

# Measuring intergenerational income mobility



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## Explanation of symbols

.	= data not available
*	= provisional figure
**	= revised provisional figure
x	= publication prohibited (confidential figure)
–	= nil or less than half of unit concerned
–	= (between two figures) inclusive
o (o,o)	= less than half of unit concerned
blank	= not applicable
2010–2011	= 2010 to 2011 inclusive
2010/2011	= average of 2010 up to and including 2011
2010/'11	= crop year, financial year, school year etc. beginning in 2010 and ending in 2011
2008/'09–	
2010/'11	= crop year, financial year, etc. 2008/'09 to 2010/'11 inclusive

Due to rounding, some totals may not correspond with the sum of the separate figures.

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# 1 Introduction

This paper deals with intergenerational income mobility and how it can be measured. Intergenerational income mobility is the extent to which someone's income position changes compared to the income position of his or her previous generation (e.g. that of his or her father). It has received a great deal of attention in the past decades, and most studies on the subject show that the parental income position is, to a certain extent, transmitted to the next generation (see for example Österberg 2000, Corak 2004, or Piraino 2007).

Different methods can be used to measure intergenerational income mobility. In this paper, we discuss three of these methods. As each method has its specific conditions, the choice of which method to use leads to a number of additional choices. In this paper we discuss the methods, the choices to be made and their implications. We also present and discuss results based on data of the income statistics of Statistics Netherlands for all three methods of measurement.

# 2 Definitions and methodology

## 2.1 Introduction

In this section we discuss three ways of measuring intergenerational income mobility. First, we consider the commonly used regression model to estimate income elasticity (see Solon 1992). Secondly, transition matrices are discussed. Such matrices are especially appropriate to gain more insight into intergenerational income mobility in various parts of the income distribution. Thirdly, we pay attention to intergenerational income mobility in special parts of the income distribution, e.g. the lower and the higher groups. Carrying out a logistic regression can for instance answer the question of whether people who grew up poor run a higher risk of poverty themselves compared to people who did not grow up poor. Before discussing the methods to measure income mobility, we address a number of general methodological issues.

### Type of income

The type of income used is crucial to the measurement of intergenerational income mobility. In international literature it is common to use personal annual earnings (Corak 2004) because they basically reflect success on the labour market. The basic assumption in these studies is that the earnings of the adult child solely depend on the earnings of - generally - the father. In this way, however, the analysis of income mobility is restricted to employees only. One could argue that the earnings of an individual are not only influenced by the earnings of his or her father, but by the total income (earnings as well as other income components such as benefits) of the entire family he or she grew up in. In this article we consider earnings mobility and the extent to which household income is transferred to children's earnings.

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### Definitions of income

#### *Earnings*

These are defined as the gross annual income from an employee-employer relationship. Note that this only concerns income from paid work.

#### *Household income*

An income concept that expresses the prosperity someone experiences quite well is the so-called standardised spendable household income. The spendable income consists of annual primary income (income from work, enterprise and wealth) plus benefits from income insurance, social benefits and current transfers received minus current transfers paid, income

insurance premiums, health insurance premiums, and income tax. The household spendable income equals the sum of spendable incomes of all household members. For the sake of comparability, household incomes are standardised, meaning that every income is corrected for differences in household size and composition (Siermann et al., 2004). This correction allows for advantages of running a household together. The standardised spendable household income is then assigned to every individual member of that household.

Throughout this paper we refer to the standardised spendable household income simply as income.

The choice which type of income to use in the analysis has a direct influence on other choices to be made. If we use earnings for both generations, we are faced with the choice of which parent to use in the analysis. We may look at the father-son transfer and the father-daughter transfer, but mother-son and mother-daughter might also be interesting relations to examine in terms of income mobility. Internationally, the father-son relation is mostly observed (Corak, 2004). In section 3 we also pay attention to the other relations. If we use the household income of the family the children grew up in on the one hand, and the earnings of the adult child on the other, we do not need to make such choices, but can easily make a distinction between the extent of transfer to sons and that to daughters.

Former studies on intergenerational income mobility suggest that a 'permanent income' (average income over several years) is preferable to income measured over a one-year period. After all, parents make long-term decisions that affect the wellbeing of their children on the basis of their permanent income, not simply on the basis of their current income. Ideally, income mobility between generations should be measured using life-time incomes. Using a one-year (incidental) income may lead to an exaggeration of the income mobility between generations (Solon 1992, Corak and Heisz 1999, Haider and Solon 2006).

### **Comparable data**

Another important issue concerns the data needed to measure intergenerational income mobility. Ideally, we would have similar income data for both the parents and the (adult) children in the same stages of their lives. Differences in the period of the stage of life in which income is measured can cause a biased picture of intergenerational income mobility: measuring income mobility for younger sons and older fathers makes overestimation (there erroneously seems to be more mobility) very likely (Grawe 2006, Blanden 2009).

In practice, ideal data are extremely rare. Statistics Netherlands is fortunate to have longitudinal data from the Income panel study that is based on tax registrations at its disposal (see frame 'Income Panel Survey'). The income of the panel members (and that of their household) has been recorded since 1985. Although there is still an age gap between parents in 1985 and (adult) children in 2008, the income data for the two years are very comparable, except for some minor (definition) discrepancies. Several previous studies on intergenerational income mobility have had to deal with more inadequate data, for instance by constructing so-called pseudo-fathers. To do this, characteristics of the fathers (parents) in the income survey among the adult children are gathered and subsequently income information - based on these characteristics - is gathered from another source, e.g. tax registrations (Piraino 2006). In other studies the (adult) children are asked about their father's income when they were in the same stage of life (Corak, 2006). In such studies the parental income is of course not measured very accurately.

#### **Income panel study**

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The Dutch Income panel study provides income and demographic information at the individual and the household level. The study started in 1985, and has been carried out annually since 1989. New panel members are added every year using a sample consisting of newborns and immigrants in order to compensate for people who died or emigrated. In 2008, the panel consisted of approximately 90 thousand individuals. The panel members, together with their household members, make up the

total sample, which consisted of approximately 260 thousand individuals in 2008. The sample covers 1.5 percent of the overall Dutch population (approximately 16 million). Both income and demographic information come from registrations. The main sources are the Dutch Tax Administration and the Ministry of Public Housing, which provides data on housing benefits. Additional computations are made for a small number of income components, such as child allowances.

## 2.2 Measuring intergenerational income mobility

### Measuring income mobility by income elasticity

Intergenerational income mobility is usually measured by a simple linear regression model in which the logarithm of the child's income  $Y_{child}$  (in adulthood) is a function the logarithm of the parent's income  $Y_{parent}$

$$\ln(Y_{child}) = \alpha + \beta_1 \ln(Y_{parent}) + \varepsilon \quad (1)$$

The regression coefficient  $\beta_1$  is the so-called income elasticity <sup>1)</sup> and  $\varepsilon$  is the error term indicating other influences not associated with parental income. Roughly speaking, the value of elasticity ( $\beta_1$ ) represents the fraction of income that is on average transmitted across generations. In general, empirical estimates of  $\beta_1$  tend to lie between 0 and 1. For example,  $\beta_1 = 0.4$  indicates that 40 percent of the parental income position is transmitted to the next generation. A value of zero for  $\beta_1$  represents a case of complete mobility where the incomes of parents and children are completely unrelated. A value of unity represents a case of complete immobility where the parental income position is completely passed on to the next generation (Blanden et al., 2004). Note that by indexing the parents' income in prices of the children's generation the constant in the outcomes of the regression analysis incorporates the economic growth between both generations.

Life-cycle differences are usually handled by incorporating the age ( $Z$ ) and squared age of both the parent and the adult child in the analysis concerned (Solon, 1989).

$$\ln(Y_{child}) = \alpha + \beta_1 \ln(Y_{parent}) + \beta_2 Z_{child} + \beta_3 Z_{child}^2 + \beta_4 Z_{parent} + \beta_5 Z_{parent}^2 + \varepsilon \quad (2)$$

An important disadvantage of measuring intergenerational income mobility by elasticity is that we cannot include negative or zero incomes in the analysis. This is often the case for self-employed people who suffer (heavy) losses. If we want to make statements about the income transfer for the whole population (or only about that for the self-employed) the two analyses presented below are more suitable.

### Measuring income mobility by transition matrices

To compose transition matrices, both the income of the parents (father) and the children's adult income are classified into a number of groups based on percentiles. We can for instance create 25%-income groups of both the parents and the adult children. Then, for instance, the percentage of adult children with a low income (first 25%-group) who grew up in a low-income family (first 25%-group of father/

<sup>1)</sup> The correlation coefficient between father and son log incomes ( $\rho$ ) is equal to  $\beta_1$  if we use permanent incomes and if the degree of income inequality does not change across generations. If income inequality does change,  $\beta_1 = \rho \sigma(\ln Y_{child}) / \sigma(\ln Y_{parent})$ , where  $\sigma$  signifies the standard deviation of the variables in parentheses. In the case of single-year incomes,  $\beta_1$  differs from the true coefficient  $\rho$  according to a factor determined by the ratio of the variance of the transitory shock in income to that of the income itself (Solon, 1989 and 1992).



parents' income) is one indicator for income (im)mobility in the lower part of the income distribution. A high percentage (significantly above 25 percent) points towards low upward income mobility, and vice versa.

Adjusting for life-cycle bias is straightforward in a linear regression analysis. When using transition matrices, multiple classification analysis (Lolle, 2007) can be used to adjust for differences in life-cycle.<sup>2)</sup> Multiple classification analysis (mca) can be considered as a special type of linear regression analysis in which categorical independent variables (e.g. the income class of parents) are transformed into dichotomous variables (dummy variables). The regression coefficients are linearly transformed in such way that they indicate the difference between the (adjusted) group mean and the general mean. Such a group mean could be the percentage of adult children with a low income who grew up in a low-income family. As a result of the mca we have unadjusted as well as adjusted (for control variables) group means at our disposal. To be specific, with mca we can estimate the percentage of adult children with a low income who grew up in a low-income family, unadjusted as well as adjusted for differences in life-cycle (age and squared age of adult children and their parents are incorporated in de mca-analysis).

### Measuring income mobility by logistic regression analysis

If we are interested in income mobility in a specific part of the income distribution, for instance the lower part, a logistic regression analysis can be done. Such analysis investigates the influence of one or more ( $n$ ) independent variables  $X_1, \dots, X_n$  (e.g. the father's income and his education level) on a dichotomous dependent variable  $Y$  (e.g.: the adult child has or does not have an income in the lower part of the income distribution) (Agresti, 2002). In a logistic regression model the regression equation is

$$P(Y) = \frac{1}{1 + e^{-(b_0 + b_1X_1 + b_2X_2 + \dots + b_nX_n + \varepsilon)}} \text{ or } \ln\left(\frac{P(Y)}{1-P(Y)}\right) = b_0 + b_1X_1 + b_2X_2 + \dots + b_nX_n + \varepsilon \quad (3)$$

Instead of explaining  $Y$  itself, this model explains the odds of occurrence of  $Y$  (having an income in the lower part of the distribution). This comes down to explaining the logarithm of the odds of occurrence of  $Y$  versus the odds of the opposite. This ratio is generally referred to as the odds, the logarithm is called the log odds or logit. The logistic regression model very much resembles the regression model in linear regression analysis:  $b_0$  is the intercept, the parameter  $b_i$  denotes the effect of  $X_i$ , the parameter  $b_2$  denotes the effect of  $X_2$ , etc.

Usually, as a result of logistic regression the so-called odds ratios are considered. An odds ratio is the ratio of two odds and shows how many times more the value 'yes' (does have an income in the lower part) versus 'no' (does not have an income in the low part) is scored on  $Y$  in a certain category in comparison with a reference category. A positive effect gives an odds ratio larger than 1, while a negative effect is shown by an odds ratio between 0 and 1. For example, an odds ratio of 2 tells us that twice as many people who grew up in low income families have a low income versus a higher income compared with people who did not grow up poor.

<sup>2)</sup> Of course other analyses that incorporate differences in life-cycle are thinkable, like an analysis based on Markov models (Wiggins 1973, Langenheine and Van der Pol 1990). Such analyses are not further elaborated in this paper.

# 3 Measuring income mobility in the Income panel study

In this section we present the main results of a study on intergenerational income mobility. First, we give a description of the data we used. Then we present the main results on intergenerational income mobility, using earnings for both generations. After that, we show some results from analyses where the household income of the parents and the earnings of the adult child are used.

## 3.1 Data and population

Using data from the Income panel study, we are able to follow people for a period of almost 25 years. This allows us to relate a person's income position in the present to the income position of his or her parents in 1985. For this purpose, we selected all children under the age of 18 from the panel in 1985. The data contain earnings of both of the parents as well as the household income. We also have income data for the children (and their new households) from 2008, when they are adults and – in most cases – no longer live with their parents. The total dataset consists of 55,694 adult children. Specific choices made for the different analyses (e.g. regarding the concept of income) may lead to small reductions of the dataset. We shall come back to this when discussing the exact specifications of the different analyses carried out.

## 3.2 Measuring income mobility using parental and child's earnings

As discussed in section 2, in international literature earnings are commonly used as a central concept of income in order to measure intergenerational income or earnings mobility. In order to calculate a meaningful and internationally comparable estimate of the income mobility using earnings for both

generations, we pose a number of restrictions on the dataset. First of all, when using earnings we are restricted to the use of employees only. Secondly, we have to choose which parent to use in the analyses. Usually, the earnings of fathers and sons are used to estimate income elasticity. For reasons of international comparability, we do so as well. However, we also calculate estimates for fathers and daughters, and for fathers and children (sons and daughters). The mothers are left out of the analyses, as the majority of them did not have a job in de mid-1980s. Lastly, we also restrict the analysis to people who had earnings throughout the entire year, so people who depended on social benefits for a couple of months, for instance, are left out of consideration. Table 3.2.1 shows that we have almost 30 thousand people (father-child pairs) left for the analyses.

### 3.2.1 Basic characteristics of dataset using employee earnings

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Father-child pairs	29,441
Father-son pairs	15,300
Father-daughter pairs	14,141
Average age of individuals in 2008	32.4
Average age of fathers in 1985	39.2

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The dataset contains slightly more sons than daughters: we have over 15 thousand father-son pairs and just over 14 thousand father-daughter pairs. With respect to the possible differences in life-cycle as described in section 2, we see that there is indeed a gap between the average ages of the individuals in 2008 and their parents (measured as the average age of the head of the household, mostly the father) in 1985. As explained earlier (see section 2), we shall take these age differences into account in our analyses.

#### Earnings elasticity

In the remainder of this section we analyse earnings mobility, using all three methods described in section 2. In this section we start by estimating the earnings elasticity (table 3.2.2). The first model includes only the logarithm of the father's earnings in the regression model. The second model gives an estimate of  $\beta$  when adjusting for life-cycle bias. From the results we see that the elasticity is overestimated by the first model, except in the father-daughter relationship.<sup>3)</sup> Here life-cycle bias does not seem to play a role. Also, the connection between father's and daughter's earnings is slightly stronger than that between fathers and sons. Other studies on intergenerational income mobility generate the same result (see e.g. Mayer and Lopoo, 2004). A possible explanation for this is that parental investments in children may have different payoffs across gender. Furthermore, changes in labour market opportunities have improved the rate of return for girls more than for boys. This suggests that in the future the earnings' inheritance for boys and girls will be more and more similar, as the process of equal opportunities for men and women continues (Corak, 2004).

<sup>3)</sup> The Income Panel Survey is not (yet) adequate enough to calculate permanent incomes (in practice: average income over several unbroken years): yearly data for parents are only available from 1989. The most recent available data for their adult children are for 2008, which means that the gap between them and their parents would be too small (the children are too young). The use of single-year incomes means that the elasticity is underestimated (Solon 1989 and section 3). But since income inequality in the Netherlands was higher in 2008 than in 1985 (CBS, 2010), on balance it seems reasonable not to correct the estimated regression coefficients (see footnote 1).

### 3.2.2 Earnings elasticity

		Income elasticity $J$	Standard error	R <sup>2</sup>
Father-child	Unadjusted	0.311	0.010	0.030
	Adjusted <sup>1)</sup>	0.266	0.011	0.046
Father-son	Unadjusted	0.321	0.011	0.052
	Adjusted <sup>1)</sup>	0.225	0.011	0.179
Father-daughter	Unadjusted	0.303	0.016	0.025
	Adjusted <sup>1)</sup>	0.308	0.016	0.037

<sup>1)</sup> Adjusted for life-cycle bias.

Intergenerational income mobility has been investigated using earnings elasticity in several OECD countries (see e.g. Corak 2004, Österberg 2000). However, comparisons between countries can be misleading because of differences in data, data collection methods, and cultural and economic climate. Corak (2006) has derived internationally comparable values for elasticity for nine rich countries. Table 3.2.3 shows the estimates derived by Corak (2006), and the additional estimate for the Netherlands that we obtained above, using similar methodologies and assumptions.

### 3.2.3 International comparison of earnings elasticity

Country	Earnings elasticity
Denmark	0.15
Norway	0.17
Finland	0.18
Canada	0.19
Netherlands	0.22
Sweden	0.27
Germany	0.32
France	0.41
United States	0.47
United Kingdom	0.50

Source: Corak (2006) for all countries except the Netherlands.

This table indicates large differences between the various countries. The earnings elasticity in Denmark, Norway, Finland and Canada is less than 0.2, implying a high degree of mobility across generations. The earnings elasticity in France, the United States and the United Kingdom is greater than 0.4, indicating a lower degree of mobility. The value for the Netherlands (0.22) suggests an average income mobility.

In order to investigate the possible effect of using permanent earnings (see section 2.1), we averaged earnings of both fathers and sons over a two-year period. For fathers, we used data for 1985 and 1989 (see box on Income Panel Study) and for sons data for 2008 and 2009. As stated in section 2, the use of long-term earnings does indeed influence the earnings elasticity: it is higher (see table 3.2.4), and thus mobility based on long-term earnings is lower. The effect is small, however.

### 3.2.4 Earnings elasticity using two-year earnings

	Earnings elasticity $\beta$	Standard error	R <sup>2</sup>
Unadjusted	0.324	0.017	0.063
Adjusted <sup>1)</sup>	0.261	0.017	0.185

<sup>1)</sup> Adjusted for life-cycle bias.

## Transition matrices

The dataset is divided into 25%-groups of earnings. Using transition matrices, we can see whether individuals in different parts of the earnings distribution show differences in earnings mobility. Also, we can specifically see whether there are differences in upward and downward mobility. In table 3.2.4 only fathers and sons are considered.

### 3.2.5 Earnings mobility measured by transition percentages

	2008			
	1st 25%-group	2nd 25%-group	3rd 25%-group	4th 25%-group
<b>1985</b>	%			
<i>Unadjusted</i>				
1st 25%-group	35	29	22	14
2nd 25%-group	28	28	25	19
3rd 25%-group	21	24	28	26
4th 25%-group	16	19	25	41
<i>Adjusted<sup>1)</sup></i>				
1st 25%-group	32	28	23	17
2nd 25%-group	26	28	26	20
3rd 25%-group	22	24	28	26
4th 25%-group	19	20	23	37

<sup>1)</sup> Adjusted for life-cycle bias.

The results in table 3.2.5 show that sons whose fathers had low earnings (i.e. in the first 25%-group) are more likely to have low earnings themselves when they are adults. Adjusted for life-cycle bias, almost 32 percent of the sons with low-income fathers have low earnings themselves 25 years later. This percentage is considerably less for sons with fathers having higher earnings (i.e., 4th 25%-group). The results also show that the last group of sons have a significantly higher chance of having high earnings themselves later on in life (more than 37 percent compared to 17 to 26 percent for people who did not grow up with moneymaking fathers).

As stated in section 2, transition matrices are suitable to gain insight into income mobility if negative incomes can also occur. This is regularly the case for self-employed people. Table 3.2.6 shows that self-employed sons of self-employed fathers who made low profits are more likely to make low profits themselves. On the other hand, sons of self-employed fathers in the highest 25%-group have more chance of making high profits themselves than those with fathers in lower groups. Lastly, we note that the profits mobility across generations does not significantly differ from the earnings mobility.

### 3.2.6 Mobility of profits of self-employed measured by transition percentages<sup>1)</sup>

	2008			
	1st 25%-group	2nd 25%-group	3rd 25%-group	4th 25%-group
<b>1985</b>	%			
1st 25%-group	31	28	26	15
2nd 25%-group	22	23	27	27
3rd 25%-group	21	28	26	25
4th 25%-group	26	20	20	33

<sup>1)</sup> Adjusted for life-cycle bias.

## Logistic regression

Logistic regression enables us to zoom in on a specific part of the income distribution. For example, say that we want to answer the question of whether sons with fathers earning little money have a higher risk to end up earning not much themselves compared to sons with fathers making more money. We can use a logistic regression model to answer such a specific question. We define sons and fathers with earnings in the lowest 25%-groups to be poorly paid, and we will compare sons who grew up with poorly paid fathers to sons with non-poor fathers.

### 3.2.7 Earnings mobility measured by logistic regression analysis

	Odds ratio	95% CI	Nagelkerke R <sup>2</sup>
Unadjusted	1.98	[1.83;2.14]	0.026
Adjusted <sup>1)</sup>	1.64	[1.50;1.78]	0.170

<sup>1)</sup> Adjusted for life-cycle bias.

From the results in table 3.2.7 we can conclude that significantly more sons with poorly paid fathers (in 1985) – adjusted for life-cycle bias: 1.6 times as often – end up with low earnings versus higher earnings themselves compared to sons with non-poor fathers.

## 3.3 Measuring income mobility using parental household income and son's earnings

To measure income mobility using the household income of the parents and the son's earnings, the restrictions on the dataset are slightly less severe than in the previous analyses. While we are still restricted to the use of employees only, this restriction does not hold for the parents. Parents who depended on, for instance, social benefits are also included in the analyses. All other restrictions remain valid (see 3.2). Table 3.3.1 shows some characteristics of the resulting dataset.

### 3.3.1 Basic characteristics of dataset using parental household income and son's earnings

Number of cases	40,516
Men (sons)	20,966
Women (daughters)	19,550
Average age of individuals in 2008	32.7
Average age of head of parental household in 1985	39.8

As table 3.3.2 shows, when using the parental household income, elasticity is slightly higher than earnings elasticity between fathers and sons (see table 3.2.2). In other words, the relationship between the parental household income and the son's earnings is stronger than the relationship between father's and son's earnings.

### 3.3.2 Income-earnings elasticity using parental household income and son's earnings

	Income elasticity $\beta$	Standard error	R <sup>2</sup>
Unadjusted	0.354	0.011	0.050
Adjusted <sup>1)</sup>	0.251	0.010	0.163

<sup>1)</sup> Adjusted for life-cycle bias.

# 4 Conclusion and discussion

Three research methods for measuring intergenerational income mobility are discussed in this paper. First, in a linear regression analysis one can estimate income elasticity. This measure normally lies between 0 and 1 and expresses the relationship between the parents' income and the adult child's income. The higher the elasticity, the lower the income mobility. In the second method, transitions within income groups of the parents and the children are considered (transition matrices). This approach involves dividing the population into equally sized groups ranked in order of income, and presenting the distribution of parents and children across these groups. The third method, logistic regression analysis, is suitable to consider income mobility in specific parts of the income distribution, e.g. the lower part.

We examined the income mobility between generations by using the Income panel study. We compared the income of parents in 1985 with the incomes of their - now - adult children in 2008. To do this we used the total household income as well as the personal earnings. Comparing values of elasticity, we can conclude that the mobility is slightly higher if the parental household income is used. In other words, the earnings of (adult) children depend more on the income of their parents than on the earnings of their fathers.

Transition matrices are appropriate to reveal nonlinearities in the relationship between the incomes of parents and children. The results from the Income panel study, for instance, showed that earnings mobility is much greater at the lower end of the income distribution than at the top end. Roughly speaking, wealth is passed on to the next generation to a greater extent than poverty. A drawback of transition matrices is that a nonlinear pattern could in part reflect ceilings and floors at the top and bottom of the matrix: upward mobility is not possible for those born at the top, nor is downward mobility for those born at the bottom (Atkinson, Maynard and Trindler, 1983). As a result, the degree of immobility at the top could be exaggerated. This shortcoming does not hold for linear regression analysis as a technique to measure income mobility.

From our results we see a small effect on earnings elasticity when using a two-year average of earnings in order to reduce the influence of the transitory component of earnings. The analyses of Corak and Heisz (1999) suggest that it is necessary to use at least a three-year average and that a five-year horizon should be long enough to reduce the bias – for instance in the estimated elasticity- caused by transitory income fluctuations. The Income panel study is not adequate enough yet to construct such a long term income over a consecutive period: in practice we would have to average, say, the father's income for 1989–1994 and the child's income for 2004–2009. Then the gap between the life stages of parents and children would be even larger. Furthermore, the adult children - especially the higher educated ones - would be too young to have built up a career. So their average income would certainly be underestimated.

In international literature it is common to use earnings to measure intergenerational income mobility. One could argue that the earnings of an individual are not only influenced by the earnings of his or her father, but by the total income (earnings as well as other income components such as benefits) of the entire family he or she grew up in. Going even one step further, we can measure intergenerational income mobility by using the total personal income (including benefits etc.) of the (adult) child and the household income of the family he or she grew up in. In this way, we include not only employees, but also for instance persons who depend on social security. However, in this case it might be more interesting to regard the transitions between socioeconomic position across generations rather than looking at the income



mobility. In other words, answering the question whether people who grew up with parents depending on social benefits, themselves end up depending on benefits relatively more often than people who grew up with parents who did not depend on benefits. This would probably be a more meaningful investigation than looking at the income level, not least because the level of social benefits are fixed by policy. Note further that if the household income of the adult child were to be used instead of the earnings or the total personal income, this would incorporate both individual success and success on the marriage market. However, this type of income is appropriate to measure the inheritance of poverty (Van den Brakel and Moonen 2009).

The results in this paper and, in fact, of every intergenerational income mobility analysis depend on the point in time the data refer to. For instance, if both generations experienced a booming economy, income mobility is likely to be lower than if only the parents experienced a period of strong economic growth. Furthermore, the degree of intergenerational income mobility may to a large extent be explained by policies and institutions (Mulligan, 1997). Progressive income taxes and subsidisation of education, for example, may be expected to influence the human capital investments by parents in their children. These issues also make it difficult to compare different countries properly. For that matter, comparisons between countries may be misleading anyhow because of differences in data, data collection methods, and economic and cultural climates.

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