degree)	7,0	4,3	9,3
Post graduate studies (second degree)	7,3	4,8	20,3
Post graduate studies (third degree)	6,6	4,3	7,6
Individual income			
Less than 14 400 € (less than 96 000 FF)	33,6	39,7	50,9
From 14 400 to 18 299 € (96 000 to 120 000 FF)	24,6	17,3	27,4
From 18 300 to 27 399 € (121 000 to 180 000 FF)	25,8	22,4	15,0
From 27 400 to 36 499 € (181 000 to 240 000 FF)	9,9	13,4	5,6
From 36 500 to 45 699 € (241 000 to 300 000 FF)	3,1	4,5	0,9
45 700 € or more (300 000 FF or more)	3,0	2,8	0,4
Number of observations	2 460	199	241

Source: The 2002 DELTA-TNS-Sofres Survey

Table A2

A. Response frequencies and score construction for the first-phase respondents: risk-aversion

Nature of the question	Rank in the score	Risk-loving (%) (-)	Risk-averse (%) (+)	Neutral (%)
Consumption/leisure/travel				
SR73: Parks in no-parking zones (Yes = -1; No = +1; Other = 0)	**6**	**27,7**	**61,7**	**10,6**
Health/health risks/life expectancy				
SR57: Precautionary visits to the doctor or dentist (Yes = +1; No = 0)	14	38,2	60,2	
SR68: Non-compulsory vaccinations (No = -1; Yes = +1; Other = 0)	27	15,8	41,0	43,2
SR70: Wears seatbelt, respects speed limit (No = -1; Yes = +1; Other = 0)	12	2,1	12,2	85,7
SR71: Sacrifice today in order to live longer (No = -1; Yes = +1; Other = 0)	7	9,5	9,6	80,9
SR61: Careful to keep in shape (No = -1; Yes = +1; Other = 0)		8,8	7,9	83,3
SR69e: Booster vaccination for ones children (Yes = 0; No = -1)	24	5,0	95,0	
Work/income/career				
SR4: Looks for novelty and responsibility in a job (Yes = -1; Other = 0)	17	19,4	80,6	
SR3a: Has taken risks in their career (Yes = -1; No = 0)	13	37,3	62,7	
SR3b: Leisure behaviour represents a potential risk for career (Yes = -1; No = 0)	20	9,5	90,5	
SR3c: Risky job changes (Yes = -1; No = 0)	10	30,7	69,3	
SR15: Recommends that friends and family take risks in their careers (Yes = -1; No = +1; Other = 0)	11	8,8	7,9	83,3
SR8: Would change economic sector in the face of substantial economic risk	15	50,0	50,0	
Retirement				
SR30: Worried that might end their life in a retirement home (Yes = +1; No = 0)	26	66,5	33,5	
SR32: Saves in order to avoid ending their life in a retirement home (Yes = +1; No = 0)	23	78,5	21,5	
SR33: Would prefer lower social security contributions against a less generous pension (Yes, without precautionary saving = -1; No, too risky = +1; Other = 0)	22	1,4	28,7	69,9
Family/Intergenerational Transfers				
SR42a: "Marriage is an insurance policy" (No = -1; Yes = +1; Other = 0)	16	17,4	13,7	68,9
SR42b: "Choosing a partner is risky" (No = -1; Yes = +1; Other = 0)		4,9	23,1	72,0
SR42c: "You can't sign up for marriage without testing it first" (No = -1; Yes = +1; Other = 0)		8,5	24,4	67,1
SR42d: "Having children is an insurance policy for ones old age" (No = -1; Yes = +1; Other = 0)		80,2	19,8	
SR42e: "The decision to have children is a risky one" (No = -1; Yes = +1; Other = 0)		18,5	12,7	68,8
SR42f: The decision to have children is a lifelong commitment (No = -1; Yes = 0)	25	5,0	95,0	
SR43: Wishes to protect their spouse financially in case of their own death (No = -1; Yes = 0)	21	6,8	93,2	
SR45a: Constantly keeps watch over their children (No = -1; Yes = +1; Other = 0)	19	10,9	33,0	56,1
SR45b: Would encourage their children to take risks (Yes, definitely = -1; No = +1; Other = 0)	5	2,6	28,9	68,5
Gambling				
SR72a: Bets on horses (very or fairly often=-1, rarely=0, never=1)	9	4,5	80,4	15,1
SR72b: Plays the lottery (very often=-1, fairly often or rarely=0, never=1)	18	8,9	61,2	29,9
SR72c: Plays slot machines (very or fairly often=-1, rarely=0, never=1)	2	1,2	77,4	21,4
SR72d: Bets at the casino (very or fairly often=-1, rarely=0, never=1)	3	0,3	90,2	9,5
Other				
SR77: Buys transport tickets well in advance (No = -1; well in advance = +1; a little in advance = 0)	4	8,0	19,3	72,7
SR78: Turns up well in time for trains and planes (No = -1; well in time = +1; a little in advance = 0)	8	4,2	20,1	75,7
SR81: Takes precautions in case the weather turns out nasty (No = -1; Yes = 0)	1	42,7	55,9	1,4
Number of questions	**27**			
Cronbach's alpha	**0,51**			
Number of observations	**2 460**			

Source: The 2002 DELTA-TNS-Sofres Survey

Table A3

A. Response frequencies and score construction for the first-phase respondents: time preference

Nature of the question	Rank in the score	Lives from day to day (%) (+)	Farsighted (%) (-)	Neutral (%)
Consumption/leisure/travel				
ST76: Wishes to enjoy windfalls as quickly as possible (Yes = +1; No = 0)	14	24,7	75,3	
ST77: Buys transport tickets well in advance (No = -1; well in advance = +1; a little in advance = 0)	5	8,0	19,3	72,7
ST78: Turns up well in time for trains and planes (No = -1; well in time = +1; a little in advance = 0)	7	4,2	20,1	75,7
ST79:Would put holidays off for one year in order to increase their duration (No = +1; Yes, with at most only one or two more days= -1; Other = 0)	15	21,4	17,5	61,1
Health/health risks/life expectancy				
ST71: Sacrifice today in order to live longer (No = -1; Yes = +1; Other = 0)	6	9,5	9,6	80,9
ST61: Plays sport or goes to the gym (Regularly= -1; Never= +1; Occasionally= 0)	8	54,4	25,9	19,7
Work/income/career				
ST4: Favours free time in choice of job (Yes = 1; No = 0)	12	31,5	68,5	
ST14: Would prefer National Service to be as short as possible, rather than a longer service which is spread out over time(No = +1; Yes = 0)		39,7	60,3	
Retirement				
ST30: Worried that might end their life in a retirement home (Yes = +1; No = 0)	16	66,5	33,5	
ST32: Would have trouble in paying for a retirement home (Yes if saved more= -1; Yes without saving more= +1; No = 0)	9	47,0	11,4	41,6
ST33: Would prefer early retirement against a lower pension after the age of 60 (No = -1; Yes = +1; Other = 0)	13	1,4	86,3	12,3
Family/Intergenerational Transfers				
ST42d: "Having children is an insurance policy for ones old age" (No = -1; Yes = +1; Other = 0)		80,2	19,8	
ST42f: The decision to have children is a lifelong commitment (No = -1; Yes = 0)	11	6,5	93,5	
ST43: Wishes to protect their spouse financially in case of their own death (No = -1; Yes = 0)	4	6,8	93,2	
ST44: My parents tried to teach me to save money (Yes=-1; No=+1; Other=0)	3	22,9	75,4	1,7
ST45c: We should teach children and teenagers how to save money (Yes = -1; No = +1; Other=0)	2	6,4	90,9	2,8
Other				
ST82: Aware of environmental problems (No = +1; Other = 0)	1	20,8	79,2	
ST84: Ready to sacrifice their standard of living to leave the world in good shape (Yes, very much so = -1; No = +1; Yes, to an extent = 0)	10	15,4	42,3	42,3
Number of questions	**16**			
Cronbach's alpha	**0,40**			
Number of observations	**2 460**			

Source: The 2002 DELTA-TNS-Sofres Survey

Table A4

A. Response frequencies and score construction for the first-phase respondents: altruism

Nature of the question	Rank in the score	Egoist (%) (-)	Altruist (%) (+)	Neutral (%)
SA42f: The decision to have children is a lifelong commitment (No = -1; Yes = 0)	6	5,0	96,6	1,40
SA43: Wishes to protect their spouse financially in case of their own death (No = -1; Yes = 0)	7	6,8	93,2	-
SA49: Should leave to our children as much as we received ourselves (Yes = +1; No = -1; Other = 0)(2)	3	72,4	25,2	2,4
SA50: Inheritance behaviour inspired by that of my parents (Yes = +1; No = -1)	4	52,9	47,1	
SA51b: Parents should spend their money as they wish, even if it means leaving no legacy (Yes = +1; No = -1; Other = 0)	1	87,9	11,1	1,0
SA51e: Thinks that is a good thing that parents make sacrifices for their children (Yes = +1; No = -1; Other = 0)	2	92,4	6,3	1,3
SA52a: Would favour lower inheritance taxes on transmission to blood relatives (Yes = +1; No = -1; Other = 0)		5,5	85,9	8,6
SA53**:** Is in favour of the freedom to bequeath (Yes = +1; No = -1; Other = 0)	5	46,5	52,1	1,3
Number of questions	**7**			
Cronbach's alpha			**0,37**	
Number of observations			**2 460**	

Source: The 2002 DELTA-TNS-Sofres Survey