Does Financial Skill Promote Economic Growth?

Yutaka Kurihara
Department of Economics
Aichi University
4-60-6 Hiraike Nakamura Nagoya
4538777, Japan

Abstract

Financial skill/literacy is the ability to understand how money and economy work, how people earn or make money, and how they invest and use it to help themselves and others. Many advantages arise from improvement of financial skill and it follows that financial skill can result in economic growth. This article empirically examines whether or not financial skill causes economic growth and shows that financial skill brings growth compared to other skills (e.g., English and information technology [IT]); however, financial skill does not necessarily shrink the economic divide. Financial skill plays a role in most theories of persistent inequality.

Keywords: economic growth, English, financial skill, Gini coefficient, IT

1. Introduction

Financial skill/literacy is the ability to understand the workings of money and the economy, how people earn or make money, how they invest and use it to help themselves and others. Concretely, financial skill means the ability and knowledge that allows individuals to make rational, effective decisions about their financial and economic resources. As mentioned below, it seems natural that financial skill would directly cause economic growth; however, there are other advantages gained by improving financial skill. The broadest view of the effectiveness of financial skill encompasses a sense of responsible citizenship along with knowledge that creates a better society.

The OECD started a project in 2003 with the purpose of providing ways to increase financial skill. In 2008, the OECD also started the International Gateway for Financial Education, which serves as a clearinghouse for financial education programs, information, and research. In 2010, the United States Congress passed the *Dodd-Frank Wall Street Reform and Consumer Protection Act* and created the Consumer Financial Protection Bureau (CFPB). This organization's Consumer Engagement and Education group has been tasked to promote financial education. Both developed and developing countries try to improve individuals' financial skill because they consider the improvement of financial skill an effective way to promote economic growth.Recently, financial and economic situations have changed dramatically. As financial liberalization, internationalization, peoples' aging at an unprecedented tempo, permeation of credit cards, consumer loan facility, and so on have spread, people have a great need for accurate financial and economic knowledge.

This article employs an indicator of financial skill to examine the relationship between financial skill and economic growth. Intuitively, improvement in financial skill is associated with economic growth or decreases in income inequality. The reason for this view can be stated as follows. Financial development that lowers the cost of access to financial services is useful to individuals and helps them to pay for education, including more financial skill. This confers efficiency of capital allocation and reduces inequality of opportunities by facilitating funding to poor individuals with productive investments (see, for example, Galor & Zeira, 1993). However, Greenwood and Jovanovic (1990) presented a nonlinear relationship between financial development, inequality, and economic growth. There is no absolute consensus about the relationship (Claessens, Djankov, Fan, & Lang, 2002).

Financial development has introduced sophisticated financial instruments that require advanced skill for proper use (Beck, Levine, & Levkov, 2009; Gine& Townsend, 2004; Townsend & Ueda, 2006,).

Except for new financial commodities such as financial derivatives, financial development provides greater risk management and insurance services. In addition to the improvement of general welfare, these services have merit in that they allow families to keep their education in school even when faced with negative shocks to family income and (Demirguc-Kunt & Levine 2009). In some countries, especially in Asia, as savings were traditionally considered an important source of funding for industries, supporting policies have been conducted by governments to attain economic growth. Also, some countries have encouraged savings to control inflation. Both basic and advanced skills are needed for individuals and investors. For example, Levine, Levkov, and Rubinstein (2009) examined racial discrimination in saving activity. Wachira and Kihiu (2012) showed that a household's access to financial services is not based on levels of financial skill but on factors such as income levels, distance from banks, age, marital status, gender, household size, and level of education. Jayaratne and Strahan (1996) found that a state's rate of economic growth accelerates after the removal of intrastate branch restrictions. On the other hand, some studies have found that changes in financial development do not alter aggregate saving rates (King & Levine, 1993; Levine &Zervos, 2009).

Guiso and Jappelli (2008) showed that financial skill correlates strongly with the degree of portfolio diversification. Campbell (2006) and Agarwal, Amromin, Ben-David, Chomsisenghet, and Evanoff (2011) showed that people appear to engage in financial transactions that might be construed as mistakes. Jappelli (2010) showed that the ability to obtain benefits from financial investment opportunities and participation in financial markets depends on economic skill. Van Rooij, Lusardi, and Alessi (2011) showed that people with low financial skill are less likely to access financial markets and invest in stocks. Bönte and Filiiak (2012) found a positive relationship between financial skill and social interaction on investment. Prete (2013) showed that the ability to obtain benefit from investment opportunities depends on economic skill, not on financial growth, and the relevance of economic literacy is not obtained by generic measures of schooling.

Moreover, Bernheim (1998) and Agnew and Szykman (2005) showed that consumers with low incomes and low educational attainment tend to be low in financial knowledge. Almenberg and Gerdes (2002) found that exponential growth bias and standard measures of financial skill correlate negatively in Swedish adults. Clarke, Xu, and Zou (2006) and Beck, Demirguc-Kunt, and Levine (2007) showed that in countries where financial markets are more developed, income inequality is lower and grows less and the income rate of the poorest people increase more. Rajan and Zingales (2003), Acemoglu and Robinson (2005), Bordo and Rousseau (2006), Barth, Caprio, and Levine (2006) examined the problem of inequality from political perspectives. Claessens and Perotti (2007) and Demirguc-Kunt and Levine (2009) indicated that financial development changes the distribution of incomes and poverty. Collins (2012) showed that individuals with higher incomes, educational attainment, and levels of financial skill are likely to receive valuable financial advice. Prete (2013) indicated that as financial markets became more sophisticated, the ability to take advantage of investment opportunities helps reduce inequality, and the relationship between financial development and low income inequality seems to be affected by economic skill. Finally, many studies have examined the relationship between economic inequality and economic growth (Aghion, Caroli, & Garcia-Penalosa, 1999; Bancerjee & Duflo, 2003; Forbes, 2000, World Bank 2005). However, only a few studies have examined the relationship between (1) financial skill and income and (2) financial skill and inequality while considering other business skills for both (1) and (2).

This article, using the indicator of financial skill compiled by the IMD World Competitiveness Yearbook to proxy the degree by which people are able to understand and use financial instruments, empirically examines the relationship between financial skill and economic growth and equality. Section 2 provides a theoretical analysis of the links between financial skill and economic growth/inequality. Section 3 shows the empirical analyses and analyzes them. Finally, this article ends with a brief summary.

2. Theoretical Analysis

This article uses regressions as per Beck et al. (2007) and Prete (2013). Most studies have used the Gini coefficient as the dependent variable. Instead, this research also employed income per capita. For explanation variables, three important business skills, namely, financial skills (literacy), English proficiency (TOEFL), and information technology skill are included in the regression and analyzed. Specifically, income per capita and the Gini coefficient are regressed by these variables.As globalization is ongoing in the economic field, competent English ability seems to increase business activity.

It cannot be denied that English proficiency is one of the most important qualifications to access in global business. Also, the establishment of the Internet has overcome many barriers since then by reducing time and the disadvantage of location and promoting efficiency in many fields. The use of the Internet allows many possibilities (Kurihara & Fukushima, in press). ICT can play a vital role in the pathway to economic growth. When analyzing the skills needed for economic development, not only financial skills but also English and IT skills should be considered. The next section shows the empirical methods and analyses.

3. Empirical Analysis

This article uses the IMD World Competition Yearbook to proxy the degree by which people are able to understand and use the three skills noted above. The Yearbook compiles indicators from many fields. The indicators are computed based on interviews with senior business leaders in many countries. The estimated countries are Argentina, Australia, Austria, Belgium, Brazil, Canada, China, Chile, Columbia, Croatia, Czech, Denmark, Estonia, Finland, France, Germany, Greece, Hong Kong, Hungary, Iceland, India, Indonesia, Ireland, Israel, Italy, Japan, Kazakhstan, Korea, Jordan, Lithuania, Luxembourg, Malaysia, Mexico, Netherlands, New Zealand, Norway, Peru, Philippines, Poland, Portugal, Qatar, Romania, Russia, Singapore, Slovak, Slovenia, South Africa, Spain, Sweden, Switzerland, Thailand, Turkey, Ukraine, United Kingdom, United States, and Venezuela; the selections of these countries are based on data availability.

Before the regressions are preformed, each variable is checked statistically.

Table 1 shows descriptive statistics (Table 1a) and correlations (Tables 1b and 1c) for these variables.

Table 1a. Descriptive Statistics

	Income (US$)	Gini Coefficient	Financial Skill (0~10)	English (0~100)	IT Skill (0~10)
Mean	27597.48	37.68	6.58	87.92	7.60
Median	26741.00	1.18	6.71	89.00	7.69
Maximum	88160.00	59.00	8.31	100.00	9.22
Minimum	3493.00	25.00	4.30	70.00	4.92
Std. dev.	17986.99	8.89	1.04	7.71	0.87
Skewness	1.21	-0.03	-0.34	-0.60	-0.49
Kurtosis	5.20	0.70	2.22	2.62	3.25

Table 1b. Correlations among Variables (Income per Capita)

	Income	Financial Skill	English	IT Skill
Income	1			
Financial skill	0.42	1		
English	0.20	0.19	1	
IT skill	0.40	0.72	0.24	1

Table 1c. Correlations among variables (Gini coefficient)

	Gini Coefficient	Financial Skill	English	IT Skill
Gini coefficient	1			
Financial skill	-0.20	1		
English	-0.21	0.18	1	
IT skill	-0.32	0.76	0.30	1

It is clear that financial skill is strongly and positively related to income per capita. IT skill and English proficiency also correlate positively with income per capita. On the other hand, for the Gini coefficient, all of the coefficients are negative.

To analyze how financial skill influence on economic growth empirically, the equation is regressed as follows.

$$INCOME = \alpha + \beta FINANCE + \gamma ENGLISH + \delta IT + \varepsilon \quad (1)$$

INCOME means income per capita. FINANCE means financial skill, ENGLISH means English proficiency, and IT means information technology skill. ε is the error term. The sample period is from 2009 to 2011. Average data are used for estimation. The results are shown in Table 2.

Table 2.Income per Capita and Financial Skill

	(1)	(2)	(3)	(4)
C	-53019.15	-21181.68	-43744.87	-35975.74
	(0.06)	(0.04)	(0.11)	(0.06)
FINANCE	4861.66	7405.81	7001.50	4815.83
	(0.12)	(0.00)	(0.00)	(0.11)
ENGLISH	239.43		286.89	
	(0.42)		(0.33)	
IT	3620.88			4118.49
	(0.33)			(0.26)
Adj.R2	0.21	0.18	0.19	0.20
Prob (F-statistic)	0.00	0.00	0.00	0.00
Durbin-Watson	2.10	2.09	2.10	2.07

Note. Figures shown in parentheses are *p*-values.

The results are almost conclusive. Financial skill is necessary as it contributes to economic expansion. These findings suggest that financial skill can help people understand their economic world, give them tools to make financial and economic decisions, and promote business and economic growth.

Next, the Gini coefficient instead of income per capita is used for the independent variable. The Gini index denotes that the case of absolute equal distribution of income is 0, and the case of absolute inequality is 100. The estimated equation is equation (2)

$$GINI = \alpha + \beta FINANCE + \gamma ENGLISH + \delta IT + \varepsilon \quad (2)$$

GINI denotes Gini coefficient, and the data also are from IMD. The results are shown in Table 3.

Table 3.GiniCoefficient and Financial Skill

	(1)	(2)	(3)	(4)	(5)
C	71.66	45.23	60.34	70.95	60.73
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
FINANCE	1.37	1.21			1.35
	(0.40)	(0.29)			(0.40)
ENGLISH	-0.15			-0.14	
	(0.33)			(0.34)	
IT	-3.88		-3.03	-2.70	-4.20
	(0.05)		(0.02)	(0.05)	(0.01)
Adj.R2	0.11	0.02	0.08	0.10	0.10
Prob (F-statistic)	0.08	0.29	0.02	0.05	0.06
Durbin-Watson	1.54	1.38	1.48	1.47	1.54

Note. Figures shown in parentheses are p-values.

It is interesting to note that the coefficient of FINANCE is positive, which means that inequality expands with the acquisition of financial skill; however, the coefficient is not significant. As has been suggested by some researchers, growth and inequality may interact during the process of economic growth (Greenwood &Jovanovic, 1990; King & Levine, 1993; Galor&Moav, 2004). It is difficult to judge, however, the possibility exists that bipolarization in life would increase. Competent, knowledgeable, and skilled people use financial skill more effectively than those who do not have such abilities.

Financial skill enhances the use of services to access the financial system, which are frequently used by high income individuals and well-established firms. Thus, this situation widens inequality as shown by Greenwood and Jovanovic (1990). As suggested by some researchers, market imperfections should be taken into account while considering the preponderance of persistent inequality (Becker & Toms, 1979; Galor & Zeira, 1993; Mookherjee & Ray, 2003).

One important point in the solution of inequality depends on low or high wage earners (Jerzmanowski & Nabar 2007). Financial constraint in many fields should be taken into account (Bancerjee & Duflo, 2005; Evans & Jovanovic, 1989; Evans & Leighton, 1989; Holtz-Eakin, Joulfaian, & Rosen, 1994). The coefficient of inequality is not significant; however, the result shows that the improvement of financial skill does not significantly shrink inequality. Each country in some cases should consider this fact for sound economic development.

4. Conclusion

This article examined the relationship between financial skill and economic growth. The results suggest that financial skill confers economic growth; however, there is no clear relationship between (1) English proficiency and economic growth and (2) IT skill and economic growth. Moreover, financial skill does not reduce the inequality but IT skill does.

Finally, there is some room for further study. Expansion of the number of countries and the sample period may enable a more in-depth analysis. It may be possible to regress by other variables and by other methods. Consideration of different judgment standards for the same variables should be taken into account. For example, the term *English* ability in business can be evaluated by other elements. Also, much more theoretical background may be necessary to analyze the reason for economic growth and inequality as there are many ways to encourage economic growth and inequality.

References

Acemoglu, D., & Robinson, J. A. (2005).*Economic origins of dictatorship and democracy*. Cambridge, UK: Cambridge University Press.

Agarwal, S., Amromin, G., Ben-David, I., Chomsisenghet, S., &Evanoff, D. D. (2011). Financial counseling, financial literacy, and household decision making, In O. S. Mitchell & A. M. Lusardi (Eds.), *Financial literacy: Implications for retirement security and the financial marketplace* (pp. 181-201). New York, NY: Oxford University Press.

Aghion, P., Caroli, E., & Garcia-Penalosa, C. (1999). Inequality and economic growth: The perspective of the new growth theories. *Journal of Economic Literature*, *37*(4), 1615-1660.

Agnew, J. R., &Szykman, L. R. (2005). Asset allocation and information overload: The influence of information display, asset choice, and investor experience. *Journal of Behavioral Finance, 6*, 57-70.

Almenberg, J., &Gerdes, C. (2012).Exponential growth bias and financial literacy.*Applied Economics Letters, 19*(17), 1693-1696.

Banerjee, A., &Duflo, E. (2003). Inequality and growth: What can the data say? *Journal of Economic Growth, 8*, 267-299.

Bancerjee, A., &Duflo, E. (2005).Growth theory through the lens of development economics.In P. Aghion and S. Durlauf (Eds.), *Handbook of economic growth*, (473-552). Stanford: Elsevier.

Barth, J., Caprio, G., & Levine, R. (2006).*Rethinking banking regulation: Till angels grow*. Cambridge, UK: Cambridge University Press.

Beck, T., Demirguc-Kunt, A., & Levine, R. (2007).Finance, inequality and the poor.*Journal of Economic Growth, 12*, 27-49.

Beck, T., Levine, R., &Levkov, A. (2009).Big bad banks?The impact of U.S. branch deregulation on income distribution.*NBER Working Paper*, 13299.

Becker, G. S., & Tomes, N. (1979).An equilibrium theory of the distribution of income and intergenerational mobility.*Journal of Political Economy, 87*(6), 1153-1189.

Bermheim, B. D. (1998). Financial illiteracy, education, and retirement saving. In O. S. Mitchell & S. J. Schieber (Eds.), Living with defined contribution pensions (pp. 36-68). Philadelphia, PA: University of Pennsylvania Press.

Bönte, W., &Filiak, U. (2012). Financial literacy, information flows, and caste affiliation: Empirical evidence from India. *Journal of Banking and Finance, 36*(12), 3399-3414.

Bordo, M., & Rousseau, P. (2006).Legal-political factors and the historical evolution of the finance-growth link.*European Review of Economic History, 10*(3), 421-444.

Campbell, J. Y. (2006). Household finance.*Journal of Finance, 61*(4), 1553-1604.

Claessens, S., Djankov, S., Fan, J., & Lang, L. (2002). Disentangling the incentive and entrenchment effects of large shareholdings.*Journal of Finance, 57*(6), 2741-2771.

Claessens, S., &Perotti, E. (2007). Finance and inequality: Channels and evidence. *Journal of Comparative Economics, 35*(4), 748-773.

Clarke, G., Xu, L., &Zou, H. (2006). Finance and income inequality: what do the data tell us? *Southern Economic Journal, 72*(3), 578-596.

Collins, J. M. (2012). Financial advice: A substitute for financial literacy? *Financial Services Review, 21*(4), 307-322.

Demirguc-Kunt, A., & Levine, R. (2009). Finance and inequality: theory and evidence. *Annual Review of Financial Economics, 1*, 287-318.

Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010, 12 U.S.C.A. §5567.

Evans, D., &Jovanovic, B. (1989).An estimated model of entrepreneurial choice under liquidity constraints.*Journal of Political Economy, 97*(4), 808-827.

Evans, D., & Leighton, L. (1989).Some empirical aspects of entrepreneurship.*American Economic Review, 79*(3), 519-535.

Forbes, K. (2000). A assessment of the relationship between inequality and growth. *American Economic Review, 90*(3), 869-887.

Galor, O., &Moav, O. (2004). From physical to human capital accumulation: Inequality and the process of development. *Review of Economic Studies, 71*, 1001-1026.

Galor, O., &Zeira, J. (1993).Income distribution and macroeconomics.*Review of Economic Studies,60*(1), 35-52.

Gine, X., & Townsend, R. (2004). Evaluation of financial liberalization: A general equilibrium model with constrained occupation choice. *Journal of Development Economics, 74*(2), 269-307.

Greenwood, J., &Jovanovic, B. (1990).Financial development, growth, and the distribution of income.*Journal of Political Economy, 98*(5), 1076-1097.

Guiso, L., &Jappelli, T. (2008).Financial literacy and portfolio diversification.*CSEF Working Paper*, 212.

Holtz-Eakin, D., Joulfaian, D., & Rosen, H. S. (1994).Sticking it out: Entrepreneurial survival and liquidity constraints.*Journal of Political Economy, 102*(1), 53-75.

Jappelli, T. (2010). Economic literacy: an international comparison. *Economic Journal, 120*, F429-F451.

Jayaratne, J., &Strahan, P. (1996). The finance-growth nexus: Evidence from bank branch deregulation. *Quarterly Journal of Economics, 111*, 639-670.

Jerzmanowski, M., &Nabar, M. (2007). Financial development and wage inequality: theory and evidence. *MPRA Pap*., 9841.

King, R. G., & Levine, R. (1993). Finance, entrepreneurship, and growth: theory and evidence. *Journal of Monetary Economics, 32*(3), 513-542.

Kurihara, Y., & Fukushima, A. (In press). Impact of the prevailing Internet on international trade in Asia.

Levine, R., &Zervos, S. (1998). Stock markets, banks, and economic growth.*American Economic Review, 88*(3), 537-558.

Levine R., Levkov, A., & Rubinstein, Y. (2009).Racial discrimination and competition.*NBER Working Paper*, 14273.

Mookherjee, D., & Ray, D. (2003).Persistent inequality.*Review of Economic Studies, 7082*, 369-393.

Prete, A. L. (2013). Economic literacy, inequality, and financial development.*Economics Letters, 118*, 74-76.

Rajan, R. G., &Zingales, L. (2003). The emergence of strong property rights: Speculations from history. *NBER Working Paper*, 9478.

Townsend, R. M., & Ueda, K. (2006). Financial deepening, inequality and growth: A model-based quantitative evaluation. *Review of Economic Studies, 73*(1), 251-293.

Van Rooij, M., Lusardi, A., &Alessie, R. (2011). Financial literacy and stock market participation. *Journal of Financial Economics, 101*, 449-472.

Wachira, M. I., &Kihiu, I. (2012).Impact of financial literacy on access to financial services in Kenya.*International Journal of Business and Social Science, 3*, 42-50.

World Bank. (2005). *Doing business*. Washington, D.C..