Family Income in Early Life on Financial Independence of Young Adults: Evidence from a Matched Panel Data

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Objective

Researchers believed that one of the most important goals of a household is to produce offspring of good "quality" (Del Boca et al., 2014). Young adulthood is one of the times to examine their progress toward this goal. While considerable research literature on young adults exists, financial independence of young adults, an important topic remains underexplored. As most parents cannot provide financial support for their children forever, financial independence will be the children's first milestone toward the goal of independence from parental control.

Previous studies examined financial independence of young adults from the perspectives of costs and benefits (Whittington & Peters, 1996), family socialization (Lee & Mortimer, 2009) and educational attainment (Xiao et al., 2014). However, those studies did not consider family income during adolescence. Adolescents experience drastic mental, physical and social change (DeLay et al., 2017) and rapidly develop their lifelong behaviors and thought processes, which can explain more than half of lifetime income differences (Heckman & Mosso, 2014). Many studies focused on the relationship between adolescent experience and later outcome as young adults (see Cardella & Depew, 2014; Duncan et al., 2010). To our knowledge, few studies relate adolescent experience to financial independence of young adults. The purpose of this study is to examine whether and how the family income during adolescence influences the financial independence of young adults.

Intergenerational mobility theory suggested that family income during adolescence made positive contributions to formation of human capital and skills of young adults (Becker & Tomes, 1979; Heckman & Mosso, 2014), which include achieving financial independence, an important non-cognitive skill. In the multiple-stage model of Heckman and Mosso (2014), $\theta_{t+1} = f^t(\theta_t, I_t, h)$ where θ_t is the stock of child skill at time t, I_t is investment, h is stock of parental skills and f^t is increasing in θ_t, I_t and h. Clearly, family income is a major influence to investment I_t. On the other hand, some researchers suggested that effects of family income on child development were different in different parts of the income distribution (such as Becker & Tomes, 1986; Del Boca et al., 2014; Heckman & Mosso, 2014; Løken et al., 2012). Heckman and Mosso (2014) modeled f^t strictly concave to investment I_t. Evidence shows that income increase has greater contribution to child development in poor family and less contribution in rich family (Løken et al., 2012) and income increase due to labor supply increase leads to less parental time spending with children, which is an important input of child development (Del Boca et al., 2014). Based on above discussions, we propose the following hypothesis:

The effect of family income during adolescence on financial independence of young adults is inversely U-shaped.

Significance

Our contributions are threefold. First, our study contributes to the literature of financial independence of young adults (Xiao, Chatterjee, and Kim 2014; Whittington and Peters 1996; Lee and Mortimer 2009) by investigating a new influential factor, family income during adolescence, with some important control variables from earlier life, including cognitive and non-cognitive assessment scores and financial behaviors, to relieve endogeneity problem. We used matched panel data between 1997 and 2015 to better depict the developmental trajectory of young adults. Second, our study contributes to

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the literature of adolescents (Rutter, 1987; DeLay et al. 2017; Heckman & Mosso, 2014; Moss, Chen, & Yi 2014; Lillard et al. 2015; Friedline, Elliott, and Nam 2011; Duncan, Ziol-Guest, & Kalil 2010; Ginther, Haveman, & Wolfe, 2000) by providing new empirical evidence of persistent influence of adolescent experience in terms of family income on their later life. Third, our study contributes to the literature of family economics and human capital investment (Heckman & Mosso, 2014) by investigating the effect of family income during adolescence on one important non-cognitive skill of young adults, the ability to achieve financial independence.

Method

This study used current information of young adults from the Transition to Adulthood Supplement (TAS) 2009 to 2015 waves, their family income during adolescence from the Panel Study of Income Dynamics (PSID) 1999 to 2015 waves, and their cognitive abilities, non- cognitive abilities and other financial behaviors from the Child Development Supplement (CDS) 1997 to 2007 waves. The PSID is a nationally representative household survey dataset in the United State covering more than 18,000 individuals from 5,000 families. The dataset covers the information about employment, income, wealth, expenditures, health, marriage, childbearing, child development, philanthropy, education, and many other topics. The CDS is a supplement dataset of PSID gathering child development information of children aging from 0 to 13 in 1997. The TAS is a supplement dataset of PSID gathering child development information of children from 18 to 27 who had participated any of the three waves of CDS and the latest wave of PSID. In our study, young adults were defined as people aged from 18 to 27 in 2013. We matched the young adults from the TAS with their parents in each wave of PSID data.

The dependent variable was financial independence, measured based on a Likert-type scale, where 1 and 5 referred to the lowest and the highest level of financial independence respectively. The key independent variable was average family income of young adult when she or he was an adolescent defined as between ages of 13 to 18. Following previous literature (Xiao et al., 2014), control variables were age, gender, ethnicity, employment status, live with parents, married, self-efficacy, money management ability, problem solving ability, several assessment variables to represent the cognitive abilities, and personality and behavior variables to represent the non-cognitive abilities.

In our study, since the dependent variable was an ordinal variable, the ordered logit method was used. Six models were presented in the table. Model I used bivariate analysis. Model II added a square term of log family income during adolescence. Model III added control variables from TAS. Model IV used sample who had not graduated from college. Model V and VI used sample who had graduated from college.

Results

We presented the descriptive statistics in Table 1. See Table 1 for more details. The ordered logit regression result of the whole sample in Model II and III showed that the relationship between family income during adolescence and financial independence of young adults displayed an inverse U-shape, which supported our hypothesis. Model II and II are preferred over Model I by the AIC and BIC criterion. For the group with students who did not complete college, the relationship between family income during adolescence and financial independence displayed an inverse U-shape. The coefficients of family income in the graduated group were not significant. The results suggested that once they graduated from college, their family income during adolescence no longer influenced their financial independence. We then added control variables from CDS to Model III, IV, V and VI to control cognitive and non-cognitive abilities, and having allowances and savings account. The results in terms of family income during adolescences and control variables from TAS remained consistent with Model III to VI. As for control variables from CDS, effects varied among different model specifications. These results were not presented due to space limitation but available upon request.

Conclusion

In this study, we examine the effect of family income during adolescence on the financial independence of young adults with matched panel data in the U.S. Results show that college graduation status plays an important role in predicting financial independence of young adults.

College graduates have significantly higher likelihoods of financial independence than other young adults. If the young adults do not graduate from college, the relationship of their family income during adolescence and their financial independence is inverted U-shaped. Once young adults graduate from college, their financial independence will no longer be influenced by their family income during adolescence.

The findings of this study suggest that family income during adolescence play an important role in determining financial independence of young adults. The financial independence of young adults from families with very low incomes will improve if their family income during adolescence increases. Government can probably play a role in boosting the income of the low income families who have teenaged children so that the next generation will have a better chance of being financially independent. Parents of all income levels should keep in mind that if their children graduate from college, their chances of being financially independent will be greatly improved. To help young adults achieve financial independence, governments and educators should consider developing policies to help young adults obtain their college degree on time. In addition, parents and schools may help young adults improve financial independence by assisting them in improving their money management ability and problem solving ability. This can be done by designing practical courses at school and offering guidance to parents.

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Table 1
Descriptive Statistics

Variable	N	Mean Panel
Study of Income Dynamics		
Family income during adolescence	5162	64528.81
Number of family unit	5162	3.92
Transition to Adulthood Supplement		
Financial independence	5162	4.06
Age in TAS in survey year	5162	21.91
Female	5162	0.49
White	5162	0.50
Employed	5162	0.65
Live with parents	5162	0.57
Married	5162	0.09
Self-efficacy	5162	16.92
Money management ability	5162	5.48
Problem solving ability	5162	5.96
Never attended college	5162	0.26
In college	5162	0.36
Graduated	5162	0.14
Drop out of college	5162	0.27
Child Development Supplement		
Reading 1997	2915	57.89
Applied problem 1997	4005	59.79
Global self-concept 1997	1862	5.62
Reading 2002	4554	55.08
Applied problem 2002	4599	54.20
Global self-concept 2002	3632	4.07
Flourishing 2002	4153	8.10
Having allowance 2002	2771	0.44
Having saving account 2002	2734	0.54
Perseverance 2002	3644	3.84
Reading 2007	2514	48.01
Applied problem 2007	2514	53.95
Global self-concept 2007	2493	4.10
Flourishing 2007	2425	12.51
Having allowance 2007	2323	0.36
Having saving account 2007	2292	0.57
Perseverance 2007	2496	3.81

Table 2

Random Effect Ordered Logit Regressions of Financial Independence of Young Adults

Variables	Model I Whole sample	Model II Whole sample	Model III Whole sample	Model IV Not graduated	Model V Graduated	Model VI Graduated
Family income during adolescence in log	-0.201*** (0.054)	2.157*** (0.767)	1.978*** (0.737)	2.810*** (0.792)	-0.097 (0.169)	-0.149 (2.398)
Family income during adolescence in log square term		-0.112*** (0.036)	-0.110*** (0.035)	-0.155*** (0.038)		0.002 (0.106)
Age			0.308*** (0.018)	0.350*** (0.018)	0.313*** (0.075)	0.313*** (0.075)
Female			-0.554*** (0.090)	-0.578*** (0.094)	-0.485** (0.231)	-0.485** (0.231)
White			-0.151 (0.099)	-0.220** (0.104)	-0.000 (0.277)	0.000 (0.278)
Employed			1.583*** (0.080)	1.662*** (0.084)	1.842*** (0.294)	1.842*** (0.295)
Live with parents			-1.282*** (0.083)	-1.180*** (0.089)	-2.122*** (0.248)	-2.122*** (0.248)
Married			-0.490*** (0.148)	-0.120 (0.173)	-1.546*** (0.299)	-1.546*** (0.299)
Self-efficacy			0.045*** (0.013)	0.038*** (0.014)	0.061 (0.043)	0.061 (0.043)
Money management			0.212*** (0.031)	0.210*** (0.032)	0.299*** (0.101)	0.299*** (0.102)
Problem solving			0.194*** (0.043)	0.204*** (0.045)	0.206 (0.151)	0.206 (0.151)
Never attended college (Baseline)						
Graduate from college			0.676*** (0.146)			
In college			-0.534*** (0.101)			
Drop out of college			0.272** (0.111)			
Observations	5,162	5,162	5,162	4,423	739	739
Number of individuals	2,141	2,141	2,141	2,033	433	433
Log likelihood	-6403.737	-6399.017	-5364.52	-4854.959	-542.8545	-542.8543
AIC	12819.47	12812.03	10767.04	9741.918	1115.709	1117.709
BIC	12858.77	12857.88	10891.47	9844.231	1184.789	1191.393

Coefficients are log odds ratio. Standard errors in parentheses *** p<0.01, ** p<0.05, *p<0