The Impact of Financial Development on Economic Activities in Vietnam: Evidence From Household Cross-Section Data

Phan Dinh Nguyen

Hochiminh City University of Technology and University of Adelaide, Australia

Abstract

This paper analyses the impacts of financial development on economic activities of Vietnamese households by using 1,685 households from the Vietnam Living Standard Survey conducted in 2004. It is shown that financial development has a positive effect on household income through improving the level of savings and investment, and productivity and reducing the problem of asymmetric information. Moreover, financial development plays a positive role in household economic welfare.

Keywords: Financial development, economic activities, Asia, Vietnam

JEL codes: O16, O12, D1, D14

1. Introduction

The economic growth of most developing countries depends largely on the policies they adopt (Burnside and Dollar, 2000). Vietnam, for instance, experienced economic difficulties until the introduction of the Doimoi (renovation) policies in 1986. The difficulties arose from the Vietnamese government exercising too much control over the economy. The development of the financial sector was constrained and this led to low levels of savings, and low levels and quality of investment. Consequently, even food production was insufficient to feed a fast growing population. It was hard for many households, especially in the rural areas, to meet basic demands. However, the Doimoi policy, started in 1986, changed dramatically the picture. Not only can households now meet their basic needs, many households are prospering.

Arguably, the improvement can be attributed to government policies that gradually reduced constraints on production. The question raised here is whether reducing these constraints can improve the development of the financial system and in turn whether the development of the financial sector would stimulate economic activities of the households. Answering these ques-

tions is the main goal of this paper.

Many papers have looked at the role of financial development in economic activities at both the macro and micro level. Most researchers support the role of financial development in economic activities. Financial development plays a positive role in economic growth, capital accumulation, productivity growth (King and Levine, 1993), the level of savings (Levine, 1999), efficiency of investment (Gregorio and Guidotti, 1995), efficiency of using savings and information technology (Phan, 2006). However, only a few papers such as Guiso et al. (2004) in Italy, Lanot and Lawrence (2005) in India, Antzoulatos and Tsoumas (2005) in Spain, England and America analyze the role at the household level. Their findings suggest that financial development accelerates economic activities. The main limitation of this research is that it does not examine the impact of financial development on household income and sources of household income. Thus, this paper also aims to analyze the role of financial development on household income and sources of household income.

The main results of this paper suggest that government policies improve financial development by encouraging financial liberalization, property rights which increase people's fixed assets, and social relationships within households. In turn, financial development promotes the level and quality of savings and investment, labor productivity and the progress of information technology, and hence the income of households. Furthermore, financial development is positively related to household economic welfare.

The rest of this paper is structured as follows. Section 2 presents the model for estimation. Section 3 describes data and methodology. Section 4 provides estimation results and discussion. Section 5 summarizes the main findings.

2. Model for estimation

The model in this paper is built on the models used by Deaton (1997), Maycock (2005), Croppenstedt (2006), Reddy et al. (2004), Levine (1997) and Beck et al. (2000). This paper has the two additional variables, social relationship and health expenditure, which consider the determinants of income, saving, investment, productivity, information technology and household economic welfare

Financial development can help to improve income by increasing the level of savings, quantity and quality of investment, productivity (Levine, 1997 and Beck et al., 2000), and the efficiency of using savings and information technology (Phan, 2006). In addition, my regression results in this paper show that financial development is positively related to household economic welfare. Therefore, financial development variables are added in my model.

The social relationship which is defined as "the network" can strongly influence economic activities in Vietnam and is included in the model. The reason for adding this variable is that the economic activities of Vietnamese households depend largely on their own social relationship. This is not only because of the national culture but also because of a serious problem of corruption in Vietnam.

It is hard to find a good proxy for the social relationship since illegal activities are often hidden. Fortunately, I have expenses on buying gifts and holding parties which are a very good proxy for social relationships. This is because families which have many friends and know a lot

of influential people or officials normally spend a lot for these things. Families with a broad relationship normally not only hold their own big parties, but also participate in many parties. They also buy a lot of gifts and presents to give their friends, influential people and officials. The better the social relationship, the more families spend.

Health expenditures in households is also another factor which might have an effect on economic activities and is included in the model. This spending can tell us the health situation of each household. The lower this spending, the better health situation in the household is and vice versa. Good health might have a positive influence on household economic activities.

It is expected that financial development and relationship variables have a positive impact while the health variable has a negative influence on household economic activities in this estimation model. Therefore, the model for estimation in this paper is built as follows:

$$LnY = \alpha_0 + \alpha_1*FDH + \alpha_2*FDN + \alpha_3*DEP + \alpha_4*EDU + \alpha_5*HSIZE + \alpha_6*HAGE + \alpha_7*HAGE2 + \alpha_8*HGEN + \alpha_9*INT + \alpha_{10}*LnFA + \alpha_{11}*LnRE + \alpha_{12}*LnHEA + \alpha_{13}*URDUM + \alpha_{14}*EDUM + \alpha_{15}*RDUM + e_i \qquad (1)$$

Where LnY = alternative dependent variables which are the log of household income per person ($LnHIN$), the log of household investment ($LnHINV$), the log of household savings ($LnHSAV$), the log of household labour productivity ($LnHPRO$) measured by household income divided by household labour, information technology ($LnHTECH$) measured by the log of the expenses of newspapers, books, telecom, phone and internet, and the log of household expenditure per capita; FDH = financial development indicator of households; FDP = financial development indicator of provinces measured by the value of capital resource of financial companies over the provincial GDP for 62 provinces; DEP = the household number of dependent people; EDU = education of the household head measured by the number of schooling years; $HSIZE$ = the size of household measured by the household number of people; $HAGE$ = the age of household head; $HAGE2$ = the age of household head squared; $HGEN$ = the gender of household head, 1 for male and 0 otherwise; INT = household interest rate; $LnFD$ = the log of fixed asset; $LnRE$ = the social relationship of the household measured by the log of the cost of parties and gifts; $LnHEA$ = household health measured by the log of expenses on health check, treatment and others at home and hospital; $URDUM$ = urban dummy; $RDUM$ = regional dummies; e_i = error term.

In this paper, I use equation 1 as the following saving equation. This saving equation does not include income, despite it being an important determinant of savings. It is because of a correlation between income and financial development indicators. The literature and the regression results of this paper show the robust link between financial development and income. Thus, fixed asset is employed to proxy for income factor.

I use expenditures which include expenditure per capita, expenditure for food and drink per capita, and expenditure for non food and drink per capita as measures of household economic welfare since expenditures are better measures of household economic welfare than that of income in the household survey data. Firstly, survey respondents are likely to report their spending more honestly than their income. For low income earners, they may report a higher level of income than they have to "save face". Secondly, some of these respondents may have some illegal sources of income resulting from imperfect markets and corruption, and hence they do not

want to reveal these earnings. Finally, these respondents might forget what they earned from the previous period.

3. Data and methodology

The data used in this paper is collected from the Vietnam Living Standard Survey conducted by the General Statistics Office of Vietnam (GSOV) in 2004 for 40,438 households across the country. GSOV took 5,233 out of 40,438 households to ask for details of deposits and borrowing. However, households with missing deposits and loans, income, and expenditures were removed. In addition, to obtain the variables required, several files were merged and not all households were included in each of the files leading to further households being excluded. Therefore, I finally have 1,685 households. The provincial data is collected from the GSOV and VCCI (2006).

There is no data about savings and investment in the survey, but these can be derived from items of income and expenditure. Household savings are calculated by taking household consumption away from household income. Taking the sum of household spending for production and business purposes gives household investment.

The paper uses OLS and 2SLS regression methods to estimate all equations. Breusch-Pagan is employed to test the heteroscedasticity problem. This problem is resolved by using White's heteroscedasticity correction method if any estimation results present evidence for heteroscedasticity. The Hansen test is applied to check the validity of the instrument variables.

In order to solve the problem of endogeneity, I use the Two Stage Least Square method to estimate the relationship with the following instruments. Firstly, the provincial and family populations can be treated as instrument variables since the provincial and family populations, which can capture the size of the province and households, will have an influence on the financial development in the presence of economies of scale in the financial system. Secondly, the lags of provincial financial indicators, regional dummies and provincial legal institution scores given by the Vietnam Chamber of Commerce and Industry (VCCI) in 2006 are used as instrument variables.

The provincial legal institution scores in 2006 are employed here since the survey conducted by VCCI give similar results compared with that in 2004 and 2005. This means that these scores would seem to be not much different in 2002 and 2003.

4. Estimation redults and discussion

The impacts of financial development on households' economic activities are shown by the results of the OLS, 2SLS and 3SLS estimation with five alternative financial development indicators in tables 2 to 4 in the appendix. Generally, financial development plays an important role in income, savings, investment, productivity, technology and the welfare of households.

4.1. The impact on household per capita income

As reported in table 2, financial development indicators show their positive influence on household per-capita income because they are positively significant at 1 percent. This supports the hypothesis that the higher level of financial development can lead to increase households' per-capita income in particular and economic growth in general. This implies that households

with greater ability to borrow and hold financial assets can benefit more from the financial system. This also reflects the inequality in credit distribution across households (Duong and Izumida, 2002). Quach and Mullineux (2006) conclude that the inequality in credit distribution still appears within a province or across communes within a province. This is because households with larger assets have more chances to get loans from the financial market, especially from the banking system. All banks lend their money by looking at the collateral rather than the efficiency of investment since bankers have been afraid of their responsibilities in the non repayment of loans.

In addition, the banking system is dominated by state owned banks. The market share of loans by banking institutions of state owned banks had been around 75 percent during the period 2002-2005 (Phan, 2006). Thus, bankers do not pay much attention to the profit of their banks and the benefit of their clients. This has led to the fact that they have chosen the safe way by asking for collateral in order to lend. The social relationship is another factor that causes the inequality in loan distribution. Bankers normally consider the social relationship with their customers before making loans. They are sometimes informally forced to lend by influential people such as their bosses or officials.

4.2. The impact on household investment

Table 3 in the appendix clearly shows that there is a positive link between financial development and household investment since most financial development coefficients enter with positive and significant coefficients at the 1 percent level in all regressions. This finding confirms the arguments of previous research such as Levine (1997, 1999) and Beck et al. (2000) that both the level and quality of investment increase with better financial development. This shows that the public have become more confident with the financial system, especially in the banking system since the early 1990s. They are more confident to put their savings into the banking system in any forms (dong, dollar or gold). Subsequently, this helps the financial system to have more funds for household investment.

Furthermore, the Socio-Economics Development Program for Extremely Difficult Communities (Program 135) and the National Program for the Poverty Alleviation and Employment for the period 2001-2005 (Program 143) have contributed to the increase household investment. However, these programs have found that many households lack the financial knowledge to use the funds, resulting from the low level of financial development. Some of them put their borrowed funds into the bamboo holes on the roof of the hosue and then return it back to lenders on expiry. Thus, financial development is a big factor in both the level and quality of investment.

4.3. The impact on household savings

Following the literature, I believe that financial development can have a positive influence on the level of household savings. In order to test this hypothesis, I ran the savings equation and got the following result as shown in table 4 in the appendix. These results suggest that financial development promotes household savings since the coefficients of financial development indicators are positively significant at least 10 percent. This is consistent with the conclusion of Levine (1999).

4.4. The impact on household labour productivity

Table 5 in the appendix reports the empirical evidence about the link between the labour productivity and financial development. Most financial development indicators show positive and significant coefficients at the 1% level. This result indicates that financial development promotes household labour productivity in Vietnam.

4.5. The impact on household information technology

All financial indicators are less robust than those in other tables as shown in table 6 in the appendix. However, all the signs of the coefficients of the financial development variables are positive as expected. The households' financial development indicator present the expected sign and significantly at the 5 percent level in regression 3 and regression 6, significant at 1% in regression 5 and regression 7, 10% at regression 4. This supports the hypothesis suggested by Levine (1997) that financial development could reduce the problem of asymmetric information, leading to better efficiency of investment.

4.6. The impact on household economic welfare

The results in table 7 in the appendix show that both household financial development and provincial financial development are positively connected to households' economic welfare. This supports the hypothesis that a better financial system can increase household welfare. This is also consistent with Quach and Mullineux (2006)'s conclusion that access to credit improves household economic welfare in Vietnam.

The social relationship has a very strong positive influence on households economic activity since all coefficients estimated are significant as shown in all tables. This is a good indicator that doing business in Vietnam heavily relies on relationships. This is an aspect of the Vietnamese culture which any one who wants to be successful should learn before attempting to do business in Vietnam.

The positive effect of health expenditure on economic activity is a surprising and interesting point. This coefficient should be negative since health expense might reflect the overall health situation of households. However, this result shows otherwise and can be explained as follows. On one hand, the richer and better educated households have more chances to take care of themselves than the poor and lower educated households. Better health care might help improve productivity and thus per-capita income. On the other hand, poor people normally do not go to see a doctor unless they have a serious health problem. They just stay at home and use traditional medicine such as herbs, for which they do not need to pay, and wait for natural recovery.

5. Conclusion

This paper uses the OLS, 2SLS and 3SLS methods of estimation to analyse the role of financial development in the economic activities of Vietnamese households. In this paper, consistent with the literature, I find that the role of financial development in household economic activity is very important. Financial development helps to increase the level of savings and investment, improve labour productivity and diminish problems of asymmetric information and hence leads to higher household income. The impact of financial development on household income is not

only direct but also indirect. In addition, financial development plays a key role in household welfare. I also find that there has been an inequality in credit distribution across households due to collateral requirement and the borrowing relationships of households. The empirical results indicate that the social relationship has an extremely important role in all economic activities in Vietnam.□

APPENDIX

Table 1: Economic Regions and Provinces in Vietnam

Code	Region and province	Code	Region and province
1	**Red River Delta**	5	**South Central Coast**
101	Hanoi	501	Danang
103	Haiphong	503	Quangnam
104	Vinhphuc	505	Quangngai
105	Hatay	507	Binhdinh
106	Bacninh	509	Phuyen
107	Haiduong	511	Khanhhoa
109	Hungyen	6	**Central Highlands**
111	Hanam	601	Kontum
113	Namdinh	603	Gialai
115	Thaibinh	605	Daklak
117	Ninhbinh	607	Lamdong
2	**North East**	7	**North East South**
201	Hagiang	701	Ho Chi Minh
203	Caobang	705	Ninhthuan
205	Laocai	707	Binhphuoc
207	Backan	709	Tayninh
209	Langson	711	Binhduong
211	Tuyenquang	713	Dongnai
213	Yenbai	715	Binhthuan
215	Thainguyen	717	Baria - Vungtau
217	Phutho	8	**Mekong River Delta**
221	Bacgiang	801	Longan
225	Quangninh	803	Dongthap
3	**North West**	805	Angiang
301	Laichau	807	Tiengiang
303	Sonla	809	Vinhlong
305	Hoabinh	811	Bentre
4	**North Central Coast**	813	Kiengiang
401	Thanhhoa	815	Cantho
403	Nghean	817	Travinh
405	Hatinh	819	Soctrang
407	Quangbinh	821	Baclieu
409	Quangtri	823	Camau
411	Thuathien-Hue		

Source: General Statistics Office of Vietnam

Table 2: The effects of financial development on households' income per capita

	OLS (1)	2SLS (2)	OLS (3)	2SLS (4)	OLS (5)	2SLS (6)	OLS (7)	2SLS (8)
Constant	6.6738*** (0.000)	6.6826*** (0.000)	6.3195*** (0.000)	5.1323*** (0.000)	5.6042*** (0.000)	4.6351*** (0.000)	-1.02997 (0.144)	-8.7359* (0.083)
Households' financial development indicator								
1. FD	0.0028*** (0.006)	0.0038 (0.558)						
2. LnDBSI			0.0623*** (0.000)	0.2881** (0.029)				
3. LnLBSI					0.1545*** (0.000)	0.2965*** (0.000)		
4. LnFDindex							0.9462*** (0.000)	1.8955*** (0.002)
Provincial financial development indicator	0.0032*** (0.000)	0.0032*** (0.001)	0.0034*** (0.000)	0.0036*** (0.002)	0.0026*** (0.000)	0.0026*** (0.000)	0.0024*** (0.001)	0.0022** (0.011)
Dependency	-0.0574*** (0.010)	-0.0572*** (0.010)	-0.0561*** (0.010)	-0.0497* (0.096)	-0.0739*** (0.000)	-0.0694*** (0.000)	-0.0773*** (0.000)	-0.0749*** (0.000)
Education	0.0150*** (0.000)	0.0148*** (0.001)	0.0142*** (0.001)	0.0087 (0.201)	0.0125*** (0.000)	0.0087** (0.027)	0.0120*** (0.000)	0.0073* (0.088)
Households' size	-0.0429*** (0.009)	-0.0424** (0.011)	-0.0458*** (0.004)	-0.0509** (0.025)	-0.0540*** (0.000)	-0.0662*** (0.000)	-0.0470*** (0.000)	-0.0534*** (0.000)
Household head's age	0.0003 (0.969)	0.0005 (0.953)	0.0068 (0.433)	0.0322* (0.096)	0.0029 (0.639)	0.0108 (0.165)	0.0022 (0.732)	0.0105 (0.248)
Household head's age squared	-4.94e-06 (0.952)	-6.36e-06 (0.938)	-0.0001 (0.427)	-0.0003* (0.095)	-0.00002 (0.668)	-0.0001 (0.196)	-0.00002 (0.749)	-0.0001 (0.278)
Household head's gender	-0.0398 (0.366)	-0.0417 (0.363)	-0.0355 (0.399)	-0.0401 (0.475)	-0.0241 (0.449)	-0.0362 (0.285)	-0.0164 (0.604)	-0.0236 (0.485)
Household interest rate	0.0002 (0.694)	0.0003 (0.682)	0.0004 (0.505)	0.0013 (0.220)	-0.0002 (0.538)	-0.0001 (0.732)	-0.0001 (0.850)	0.0002 (0.668)
Fixed asset	0.0503*** (0.000)	0.0496*** (0.000)	0.0489*** (0.000)	0.0362** (0.023)	0.0332*** (0.000)	0.0236** (0.042)	0.0273*** (0.001)	0.0096 (0.532)
Relationship	0.2233*** (0.000)	0.2221*** (0.000)	0.2069*** (0.000)	0.1349*** (0.007)	0.1886*** (0.000)	0.1395*** (0.000)	0.1962*** (0.000)	0.1500*** (0.000)
Health expenditure	0.0268** (0.018)	0.0260** (0.027)	0.0303*** (0.007)	0.0342** (0.037)	0.0327*** (0.000)	0.0294*** (0.000)	0.0331*** (0.000)	0.0293*** (0.001)
Urban dummy	0.2720*** (0.000)	0.2701*** (0.000)	0.2542*** (0.000)	0.1694** (0.021)	0.1992*** (0.000)	0.1588*** (0.000)	0.1520*** (0.000)	0.0599 (0.359)
Ethnicity dummy	-0.0654 (0.340)	-0.0775 (0.449)	-0.0462 (0.472)	-0.1066 (0.339)	-0.0912** (0.018)	-0.0491 (0.294)	-0.1236*** (0.002)	-0.1107** (0.038)
Regional dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Hansen test (p-value)		0.5583		0.9347		0.6617		0.5757
R_squared	0.4412	0.4404	0.4726		0.5147	0.4678	0.5249	0.4554
Observations	933	933	933	933	1663	1642	1663	1643

Note: * = significant at 10%; ** = significant at 5%; *** = significant at 1%. P-values are in brackets.

FD is measured by the share of deposit, bond and share, and insurance to income. LnDBSI is measured by the log of the level of deposit, bond and share, and insurance. LnLBSI is measured by the log of the level of loan, bond and share, and insurance. FDindex = 3994.2258 + 0.0524*Loan + 0.0906*Bond (Share)

Table 3: The effects of financial development on households' investment

	OLS (1)	2SLS (2)	OLS (3)	2SLS (4)	OLS (5)	2SLS (6)	OLS (7)	2SLS (8)
Constant	6.7540*** (0.000)	6.8133*** (0.000)	5.8649*** (0.000)	5.2365*** (0.000)	3.5337*** (0.000)	1.3652 (0.586)	-1.6224* (0.078)	-11.3770 (0.289)
Households' financial development indicator								
1. FD	0.0122*** (0.000)	0.0186 (0.198)						
2. LnDBSI			0.1471*** (0.000)	0.2659* (0.056)				
3. LnLBSI					0.4622*** (0.000)	0.7914** (0.036)		
4. FDindex							0.9238*** (0.000)	2.0227* (0.091)
Provincial financial development indicator	0.0031 (0.116)	0.0028 (0.215)	0.0038* (0.068)	0.0039* (0.074)	0.0008 (0.303)	0.0007 (0.412)	0.0012 (0.450)	0.0009 (0.624)
Dependency	0.0014 (0.975)	0.0024 (0.958)	0.0038 (0.931)	0.0073 (0.873)	-0.0245 (0.398)	-0.0115 (0.729)	-0.0382 (0.226)	-0.0332 (0.328)
Education	0.0191** (0.037)	0.0175* (0.068)	0.0187** (0.040)	0.0158 (0.101)	0.0178*** (0.004)	0.0097 (0.370)	0.0201*** (0.002)	0.0092 (0.502)
Households' size	0.1367*** (0.000)	0.1399*** (0.000)	0.1267*** (0.000)	0.1237*** (0.000)	0.0981*** (0.000)	0.0684* (0.091)	0.1327*** (0.000)	0.1242*** (0.000)
Household head's age	-0.0200 (0.254)	-0.0188 (0.286)	-0.0057 (0.732)	0.0078 (0.717)	-0.0099 (0.399)	0.0071 (0.750)	-0.0219* (0.083)	-0.0077 (0.718)
Household head's age squared	0.0002 (0.310)	0.0016 (0.341)	0.00003 (0.823)	-0.0001 (0.655)	0.0001 (0.633)	-0.0001 (0.627)	0.0002 (0.172)	0.00004 (0.840)
Household head's gender	0.1136 (0.198)	0.1006 (0.283)	0.1338 (0.125)	0.1302 (0.147)	0.1509** (0.017)	0.1325* (0.058)	0.1664** (0.014)	0.1537** (0.031)
Household interest rate	0.0012 (0.467)	0.0013 (0.440)	0.0015 (0.332)	0.0019 (0.243)	0.0005 (0.543)	0.0005 (0.598)	0.0009 (0.346)	0.0012 (0.203)
Fixed asset	0.1164*** (0.000)	0.1117*** (0.000)	0.1175*** (0.000)	0.1113*** (0.000)	0.0533*** (0.000)	0.0199 (0.633)	0.0618*** (0.000)	0.0158 (0.719)
Relationship	0.2724*** (0.000)	0.2645*** (0.000)	0.2403*** (0.000)	0.2023*** (0.001)	0.1829*** (0.000)	0.0725 (0.573)	0.2697*** (0.000)	0.1893** (0.032)
Health expenditure	0.0144 (0.579)	0.0059 (0.785)	0.0243 (0.232)	0.0263 (0.216)	0.0323** (0.029)	0.0247 (0.161)	0.0348** (0.031)	0.0248 (0.264)
Urban dummy	0.1999** (0.031)	0.1874* (0.053)	0.1694* (0.073)	0.1256 (0.265)	0.0861 (0.209)	0.0023 (0.985)	0.0141 (0.848)	-0.2078 (0.380)
Ethnicity dummy	-0.4474*** (0.001)	-0.5288** (0.017)	-0.3330** (0.016)	-0.3648*** (0.009)	-0.1558** (0.035)	-0.0608 (0.651)	-0.3048*** (0.000)	-0.3232*** (0.005)
Regional dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Hansen test (p-value) .		0.3206		0.9954		0.1133		0.7418
R_squared	0.3048	0.2929	0.3329	0.2869	0.4632	0.3718	0.3852	0.2397
Observations	934	934	934	934	1665	1665	1665	1657

Note: * = significant at 10%; ** = significant at 5%; *** = significant at 1%. P-values are in brackets.
   FD is measured by the share of deposit, bond and share, and insurance to income. LnDBSI is measured by the log of the level of deposit, bond and share, and insurance.
   LnLBSI is measured by the log of the level of loan, bond and share, and insurance. FDindex = 9.3080 + 1.18e-05*Loan + 1.82e-05*Bond (Share) + 1.703e-04*Insurance.

Table 4: The effects of financial development on households' savings

	OLS (1)	2SLS (2)	OLS (3)	2SLS (4)	OLS (5)	2SLS (6)	OLS (7)	2SLS (8)
Constant	6.8388*** (0.000)	5.7591**** (0.000)	6.2267*** (0.000)	1.0678 (0.769)	4.3689*** (0.000)	-0.4135 (0.861)	-0.7289 (0.463)	-29.6065** (0.021)
Households' financial development indicator								
1. FD	0.0083* (0.052)	0.0926* (0.078)						
2. LnDBSI			0.1035*** (0.000)	0.8466* (0.098)				
3. LnLBSI					0.3047*** (0.000)	0.9872*** (0.003)		
4. FDindex							0.9148*** (0.000)	4.5668*** (0.004)
Provincial financial development indicator	0.0063*** (0.003)	0.0095*** (0.001)	0.0066*** (0.003)	0.0108** (0.015)	0.0041** (0.045)	0.0049* (0.059)	0.0042** (0.046)	0.0060* (0.068)
Dependency	-0.1428** (0.026)	-0.1471** (0.046)	-0.1394* (0.026)	-0.1200 (0.219)	-0.1787*** (0.000)	-0.1814*** (0.001)	-0.1818*** (0.000)	-0.1953** (0.017)
Education	0.0209 (0.111)	0.0319* (0.098)	0.0189 (0.145)	0.0127 (0.556)	0.02472** (0.025)	0.0024 (0.879)	0.0266** (0.016)	-0.0053 (0.776)
Households' size	0.1809*** (0.000)	0.2493*** (0.000)	0.1718*** (0.000)	0.1641** (0.023)	0.1961*** (0.000)	0.1430*** (0.002)	0.2189*** (0.000)	0.2143*** (0.000)
Household head's age	-0.0475 (0.065)	-0.0105 (0.780)	-0.0363 (0.144)	0.0682 (0.405)	-0.0317 (0.103)	0.0139 (0.638)	-0.0387** (0.043)	0.0168 (0.703)
Household head's age squared	0.0004* (0.087)	0.0001 (0.830)	0.0003 (0.178)	-0.0006 (0.388)	0.0003 (0.136)	-0.0001 (0.592)	0.0003*** (0.059)	-0.0002 (0.688)
Household head's gender	-0.1661 (0.223)	-0.1794 (0.361)	-0.1455 (0.275)	-0.0143 (0.949)	-0.1727* (0.074)	-0.2731** (0.037)	-0.1490 (0.128)	-0.2467* (0.081)
Household interest rate	-0.0003 (0.881)	0.0011 (0.638)	0.0002 (0.920)	0.0047 (0.253)	-0.0007 (0.544)	-0.0006 (0.562)	-0.0003 (0.780)	0.0011 (0.414)
Fixed asset	0.0994*** (0.002)	0.0685 (0.146)	0.0941*** (0.003)	0.0325 (0.645)	0.0671*** (0.008)	0.0004 (0.994)	0.0708*** (0.006)	-0.0370 (0.465)
Relationship	0.2575**** (0.000)	0.1931** (0.025)	0.2356*** (0.000)	0.0341 (0.840)	0.1778*** (0.000)	-0.0444 (0.697)	0.2193*** (0.000)	-0.0134 (0.888)
Health expenditure	-0.0144 (0.66)	-0.0363 (0.470)	-0.0053 (0.870)	0.0444 (0.509)	-0.0054 (0.834)	-0.0121 (0.695)	-0.0119 (0.640)	-0.0522 (0.208)
Urban dummy	0.2082* (0.089)	0.1687 (0.287)	0.1853 (0.126)	-0.0052 (0.892)	0.1496 (0.134)	0.0512 (0.720)	0.0801 (0.428)	-0.3653 (0.148)
Ethnicity dummy	-0.0757 (0.774)	0.1423 (0.668)	-0.0589 (0.821)	0.2117 (0.588)	0.0175 (0.891)	0.2219 (0.242)	-0.0338 (0.791)	0.1325 (0.419)
Regional dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Hansen test (p-value)		0.2443		0.7232		0.8567		0.7184
R squared	0.1746		0.1941		0.2391		0.2354	
Observations	640	636	640	636	1105	1093	1105	1093

Note: * = significant at 10%; ** = significant at 5%; *** = significant at 1%. P-values are in brackets.
FD is measured by the share of deposit, bond and share, and insurance to income. LnDBSI is measured by the log of the level of deposit, bond and share, and insurance.
LnLBSI is measured by the log of the level of loan, bond and share, and insurance. FDindex = 8.1170 + 8.79e-06*Loan + 0.6e-04*Bond (Share) + 14.89e-05*Insurance.

Table 5: The effects of financial development on households' labor productivity

	OLS (1)	2SLS (2)	OLS (3)	2SLS (4)	OLS (5)	2SLS (6)	OLS (7)	2SLS (8)
Constant	7.2887*** (0.000)	7.3226*** (0.000)	6.9480*** (0.000)	5.594*** (0.000)	6.22539*** (0.000)	5.1498*** (0.000)	-2.1090** (0.014)	-12.7005* (0.054)
Households' financial development indicator								
1. FD	0.0028*** (0.006)	0.0064 (0.446)						
2. LnDBSI			0.0604*** (0.000)	0.3202** (0.033)				
3. LnLBSI					0.1559*** (0.000)	0.3202*** (0.000)		
4. LnFDindex							1.0659*** (0.000)	2.2659*** (0.002)
Provincial financial development indicator	0.0033*** (0.000)	0.0031*** (0.002)	0.0035*** (0.000)	0.0037*** (0.004)	0.0026*** (0.000)	0.0027*** (0.000)	0.0024*** (0.001)	0.0022** (0.013)
Dependency	0.2784*** (0.000)	0.2791*** (0.000)	0.2802*** (0.000)	0.2899*** (0.000)	0.2611*** (0.000)	0.2656*** (0.000)	0.2589*** (0.000)	0.2619*** (0.000)
Education	0.0149*** (0.001)	0.0141*** (0.004)	0.0143*** (0.001)	0.0080 (0.286)	0.0124*** (0.000)	0.0084** (0.038)	0.0115*** (0.000)	0.0066 (0.152)
Households' size	-0.1854*** (0.000)	-0.1837*** (0.000)	-0.1885*** (0.000)	-0.1959*** (0.000)	-0.2014*** (0.000)	-0.2127*** (0.000)	-0.1959*** (0.000)	-0.2017*** (0.000)
Household head's age	-0.0005 (0.956)	0.0002 (0.986)	0.0058 (0.536)	0.0351 (0.109)	0.0024 (0.718)	0.0106 (0.200)	0.0016 (0.819)	0.0097 (0.309)
Household head's age squared	3.66e-06 (0.967)	-1.74e-06 (0.984)	-0.0001 (0.534)	-0.0003 (0.109)	-0.00002 (0.794)	-0.0001 (0.248)	-7.53e-06 (0.906)	-0.0001 (0.376)
Household head's gender	-0.0717 (0.126)	-0.0786 (0.111)	-0.0673 (0.136)	-0.0709 (0.254)	-0.0465 (0.166)	-0.0596* (0.100)	-0.0370 (0.266)	-0.0409 (0.250)
Household interest rate	0.0004 (0.542)	0.0004 (0.503)	0.0006 (0.392)	0.0015 (0.177)	-0.0001 (0.755)	-0.0001 (0.877)	0.00003 (0.944)	0.0002 (0.612)
Fixed asset	0.0489*** (0.000)	0.0463*** (0.001)	0.0475*** (0.000)	0.0325* (0.061)	0.0307*** (0.000)	0.0178 (0.163)	0.0254*** (0.003)	0.0042 (0.798)
Relationship	0.2265*** (0.000)	0.2220*** (0.000)	0.2102*** (0.000)	0.1251** (0.028)	0.1874*** (0.000)	0.1312*** (0.000)	0.1964*** (0.000)	0.1463*** (0.000)
Health expenditure	0.0278** (0.018)	0.0247* (0.054)	0.0314*** (0.007)	0.0368** (0.039)	0.0331*** (0.000)	0.0302*** (0.001)	0.0334*** (0.000)	0.0299*** (0.001)
Urban dummy	0.2709*** (0.000)	0.2638*** (0.000)	0.2538*** (0.000)	0.1565* (0.052)	0.1988*** (0.000)	0.1554*** (0.001)	0.1503*** (0.000)	0.0501 (0.471)
Ethnicity dummy	-0.0537 (0.435)	-0.0993 (0.395)	-0.0348 (0.582)	-0.1035 (0.392)	-0.1065*** (0.006)	-0.0584 (0.228)	-0.1397*** (0.000)	-0.1259** (0.016)
Regional dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Hansen test (p-value)		0.9626		0.9626		0.6726		0.4151
R_squared	0.4440	0.4333	0.4717		0.5016	0.4383	0.5105	0.5105
Observations	928	928	928	928	1641	1622	1641	1622

Note: * = significant at 10%; ** = significant at 5%; *** = significant at 1%. P-values are in brackets.

FD is measured by the share of deposit, bond and share, and insurance to income. LnDBSI is measured by the log of the level of deposit, bond and share, and insurance.

LnLBSI is measured by the log of the level of loan, bond and share, and insurance. FDindex = 8091.3494 + 8.52e-02*Loan + 0.1116*Bond (Share) + 0.8844*Insurance.

Table 6: The effects of financial development on households' information technology

	OLS (1)	2SLS (2)	OLS (3)	2SLS (4)	OLS (5)	2SLS (6)	OLS (7)	2SLS (8)
Constant	-0.2339 (0.797)	0.1494 (0.895)	-0.6526 (0.481)	-3.9620 (0.131)	-1.6874** (0.039)	-5.3845** (0.038)	-4.3324*** (0.009)	-28.6069 (0.101)
Households' financial development indicator								
1. FD	0.0016 (0.451)	0.0425 (0.251)						
2. LnDBSI			0.0712** (0.014)	0.6610* (0.086)				
3. LnLBSI					0.2657*** (0.000)	0.7768** (0.025)		
4. FDindex							1.0262*** (0.003)	6.9234* (0.098)
Provincial financial development indicator	0.0064 (0.758)	0.0030 (0.891)	0.0078 (0.704)	0.0191 (0.408)	0.0058 (0.119)	0.0061 (0.131)	0.0057 (0.169)	0.0058 (0.224)
Dependency	-0.1194* (0.099)	-0.1081 (0.149)	-0.1187 (0.102)	-0.1087 (0.273)	-0.1118* (0.051)	-0.0962 (0.122)	-0.1187* (0.099)	-0.1022 (0.287)
Education	0.0441*** (0.006)	0.0314 (0.128)	0.0442*** (0.005)	0.0415* (0.061)	0.0354*** (0.007)	0.0297** (0.043)	0.0415*** (0.010)	0.0122 (0.661)
Households' size	0.0794 (0.201)	0.1292* (0.099)	0.0832 (0.183)	0.1457 (0.126)	0.0459 (0.302)	0.0272 (0.592)	0.0787 (0.200)	0.0659 (0.389)
Household head's age	-0.0045 (0.877)	0.0113 (0.747)	0.0041 (0.890)	0.0781 (0.235)	0.0031 (0.901)	0.0350 (0.310)	0.0058 (0.850)	0.0645 (0.315)
Household head's age squared	0.0001 (0.749)	-0.00004 (0.901)	0.00001 (0.969)	-0.0007 (0.272)	-0.00002 (0.929)	-0.0003 (0.327)	-4.09e-06 (0.989)	-0.0005 (0.367)
Household head's gender	-0.2536 (0.114)	-0.3129* (0.087)	-0.2522 (0.120)	-0.2421 (0.275)	-0.2621** (0.038)	-0.2673* (0.052)	-0.2716* (0.086)	-0.3651* (0.052)
Household interest rate	0.0001 (0.998)	0.0004 (0.924)	-0.0004 (0.927)	-0.0034 (0.520)	-0.0001 (0.957)	-0.0001 (0.974)	0.0003 (0.944)	0.0013 (0.800)
Fixed asset	0.0555 (0.169)	0.0325 (0.485)	0.0545 (0.171)	0.0355 (0.519)	0.0539* (0.097)	-0.0081 (0.884)	0.0357 (0.376)	-0.1034 (0.320)
Relationship	0.4005*** (0.000)	0.3089*** (0.001)	0.3699*** (0.000)	0.0860 (0.666)	0.3034*** (0.000)	0.1409 (0.262)	0.3503*** (0.000)	0.1577 (0.273)
Health expenditure	0.1636*** (0.000)	0.0990* (0.054)	0.1647*** (0.000)	0.1506*** (0.007)	0.1382*** (0.000)	0.1271*** (0.000)	0.1600*** (0.000)	0.1525*** (0.002)
Urban dummy	1.4470*** (0.000)	1.3756*** (0.000)	1.4251*** (0.000)	1.2302*** (0.000)	1.1203*** (0.000)	0.8914*** (0.000)	1.2905*** (0.000)	0.7618* (0.077)
Ethnicity dummy	0.0797 (0.816)	-1.0790 (0.173)	0.0962 (0.765)	-0.1461 (0.806)	0.0382 (0.850)	0.1146 (0.623)	0.0603 (0.855)	-0.1101 (0.785)
Regional dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Hansen test (p-value)		0.3416		0.4801		0.9448		0.8473
R_squared	0.4019	0.1590	0.4079		0.3706	0.2797	0.4167	0.0783
Observations	597	592	597	592	933	922	596	590

Note: * = significant at 10%, ** = significant at 5%, *** = significant at 1%. P-values are in brackets.
FD is measured by the share of deposit, bond and share, and insurance to income. LnDBSI is measured by the log of the level of deposit, bond and share, and insurance.
LnLBSI is measured by the log of the level of loan, bond and share, and insurance. FDindex = 4.2476 + 4.62e-06*Loan.

Table 7: The effects of financial development on households' economic welfare

Independent Variables \ Dependent Variables	Expenditure Per Capita		Expenditure for Food and Drink Per Capita		Expenditure for Non Food and Drink Per Capita	
	OLS	2SLS	OLS	2SLS	OLS	2SLS
Constant	-1.2480	-27.3352**	-1.6746	-45.9354**	-1.8567	-26.3016*
	(0.409)	(0.042)	(0.493)	(0.047)	(0119)	(0.070)
Households' financial development indicator	1.0001***	4.3346**	1.1226***	7.1710**	1.0011***	4.5641**
	(0.000)	(0.011)	(0.001)	(0.023)	(0.000)	(0.031)
Provincial financial development indicator	0.0026***	0.0029***	0.0021***	0.0021***	0.0029***	0.0034***
	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)	(0.001)
Dependents	-0.1076***	-0.1077***	-0.0901***	-0.0931***	-0.1255***	-0.1254***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Adults	-0.0384***	-0.0376***	-0.0404***	-0.0446***	-0.0335***	-0.0315*
	(0.000)	(0.001)	(0.000)	(0.000)	(0.015)	(0.073)
Education	0.0166***	0.0114***	0.0080***	0.0035	0.0304***	0.0228***
	(0.000)	(0.002)	(0.000)	(0.283)	(0.000)	(0.000)
Household head's age	0.0041	0.0086	0.0006	0.0087	0.0073	0.0131
	(0.387)	(0.201)	(0.873)	(0.189)	(0.354)	(0.213)
Household head's age squared	-0.00004	-0.0001	-2.17e-07	-0.0001	-0.0001	-0.0001
	(0.360)	(0.219)	(0.995)	(0.230)	(0.252)	(0.188)
Household head's gender	-0.0307	-0.0327	0.0146	0.0096	-0.0776*	-0.0803
	(0.288)	(0.315)	(0.512)	(0.715)	(0.084)	(0.113)
Household interest rate	0.00002	0.0001	0.0002	0.0004	-0.0001	-0.0001
	(0.922)	(0.745)	(0.412)	(0.151)	(0.876)	(0.907)
Fixed asset	0.0269***	0.0047	0.0196***	-0.0033	0.0327***	0.0017
	(0.000)	(0.708)	(0.000)	(0.793)	(0.001)	(0.937)
Relationship	0.1767***	0.1351***	0.1262***	0.0907***	0.2433***	0.1820***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Health expenditure	0.0183***	0.0111	0.0144***	0.0134**	0.0271***	0.0151
	(0.004)	(0.249)	(0.006)	(0.032)	(0.007)	(0.328)
Urban dummy	0.2006***	0.0953	0.2025***	0.0954	0.2078***	0.0592
	(0.000)	(0.135)	(0.000)	(0.103)	(0.000)	(0.586)
Ethnicity dummy	-0.0665**	-0.0368	-0.0405	-0.0309	-0.1154**	-0.0706
	(0.041)	(0.322)	(0.150)	(0.335)	(0.034)	(0.257)
Regional dummy	Yes	Yes	Yes	Yes	Yes	Yes
Hansen test (p-value)		0.7310		0.1976		0.1917
R_squared	0.5081	0.2246	0.4612	0.2331	0.4206	0.0913
Observations	1665	1643	1665	1643	1665	1643

Note: * = significant at 10%; ** = significant at 5%; *** = significant at 1%. P-values are in brackets.
Households' financial development indexes are constructed as follows:
- FDindex for estimated equation of expenditure per capita = 7.9143 + 1.38e-06*Loan + 7.64e-05*Insurance.
- FDindex for estimated equation of expenditure for food and drink per capita = 7.3432+ 1.28e-06*Loan.
- FDindex for estimated equation of expenditure for non food and non drink = 6.9912 + 1.64e-06*Loan + 11.85e-05*Insurance.

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