Food consumption elasticity as an indicator of intergenerational persistence: evidence from China

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Abstract

This article studies intergenerational persistence in China. We use data from the China Health and Nutrition Survey to estimate the intergenerational food consumption and intergenerational income elasticities in China (IFCE and IIE). We find a particularly high IFCE (0.878) and a less important IIE (0.425), which is close to the one (0.47) estimated by Deng, Gustafsson and Li (2012). Parental food consumption greatly affects offspring food consumption. Consumption persistence is homogeneous across individuals having different levels of education or who live in urban or rural areas. We also show that intergenerational linkages in consumption do not mainly result from the transmission of parental income but rather from the transmission of personal taste. Finally, we demonstrate that IFCE is a good indicator of intergenerational persistence when income data is insufficient to compute an accurate measure of permanent income.

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1 Introduction

January 18th 2013, for the first time since 2000, China's National Bureau of Statistics released official figures on income inequality. Varying from 0.47 to 0.49 between 2003-2012, the announced Gini depicts the high inequality that prevailed in the Chinese society over the period. However, these statistics do not inform on the roots of the inequality. Does the widening income gap in China reflect an efficient economy where individuals with different marginal productivity are rewarded correspondingly? Or does it reveal an inefficient situation where inequality in opportunity is ruling? The current sharp debates on the phenomenon of "the second generation of governors" suggest that the second option is more accurate and reveal the issue of intergenerational persistence. High intergenerational persistence indicates that economic success and welfare is more related to an individual's social background rather than to his (her) ability and work effort. It may, consequently, discourage human capital accumulation and lower the matching efficiency in the labour market. Research on intergenerational persistence is thus becoming crucial for China. Finding the exact level of intergenerational persistence may contribute to shed some light on the ongoing debates concerning the income gap. Moreover, in the context of global recession, China is seeking to stimulate domestic consumption. Identifying the reasons behind intergenerational consumption persistence may, in addition, help the government to understand consumption patterns and adopt germane policies.

The importance of intergenerational linkage in the study of income inequality has first been emphasized by Becker and Tomes in 1979. Much research has been done on this topic ever since but the exact calculation of intergenerational income elasticity (IIE) remains difficult at present (Solon, 1999; Black and Devereux, 2011). One of the greatest challenges in the estimation of IIE is to obtain an accurate measure of individuals' lifetime income. In earlier studies, the lack of data to compute lifetime income drove researcher to use annual income to estimate IIE. The use of annual income, however, leads to an imprecise estimate of IIE. Indeed, annual income suffers a lot from transitory fluctuations -be it the consequence of a bad harvest, a promotion, a sick leave...-so it is not a good proxy for lifetime income and it is preferred to calculate the permanent income of individuals by averaging annual income over several periods. Solon (1999) showed that

the more years used to compute average income, the larger the intergenerational income elasticity in the US is. As an illustration, studies using one-year income data evaluate IIE to equal 0.2 in the US (Becker, 1986), while it is significantly higher when using average income of 3-5 years', 0.4 (Solon, 1992; Zimmerman, 1992). Now, is IIE estimated over 3-5 years income average more reliable? Moreover, income might fluctuate over several years and consequently still deviate from lifetime income. Mazumder (2005) finds that IIE is higher when accounting for a persistence in the fluctuations of transitory income over time[1]. A solution for the estimation of permanent income would be to get annual income for individuals for a much greater amount of years.

In this paper, we seek to give some insights on intergenerational persistence in China. As records of annual income are not yet extensive enough to compute a reliable proxy for permanent income in China, we suggest to use intergenerational food consumption elasticity (IFCE) to measure intergenerational persistence instead of IIE. We argue that, when few years of income data are available, IFCE is a relevant alternative to IIE because average food consumption is a better measure of permanent income than average income. Indeed, individuals decide their level of consumption according to their expected permanent income and smooth it beforehand, food consumption is thus by definition less sensitive to transitory fluctuations than income. In addition, IFCE provides a new perspective from which to study intergenerational persistence as food consumption constitutes a different index of welfare than income. In a first part, we estimate and compare IFCE and IIE. Using China Health and Nutrition Survey, we compute both elasticities using annual data. We find that IFCE is particularly high (0.881) in China and that IIE is less important (0.436). The IIE we find is close to the one estimated by Deng, Gustafsson and Shi (2012) for urban China, which is 0.4. There is a substantial effect of parental food consumption on offspring food consumption. This effect remains high after controlling for child and parental income. Then, we seek to decompose the different mechanisms of intergenerational persistence into the transmission of parental income and the transmission of parental taste. We show that intergenerational linkages in consumption do not mainly result from the transmission of parental income, but very likely from other family effects such as the transmission of personal taste. We also study whether our estimate of consumption persistence is heterogeneous across groups of

[1]Mazumder names this effect a persistent transitory income shock.

individuals having different levels of education or who live in urban or rural areas. Finally, we demonstrate that IFCE is a good indicator of intergenerational persistence when income data is insufficient to compute an accurate measure of permanent income.

The rest of the paper is organised as follows: section 2 provides a review of literature on intergenerational mobility; section 3 describes the data, section 4 presents the empirical strategy; section 5 gathers the main empirical results, and section 6 concludes.

2 Intergenerational persistence in the economic literature

2.1 Biases in the estimation of intergenerational income elasticity

The majority of existing economic studies on intergenerational persistence focus on income. The theoretical analysis uses the following framework of human capital investment: family i consists of a parent and a child, the utility of which depends on parental consumption and child income. Family income depends on parent's income Y_i^{parent}, which should be allocated between parent's consumption, C_i^{parent} and the human capital investment in the child, I_i. Child income depends on his (her) endowment, E_i^{child}, as well as on the human capital investment, whose return is r. The child's endowment, E_i^{child} depends on a stochastic part and a part inherited from the parents, e_i^{child}. The inherited part is given by the inheritance ratio, λ:

$$max \quad U_i = (1-a)logC_i^{parent} + alogY_i^{child} \tag{1}$$

$$\begin{aligned} s.t. \quad & Y_i^{parent} = C_i^{parent} + I_i \\ & Y_i^{child} = (1+r)I_i + E_i^{child} \\ & E_i^{child} = e_i^{child} + u_i^{child} \\ & e_i^{child} = \lambda e_i^{parent} + v_i^{child} \end{aligned}$$

The first order equation for this model solves:

$$Y_i^{child} = a(1+r)Y_i^{parent} + a\lambda e_i^{parent} + av_i^{child} + au_i^{child} \tag{2}$$

As parent endowment is difficult to observe, the exact causal impact of parental income on child income measured by a(1+r) is hard to evaluate. Consequently, related empirical studies first examine the correlation between parents' and children's income. This regression coefficient is called the intergenerational income elasticity. The corresponding benchmark reduced model is then given by the Galton-Becker-Solon equation[2]:

$$Y_i^{child} = \alpha + \beta Y_i^{parent} + \varepsilon_i \tag{3}$$

where Y_i^{child} is the log of child's lifetime income of family i, Y_i^{parent} is the log of parents' lifetime income of family i, and β is the intergenerational income elasticity measuring income mobility. The higher β is, the lower the income mobility is.

Although equation (3) identifies the general level of intergenerational persistence, it is difficult to estimate it empirically. The lack of data on lifetime income for both generations gives rise to a systematic underestimation of the IIE. In 1986, Becker and Tomes reviewed that most of the early researches using one-year income data estimate the IIE to equal 0.2 in the US, which misled to the conclusion that "almost all the earnings advantages or disadvantages of ancestors are wiped out in three generations". Indeed, later studies using average income of 3-5 years' showed that the IIE is, in fact, significantly higher and almost doubles to around 0.4 in the US (Solon, 1992; Zimmerman, 1992).

As a result, subsequent researches worked on discovering the sources of estimation bias induced by the use of annual years of income instead of lifetime income. Two main sources has been suggested and tested: the transitory diversion of annual income from the lifetime income[3] and the life cycle variation[4] in the association between current and lifetime earnings. Based on the studies on income dynamics (Baker and Solon, 2003; Haider and Solon, 2006), Grawe (2006) finds out that one third of the variation of IIE in previous research can be attributed to differences in

[2]Galton (1869) generated this equation first to study the height inheritance between father and son. Becker and Tomes (1979) used this model in their theory of inequality and intergenerational mobility and Solon (2004) gave a thorough description of the possible factors underlying the intergenerational persistence with this equation.

[3]Mazumder (2005) proves that this bias follows an autoregressive process of order one in the US and that correcting for it will raise the intergenerational income elasticity close to 0.6.

[4]Also called life cycle bias in a more recent survey by Black and Devereux (2011).

father's age. Studies using data on OECD countries other than US show similar results on the estimation bias. Using the Norwegian administrative tax data, Nilsen *et al.* (2012) distinguish the aforementioned two types of bias and give evidence that without the life cycle variation, IIE would raise from 0.2 to more than 0.3. The elasticity is found to be smaller in Nordic countries and similar to the US in England.

Another problem of the current intergenerational literatures is the misuse of the two terms: lifetime income and permanent income. Lifetime income, as Mazumder (2005) points out, reflects "the true long-term earnings capacity". Its calculation needs an individual's whole life income and this leads to the discussion of the above-mentioned estimation bias. While most of the current papers are actually examining this income capacity, they often misuse the word "permanent income" (Nilsen et al, 2012; Gong et al, 2012), which leads to confusions in the literature. The term "permanent income" was first used by Friedman (1958). Friedman's core standpoint that economic income should be what determines a person's consumption has gained consensus. Our idea that individual consumption, taken annually or averaged, suffers less from the transitory diversion and life cycle biases relies on Friedman's permanent income theory[5].

2.2 Intergenerational consumption elasticity

Though consumption is at least an equally important index for well-being as income, research on consumption persistence is more recent and more limited than research on income persistence. Mulligan (1997) is the first to estimate the relationship between father's and son's consumption levels. He is followed by authors such as Aughinbaugh (2000), Fisher and Johnson (2006), Charles *et al.* (2007). They all use US data (PSID) and the imputation procedure built by Skinner (1987). They find that consumption mobility is less important than income mobility across generations.

Waldkirch, Ng and Cox (2004) go further and identify the different mechanisms at stake in intergenerational consumption persistence in the US. Consumption persistence can operate through different mechanisms such as the transmission of preferences or habits, the transmission of income,

[5]Though the use of permanent income hypothesis in China might not be the most appropriate as financial markets are still imperfect, this hypothesis has not been completely denied in the nation by now. Our following results supports this hypothesis as least from the perspective of food consumption.

or genetic transmission. We focus here on the first two types of transmission that we call taste inheritance and income inheritance. Taste inheritance simply describes that behaviour and preferences are transmitted intergenerationally. Income inheritance reflects the mechanism through which parents' income influence children's income, which in turn affect children's consumption. In our paper, we follow the estimation method used by Waldkirch, Ng and Cox (2004) to dissociate the impacts of income inheritance and taste inheritance in consumption persistence.

2.3 Intergenerational Persistence in China

Research on social mobility in China is ruled by sociological works on occupational and social status persistence. Wang (2005) is the first to calculate IIE for urban China in 1995. He includes retired people which may bias his estimates as not every retired people receives pension in the period of the study. Chen and Yuan (2012) estimate IIE in China for both rural and urban wage income in 1995, 2002 and 2005 for working age individuals only. There are only two papers on intergenerational income mobility in China that use average income and the results they provide are conflicted over the magnitude of IIE. Estimates double. Deng, Gustafsson and Shi (2012) find an income elasticity near 0.5, while it is equal to 0.36-0.97 for Gong, Leigh and Meng (2012). Deng, Gustafsson and Li (2012) use the 3-year income average of the retrospective data from China Household Income Project, and find an IIE equal to 0.47 for 1995 and 0.53 for 2002 in urban China. Gong, Leigh and Meng (2012) combine the data of two surveys: the Urban Household Income and Expenditure Survey 1987-2004 (UHIES) and the Urban Household Education and Employment Survey 2004 (UHEES). They use an income function estimated by the data in UHIES to predict the lifetime income for the parents in UHEES. Their estimated IIE are 0.63 for father-son, 0.97 for father-daughter, 0.36 for mother-son, and 0.64 for mother-daughter pairs. So far, no research has been done on intergenerational consumption persistence in China, nor on intergenerational income persistence for both rural and urban areas in China.

3 Data

We use panel data from the China Health and Nutrition Survey (CHNS). CHNS is jointly conducted by the Carolina Population Center at the University of North Carolina at Chapel Hill and

the National Institute of Nutrition and Food Safety at the Chinese Center for Disease Control and Prevention in Beijing. This survey was designed using a multi stage random cluster process and covers nine provinces from 1989 to 2009. The CHNS provides information on socio economic and demographic characteristics at the community, household and individual levels. Focusing on health and nutrition outcomes as well as individual and household expenses, the overall survey collects information on about 4,400 rural and urban households (or some 26,000 individuals) for 8 waves. It was designed to see how the social and economic transformations of Chinese society are affecting the health and nutritional status of its population. It was also designed to examine the effects of health, nutrition, and family planning policies as well as programs implemented by national and local governments

In this paper, we use five rounds of CHNS for which food expenditures are computable: 1997, 2000, 2004, 2006 and 2009. We focus on individuals answering questions of the adult, household and nutrition surveys. We combine the information given in three different databases to match the parents and children into pairs. We use the child-parent relationship data which links a substantial number of individuals, but we also exploit information from the birth data and the master data to create additional pairs of parents and children. The master data gives information on the relationship between a member of the household and the head of the household (wife, husband, child, brother, sister, grandparent, grandchild) and the birth data gathers information on women and their children.

We restrict the sample to the pairs for which we have information for both generations on the following variables: food consumption expenditures, individual income, age, gender, marital status, household size, unemployment, household registration -hukou-, and educational level. As the income of too young and retired people is not representative for their lifetime income (Solon, 1999; Deng, Gustafsson and Shi, 2012), the literature on intergenerational mobility usually keeps only pairs for which both parents and children are of working age. We follow the literature and drop these pairs. We also eliminate the pairs for which the age gap between the child and the parent is less than 14 years. This gives us a sample of 3591 pairs, with some of the pairs that are reported for more than one year. So, we have an unbalanced panel that we exploit to compute IFCE and IIE both with annual data and averaged data. The comparison of IFCE and IIE

estimated by using annual data and different averaging years allows us to study the potential bias in the estimation induced by the transitory deviation of annual income to lifetime income.

Our dependent variables are individual income and food consumption expenditures. Individual income is built as the sum of seven sources of income: business, farming, fishing, gardening, livestock, non-retirement wages, and retirement. We use food consumption expenditures because it is the only consumption data available at the individual level for China. Food is also the basic need for human, and may serve as the most fundamental item of consumption. We compute annual food expenditures by multiplying the quantity of food eaten during three days with their corresponding prices adjusted for 2009. Food items are classified according to nine categories, each containing a substantial list of daily consumed products: food grains, cooking oil and sugar, vegetables and fruits, meat and poultry, fresh milk, preserved milk products, fish, bean curd, and alcohol and soft drinks. Total food consumption expenditures is built as the sum of these nine sub-aggregates. Tables 1 and 2 in the appendix give the descriptive statistics of the characteristics of children and parents.

4 Empirical strategy

4.1 Overall consumption persistence in China

In order to estimate the IFCE in China, we follow Waldkirch, Ng and Cox (2004) and proceed to an estimation in two steps. We first deal with the aforementioned life cycle and business cycle effects and run two auxiliary regressions to obtain residuals of consumption and income. We compute the residuals of the children (parents) consumption by regressing the log of consumption of the children (parents) on children's (parents') age, square of age, household size, gender, marital status, as well as on provincial dummies and time dummies. These consumption residuals are purged of life cycle and business cycle effects and thereafter, we will call them child and parent food consumption. We regress the log of income of the children (parents) on the same variables to obtain the residuals of the children (parents) income. Then, we regress parent consumption in a given year t on the offspring consumption of the same year t using the Galton-Becker-Solon

equation from the intergenerational income mobility literature:

$$c_{it}^{child} = \alpha + \beta c_{it}^{parent} + \varepsilon_i \tag{4}$$

where c_{it}^{child} is the log of food consumption of the child of family i in year t, c_{it}^{parent} is the log of food consumption of the parent of family i in year t, ε_i is the error term and β is the intergenerational food consumption elasticity. The larger β is, the less social mobility there is[6].

As income is one of the main determinants of food consumption, we also add children income as a control in equation (3) to make sure our estimate of IFCE is not biased due to the omission of children income:

$$c_{it}^{child} = \alpha + \beta c_{it}^{parents} + \gamma Y_{it}^{child} + \varepsilon_i \tag{5}$$

We also seek to disentangle taste inheritance from income inheritance in food consumption persistence by using two methods suggested by Waldkirch, Ng and Cox (2004). The first one consists in regressing children's average consumption on their average income and also on their parents' average income and consumption. The coefficient on parents' average consumption reflects the consumption persistence free of the transmission parents' income:

$$c_{it}^{child,average} = a_0 + a_1 c_{it}^{parent,average} + a_2 Y_{it}^{child,average} + a_3 Y_{it}^{parent,average} + \varepsilon_i \tag{6}$$

A second method to evaluate how parents' personal taste affect their children's personal taste is to predict the child (parent) time-invariant specific effects (μ_i and δ_i) and correlate them. In order to obtain these specific effects, we run the following fixed effect regressions of child (parent)

[6]The same procedure is used to estimate the IIE in China later on by replacing consumption by income.

consumption[7]:

$$\begin{cases} c_{it}^{child} = bY_{it}^{parent} + \mu_i \\ c_{it}^{parent} = bY_{it}^{parent} + \delta_i \end{cases} \tag{7}$$

4.2 Factors affecting food consumption persistence

Consumption persistence might be shrunk or on the contrary inflated by different factors. The quick development of urban areas, synonym of greater job opportunities may, for instance, override parental influences. Education constitutes another factor that may reduce intergenerational persistence, as it is supposed to act as a social lift. We are also concerned that our estimated IFCE may be spuriously high as the majority of the pairs in our sample are living together and share meals. We assess how these characteristics modify IFCE by adding interaction terms between parental consumption and household registration, the education level of the child or the living together status in equation (3); Z_{it} represents the dummies for either having a urban hukou, the level of education or pairs living together. We expect IFCE to be less important in urban areas than in rural areas, as well as for the most educated individuals and the pairs not living together:

$$c_{it}^{child} = \alpha + \beta c_{it}^{parent} + \phi Z_{it} + Z_{it} * c_{it}^{parent} + \varepsilon_i \tag{8}$$

4.3 Comparison of IFCE and IIE as indicators of social mobility

In this part, we test the hypothesis that IFCE is a relevant measure of intergenerational persistence when few years of income are available. We claim that IFCE represents a better proxy for permanent income than IIE because annual food consumption expenditures suffer less from fluctuations compared to annual income. The measure of food expenditures is indeed less subject to transitory variations because food consumption is smoothed according to individual's permanent income. We compare how IFCE and the IIE vary when we compute them using annual data

[7]These two methods give the exact importance of income inheritance and taste inheritance in consumption persistence when we have a panel with many years of observations. In this study, we have only a short panel. So, the decomposition of the effects of taste and income inheritance we get, is not perfectly accurate. We can fully disentangle these two mechanisms by estimating the intergenerational linkages model proposed by Walkirch *et al.* (2004) with the method of moments that we wish to add to our research in a near future.

and different years average data. We first estimate IIE in China using the same regression and control variables as for IFCE. Then, we calculate both IFCE and IIE averaging consumption and income on two, three, and four years' average to diminish the transitory bias of current income to lifetime income. We finally compare the different years average intergenerational elasticities of food consumption and income obtained with the elasticities computed from annual data. The equation for the average estimate is:

$$c_{it}^{child,average} = a_0 + a_1 c_{it}^{parent,average} + error \tag{9}$$

5 Results

5.1 Consumption Persistence in China

Table 3 summarizes the results of the auxiliary regressions for children and parents. The positive signs on age and negative signs on age square are concordant with existing literatures on income mobility and perfectly reflect the life cycle pattern of consumption and income. Non surprisingly, unemployment and a bigger household size affect negatively both income and consumption, while income and consumption are greater for men. The marital status is not significant for income but married or divorced parents tend to consume more than never-married parents, and divorced children consume less than never-married ones. The provincial dummies are all significant with an expected negative sign as, the province of reference, Jiangsu, is the richest one. The time dummies convey the development pattern in China, as their impact on income and food consumption are positive and the coefficient grows over time. The only exception is for food consumption in 2000 which might reflect a negative shock during that year.

Table 4 gives the OLS and fixed-effect regressions results. Child consumption is highly determined by parent consumption, a one percent increase in parental consumption expenses leads to an 88 percent increase in child's one. Controlling for children time-invariant specific effects do not change IFCE.

Table 5 gives the results for OLS and fixed-effect regressions when we control for child income. Child income has a positive significant impact on child consumption but it does not affect our

estimate of IFCE. Consumption persistence remains high when we control for child income and time-invariant child specific effects. Both in the OLS and fixed-effect regressions, IFCE remains the same when we include child income or when we do not control for it (0.878 and 0.875 for OLS and 0.865 and 0.865 for fixed-effect).

Table 6 gathers our results on the pure transmission of parents income and tastes in food consumption persistence. Column 1 gives us the result for the method in which we regress time averaged consumption of the children on their time averaged income and their parents' averaged consumption and income. The regression coefficient is quite similar to the previous one, suggesting that there are not much transitory effects interfering in the estimation of IFCE. Columns 2 and 3 report the results of the fixed effect regressions of child (parental) consumption on parental income and table 7 gives the correlation between the children and parents specific effects. The estimated IFCE remains the same as with the previous method and equals 0.866.

5.2 Factors affecting intergenerational food consumption persistence

Table 8 shows how the different IFCE vary when we differentiate individuals living in urban areas, with different levels of education as well as when children and parents are living together. We see that neither the potential of greater job opportunities nor the level of education affect IFCE. However, the overall IFCE is lower when we account for children living together with their parents and sharing meals. The children living together with their parents know an additional increase of almost 0.2% for a 1% increase in parent consumption compared to children who do not and for who consumption rise by 0.7% with a 1% increase in their parents' consumption.

5.3 Comparison of IFCE and IIE as indicators of social mobility

Table 9 presents the estimates for the intergenerational income elasticity computed from annual data. Income persistence is much lower than consumption persistence, the regression coefficients being 0.425 and 0.328 for OLS and fixed-effects estimations. The IIE we find is close to the one estimated by Deng, Gustafsson and Shi (2012) which reaches 0.47.

Table 10 gathers the different estimates of IFCE and IIE when we use years' average instead

of annual data. Even though both IIE and IFCE show a robust increasing sign when using more years' of income observations, confirming that using annual data underestimates intergenerational persistence, the increase for IFCE is quite small compared to the increase for IIE. The different elasticities for food consumption are ranging from 0.867 to 0.938, while the different elasticities for income vary from 0.307 up to 0.675. These results confirm our assumption that, when estimated with few years of data, IFCE suffers less from transitory variations than IIE[8] and thus constitutes a relevant measure of permanent income.

6 Conclusion

This article estimates the intergenerational food consumption and income elasticities (IFCE and IIE) to study intergenerational persistence in China. Using China Health and Nutrition Survey, we compute IFCE and IIE using ordinary-least-square and fixed-effect regressions. We find a particularly high IFCE in China (0.878). The IIE we find is less important (0.425) than the IFCE we find and is close to the one (0.47) estimated by Deng, Gustafsson and Shi (2012). There is a substantial effect of parents food consumption on offspring food consumption. This effect remains high after controlling for children and parents income. Finally, we demonstrate that food consumption expenditures are less subject to transitory variations than income and provide elasticities that are pretty equal when using different years average. We conclude that IFCE constitutes a good alternative to IIE, when we want to assess intergenerational persistence with few years of data.

In a near future, we would like to dissociate income inheritance from taste inheritance in consumption persistence. To do so, we want to estimate Waldkirch, Ng and Cox (2004) model of intergenerational linkages with a method of moments.

[8]The observed increase is true for elasticities computed from annual data to three years average, but is not verified for four years average. We think that the small number of observations for the pool of pairs that are followed for four years bias our estimates.

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Appendix

Table 1: Summary statistics of children characteristics

Variable	Mean	Std. Dev.	N
food consumption	1771.668	1650.203	3591
income	7789.598	12758.541	3591
age	23.023	4.246	3591
male	0.664	0.473	3591
household size	4.641	1.387	3591
unemployed	0.023	0.151	3591
urban hukou	0.262	0.44	3591
primary school	0.185	0.389	3591
middle school	0.668	0.471	3591
higher education	0.147	0.354	3591
never married	0.735	0.442	3591
married	0.261	0.44	3591
divorced	0.003	0.053	3591
widowed	0	0	3591
separated	0.001	0.033	3591
pairs living together	0.955	0.208	3591
Liaoning	0.057	0.232	3591
Heilongjiang	0.096	0.294	3591
Jiangsu	0.138	0.344	3591
Shandong	0.105	0.307	3591
Henan	0.132	0.339	3591
Hubei	0.097	0.295	3591
Hunan	0.074	0.261	3591
Guangxi	0.14	0.347	3591
Guizhou	0.162	0.369	3591
1997	0.351	0.477	3591
2000	0.28	0.449	3591
2004	0.129	0.335	3591
2006	0.104	0.305	3591
2009	0.136	0.342	3591

Table 2: Summary statistics of parents' characteristics

Variable	Mean	Std. Dev.	N
food consumption	1806.721	1698.764	3591
income	8427.027	12485.184	3591
age	49.354	4.937	3591
male	0.578	0.494	3591
household size	4.645	1.401	3591
unemployed	0.005	0.071	3591
urban hukou	0.242	0.428	3591
primary school	0.617	0.486	3591
middle school	0.341	0.474	3591
higher education	0.041	0.199	3591
never married	0.009	0.095	3591
married	0.944	0.229	3591
divorced	0.005	0.071	3591
widowed	0.041	0.199	3591
separated	0	0.017	3591
pairs living together	0.955	0.208	3591
Liaoning	0.057	0.232	3591
Heilongjiang	0.096	0.294	3591
Jiangsu	0.138	0.344	3591
Shandong	0.105	0.307	3591
Henan	0.132	0.339	3591
Hubei	0.097	0.295	3591
Hunan	0.074	0.261	3591
Guangxi	0.14	0.347	3591
Guizhou	0.162	0.369	3591
1997	0.351	0.477	3591
2000	0.28	0.449	3591
2004	0.129	0.335	3591
2006	0.104	0.305	3591
2009	0.136	0.342	3591

Table 3: Determinants of food consumption and income for children and parents

	Food consumption		Income	
VARIABLES	children	parents	children	parents
age	0.0646***	0.0560*	0.372***	0.127**
	(0.0207)	(0.0312)	(0.0453)	(0.0585)
square of age	-0.00114***	-0.000621*	-0.00631***	-0.00141**
	(0.000422)	(0.000321)	(0.000922)	(0.000598)
male	0.107***	0.166***	0.131***	0.313***
	(0.0228)	(0.0218)	(0.0415)	(0.0361)
household size	-0.0460***	-0.0331***	-0.0774***	-0.0797***
	(0.00895)	(0.00828)	(0.0170)	(0.0138)
married	0.0343	-0.108	-0.0571	-0.0853
	(0.0311)	(0.0986)	(0.0586)	(0.183)
divorced	0.0718	-0.345**	0.172	0.188
	(0.191)	(0.148)	(0.235)	(0.278)
widowed		-0.245**		-0.264
		(0.110)		(0.195)
separated	-0.197	1.391***	0.423***	0.361*
	(0.163)	(0.111)	(0.149)	(0.196)
unemployed	-0.0761	0.0408	-1.768***	-1.734***
	(0.0574)	(0.107)	(0.192)	(0.484)
2000	-0.0886***	-0.0594**	0.0575	0.0815*
	(0.0259)	(0.0256)	(0.0505)	(0.0417)
2004	0.430***	0.456***	0.445***	0.151**
	(0.0430)	(0.0415)	(0.0644)	(0.0589)
2006	0.575***	0.623***	0.888***	0.725***
	(0.0336)	(0.0339)	(0.0670)	(0.0651)
2009	0.595***	0.642***	1.054***	1.054***
	(0.0301)	(0.0282)	(0.0596)	(0.0529)
Liaoning	-0.441***	-0.422***	-0.413***	-0.472***
	(0.0480)	(0.0459)	(0.0884)	(0.0897)
Heilongjiang	-0.450***	-0.499***	-0.692***	-0.683***
	(0.0408)	(0.0399)	(0.0735)	(0.0668)
Shandong	-0.651***	-0.671***	-0.500***	-0.654***
	(0.0507)	(0.0517)	(0.0739)	(0.0691)
Henan	-0.700***	-0.688***	-0.893***	-0.724***
	(0.0406)	(0.0395)	(0.0733)	(0.0626)
Hubei	-0.281***	-0.287***	-0.810***	-0.465***
	(0.0422)	(0.0427)	(0.0809)	(0.0603)
Hunan	-0.204***	-0.217***	-0.332***	-0.148**
	(0.0426)	(0.0462)	(0.0956)	(0.0748)
Guangxi	-0.199***	-0.252***	-0.810***	-0.630***
	(0.0380)	(0.0362)	(0.0729)	(0.0614)
Guizhou	-0.461***	-0.455***	-0.997***	-0.643***
	(0.0403)	(0.0388)	(0.0710)	(0.0592)
Constant	6.697***	6.366***	3.763***	6.189***
	(0.258)	(0.772)	(0.570)	(1.450)
Observations	3,591	3,591	3,591	3,591
R-squared	0.292	0.292	0.297	0.217

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 4: Intergenerational Food Consumption Elasticity (IFCE), annual data

	(1) IFCE	(2) IFCE
VARIABLES	OLS	Fixed Effect
Parent consumption	0.878***	0.865***
	(0.0129)	(0.0195)
Constant	2.22e-10	2.22e-10
	(0.00504)	(0.00497)
Observations	3,591	3,591
R-squared	0.755	0.715
Number of id		2,809

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 5: Importance of child income in consumption persistence

	(1)	(2)	(3)	(4)
VARIABLES	OLS	OLS	Fixed effect	Fixed effect
parent consumption	0.878***	0.875***	0.865***	0.865***
	(0.0129)	(0.0132)	(0.0195)	(0.0195)
child income		0.0146**		0.0231**
		(0.00585)		(0.0104)
Constant	2.22e-10	2.20e-10	2.22e-10	2.18e-10
	(0.00504)	(0.00503)	(0.00497)	(0.00496)
Observations	3,591	3,591	3,591	3,591
R-squared	0.755	0.756	0.715	0.717
Number of id			2,809	2,809

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 6: Pure transmission of parents' income and tastes in food consumption persistence

	(1)	(2)	(3)
	Conditional IFCE	Children	Parents
VARIABLES	Averages	Consumption	Consumption
parent average consumption	0.882***		
	(0.0133)		
child average income	0.0187***		
	(0.00687)		
parent average income	-0.0182***		
	(0.00584)		
parent income		0.0450**	0.0335
		(0.0225)	(0.0225)
Constant	-1.68e-10	1.98e-10***	-0***
	(0.00447)	(0)	(0)
Observations	3,591	3,591	3,591
R-squared	0.765	0.005	0.003
Number of id		2,809	2,809

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 7: Cross-correlation between child and parent specific effects

Variables	Child specific effect	Parent specific effect
Child specific effect	1.0000	
Parent specific effect	0.8663	1.0000
	(0.0000)	

Table 8: Factors affecting consumption persistence: hukou type, level of education and pairs living together

	(1)	(2)	(3)	(4)
VARIABLES	Child consumption	Child consumption	Child consumption	Child consumption
parent consumption	0.881***	0.890***	0.691***	0.696***
	(0.0154)	(0.0304)	(0.0694)	(0.0769)
middle school		0.00475		-0.00303
		(0.0145)		(0.0146)
higher education		-0.0254		-0.0582***
		(0.0192)		(0.0216)
middle_parent consumption		-0.0115		-0.00712
		(0.0344)		(0.0351)
higher_parent consumption		-0.0262		-0.0244
		(0.0459)		(0.0508)
urban hukou	0.0232*			0.0447***
	(0.0125)			(0.0144)
urban_parent consumption	-0.0194			-0.00594
	(0.0289)			(0.0317)
living together			0.0643**	0.0653**
			(0.0317)	(0.0318)
together_parent consumption			0.193***	0.198***
			(0.0706)	(0.0716)
Constant	-0.00559	0.00121	-0.0618**	-0.0632*
	(0.00584)	(0.0132)	(0.0313)	(0.0339)
Observations	3,591	3,591	3,591	3,591
R-squared	0.755	0.755	0.757	0.758

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 9: Intergenerational Income Elasticity (IIE), annual data

	(1) IIE	(2) IIE
VARIABLES	OLS	Fixed effect
parent income	0.425***	0.328***
	(0.0208)	(0.0404)
Constant	1.02e-10	1.22e-10
	(0.0176)	(0.0163)
Observations	3,591	3,591
R-squared	0.139	0.078
Number of id		2,809

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 10: Intergenerational Food Consumption and Income Elasticities, different years average

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
VARIABLES	one year	two years	three years	four years	one year	two years	three years	four years
parent average consumption	0.867***	0.890***	0.938***	0.893***				
	(0.0223)	(0.0174)	(0.0208)	(0.0750)				
parent average income					0.437***	0.475***	0.675***	0.307***
					(0.0485)	(0.0318)	(0.0423)	(0.0759)
Constant	-0.0242**	-0.0150**	0.000727	-0.0242	-0.0122	-0.00801	-0.0621*	0.00125
	(0.0103)	(0.00642)	(0.00940)	(0.0182)	(0.0364)	(0.0245)	(0.0368)	(0.0545)
Observations	775	1,102	261	76	775	1,102	261	76
R-squared	0.764	0.800	0.852	0.773	0.143	0.195	0.358	0.153

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1