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Estimating the Effect of Compulsory and Tuition-Free Education Policies on Financial Inclusion

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ABSTRACT

Education has a key role to play in moving towards environmentally sustainable and inclusive economic growth. In the meantime, shows that elimination of blockages to financial inclusion has significant and unambiguous direct impacts on GDP growth and productivity through smarter allocation of resources and more efficient financial contracting; resulting in stronger entrepreneurial activities and new business start-ups that increase aggregate output. This study examines how compulsory and tuition-free education policies affect financial inclusion. We used country-level policies data collected by WORLD Policy Analysis Center, contains the information whether a country has constitutions on making certain levels of education compulsory and/or tuition-free. As a measurement of financial inclusion, we referred to the Global Findex database, the world's most comprehensive database on financial inclusion, provides in-depth data on how individuals save, borrow and make payments. However, the relationship between compulsory and tuition-free education and financial inclusion is not that simple. We include a set of mediator variables (i.e. enrollment rates, literacy rate and financial literacy rate) in the analysis and use Structural Equation Modelling (SEM) to address this complexity and reveal how those variables interact each other. This paper contribute on examining the complex relationship between education policies and financial inclusion in country-level.

1. INTRODUCTION

Policy makers asserts that spending the national budget for education is one of the endeavour to promote economic growth. Education is potential to eradicate poverty but many channels

affected the economic growth [16]. In many developed countries, invest their national budget in education may foster the technological innovation, making the capital, productive labour and thereby income growth will be generated. Many also believe that individuals who are willing to take more years to study can earn more money, get better jobs and source of social mobility [16],[17].

In order to measure and understand the country's economic and social development, the government needs the system called financial inclusion. The benefits of financial inclusion are not merely for individuals but including the growth and employment[1]. Financial inclusion effort is to improve of all lives through ensuring all households and business level to have the access to use the formal services. The financial inclusion will support poor people to have access to a bank, own saving account, debit card, insurance and credit card. Financial inclusion is accessible for everybody especially for people who have little money and help them in managing day-to-day expenses as well as borrow money in formal financial system. The benefits from financial inclusion such as easier day-to-day transactions, helping households to manage flow spikes, mitigate shocks in order to manage expenses and improve welfare[2].

The effect of financial inclusion to alleviate poverty is rigorous since there is a correlation with Growth Domestic Product (GDP). While financial exclusion is the process that prevents poor people from gaining access to formal inclusion systems. Given the complexity of financial exclusion, the financial inclusion is firmly placed on the agenda for key policy by the government. According to IMF and NBER Working Paper, it shows that elimination of blockages to financial inclusion has significant and unambiguous direct impacts on GDP growth

[1] http://www.cgap.org/about/faq/what-financial-inclusion-and-why-it-important
[2] http://www.cgap.org/about/faq/what-financial-inclusion-and-why-it-important

and productivity through smarter allocation of resources and more efficient financial contracting; resulting in stronger entrepreneurial activities and new business start-ups that increase aggregate output [17].

This paper aims to estimate the effect of compulsory and free-education policies in three levels (i.e. primary, secondary and higher education) to financial inclusion. Our hypothesis is that compulsory and free-education policies will affect to the respective enrolment rates, which then can improve literacy and financial literacy in a country. The final effect is that financial inclusion improved because of the increase of literacy and financial literacy rate.

The paper proceeds as follows. The section 2 explains the compulsory and free-education policy and how education influence financial literacy. Section 3 elaborates on how education aspects affect financial inclusion. Section 4 explains how financial inclusion have important role to economic growth. The fifth section explains the data from WORLD Policy Analysis Center by World Bank. Section 6 and 7 examine the financial inclusion measures and the effect of education policy for financial inclusion, respectively. The paper is closed by the discussion session.

2. COMPULSORY AND FREE-EDUCATION POLICY

2.1 Compulsory Education

The right on education is asserted and has been formally recognized as human right since the adoption the Universal Declaration of Human Rights in 1948 [1], [3]. Numerous global treaties on human rights have been continued in the affirmation of the adoption such as United Nations Educational, Scientific and Cultural Organization (UNESCO) Convention against Discrimination

in Education (1960), the International Covenant on Economic, Social and Cultural Rights (1966) and the Convention on the Elimination of All Forms of Discrimination against Women (1981) [3]. These treaties established the entitlement on education and addressed the issue to access the free primary education and the rights of minority groups; develop secondary education, responsibility to provide basic education for individuals who have not completed primary schooling [3].

Since education is the based approach of human rights, it should be compulsory until children reach the minimum age for employment [2],[3]. Education plays important role in combating child labour, child marriage and allows developmental opportunities by giving wide options because put the children on the right path for the future work [1],[4].

With regard to the compulsory education, countries are categorized in two groups: the length of primary schooling equals to compulsory education and those apply beyond primary schooling have prolonged compulsory education [1]. The trend to lengthening compulsory schooling follows two rationale. First, the prolonged compulsory education may prevent children undertaking the adulthood too early as well as combatting child labour. Second, teach children to be adaptable by the shifting of globalization and localization education [1].

2.1.1 Primary Education

It is rigorous that the primary education is important as the first stage for children building their capacity. The primary education also majorly become compulsory education in the world wide since it is a part of human rights. As mentioned in the Article 26 of the Universal Declaration of Human Rights 1948, "*Everyone has the right to education. Education shall be free, at least in*

the elementary and fundamental stages. Elementary should be compulsory. Technical and professional education shall be made available and higher education shall be equally accessible to all on the basis of merit" [4].

2.1.2 Secondary Education

Some countries in Europe, United States and South Korea are associated with the investment not only primary but also secondary education. In Europe, secondary education began with training in religion and philosophy to prepare their leadership skills. The next step, the students will be given higher education curricula and the curriculum was broadened accordingly [21]. More countries defines the basic education for nine and twelve years of schooling and attempting to ensure more children achieve these period of schooling at least until age of 15 [20]. The age of 15 is categorised as critical age of adolescents since they face multiple risks such including early marriage. According to UNICEF report [20], the data on non formal approaches to education are not readily available but it available in gross enrolment rates of secondary range, 28 per cent in Sub-Saharan Africa to 66 per cent in East Asia and the Pacific. While the rates for girl is 22 per cent to 60 per cent.

2.1.3 Higher education

Referring to UNESCO Institute for Statistics[3], the number of students enrolled in tertiary education increased from 6.1 million to 12.2 million in 2000 and 2013 respectively. Higher education also has correlation with innovation which impacted to growth, productivity and

[3] https://www.elsevier.com/atlas/story/people/higher-education-is-key-to-economic-development

technological change. Whilst, the technological capability approach offers a new way of thinking and acting about the post secondary education. It shifts attention to economic sectors that post secondary education supports the economic development [21]. Building the economic approach is important in the attempting of comprehensive framework for understanding human behaviour. The higher education indicates potential for productivity since the professional skills have a positive impact on increasing the average labour productivity. In addition, higher education might be more growth enhancing in some states [16], [22].

2.2 Free Education Policy

However, to achieve compulsory education, some challenges are, family cannot be obliged to ensure their children to attend school precisely for the poor family cannot afford the cost of schooling [1]. In fact, the right to pursue compulsory education is reflected in the 1959 Declaration of the Rights of the Child, that laid down to the entitlement to the children to receive education. However, the translation and reflection of the Convention on the Rights of the Child into domestic laws and politics is slow. The fact is the capacity of governments to implement the compulsory education is diverse. On the other hand, some states targeted parents by fines if parents failure to secure enrollment school attendance of their children [1].

Therefore, to ensure the equality in development, many people are calling to government to have free education, not only for needy but also for all. Free education is important especially primary education for children as their first stage in developing their capacity. Thus, first and foremost, the government must invest the infrastructure to create learning place to obtain education. Some important aspect for education infrastructures are the provision of teacher,

book, and fundamental equipment for learning activities [3]. But, if the government wants to realize the right education for all children, the government must be flexible to address any circumstances of education especially for the marginalized children. It is necessary that government able to remove the barriers for children to access education.

According UNICEF report [3], a free primary education is needed for the entitled children especially for those who live in marginalized area. In addition, the government must ensure the availability of the education infrastructure and quality in every area so that children do not depend to certain schools. Similar to the right of education must be implemented to working children, children living on the street, children in rural communities as well as children in the school to prevent the child leave the school before completing the compulsory education [3].

3. CORRELATION WITH FINANCIAL INCLUSION

3.1 Education, Literacy Rate and Financial Inclusion

Many studies agreed that investment in education is the key for basic human development and may stipulate the economic development. However, to measure whether education really affecting the development, the assessment is needed to know to what extend the impact of education. To measure the education achievement, there is two main indicators, literacy and enrolment in formal education [5]. Precisely, according UNDP Human Development Report (HDR) 2004, both indicators are dominant for human development and education profile. The literacy rate number depends on the school enrolment[4]. It infers from several countries in West in

[4] https://data.unicef.org/topic/education/literacy/#

Central Africa where youth literacy is below 50 per cent. The fact said that these countries have struggled to raise the school enrolment especially in primary and secondary school.

Literacy involves the ability to reading and writing. Literacy is derived as the basic component as right and perceived as the basic knowledge and skills needed for the indicators learning [6]. It is also critical for improving the capacity of people and participation in sustainable development and public participation in decision making[5]. In addition literacy is the foundational skill needed in attempting the higher education.

3.2. Literacy Rate and Financial Literacy

Literacy rate do not have significant impact to financial literacy. But financial literacy has sharply increases along with education attainment especially for those whose good math skills, as well as age and income [8]. It resembles to level of financial rate which is affected by other determinants including age, gender, education and income [27]. The higher level of the obtained education and income, the better understanding of financial education. While age and gender, indeed influence the financial literacy but those are not significant.

3.3 Financial Education, Financial Literacy, and Financial Inclusion

If market wants to offer products, the consumers or individual must understand the usage of the product for themselves. The decisions that have been determined become individual responsibilities and the role of habits is significant, especially the habit is formed in youth age [26]. Managing personal economics is influenced by the ability of financial literacy, an essential

[5] http://www.un.org/esa/sustdev/natlinfo/indicators/methodology_sheets/education/adult_literacy.pdf

tool to enable people to use knowledge and skills to manage one's financial resources [26], [27]. Financial literacy matters for financial optimization, low financial literacy is associated with negative credit behaviours such as debt accumulation, high cost borrowing, poor mortgage choice and mortgage delinquency and home foreclosure. These are called as financial behaviour which refer to individual's skills and knowledge that allows the individual to make the decision on their financial management [8],[9]. Someone whose the inability to read the financial literacy carries significant costs like the adversity to understand the concept of interest rates on loans [8]. These people typically end up the solution by saving less but borrowing more money. On the other hand, the advantage of financial literacy rate will support somebody to have strong financial skills to do a better job planning and planning for saving.

Consequently, financial literacy is needed because it helps in a way to make important financial decision on saving, investing, borrowing and other economic activities [8],[14]. In regards to this, education increases participation of financial activities through actual content such as the willingness to understand financial education may increase financial literacy [15]. If the government wants to improve income, the effective way is through financial education.

Thus, how to connect the financial literacy with financial inclusion? According to Biswas and Gupta, financial inclusion and financial literacy are twin pillars [9]. The number of people using bank accounts have increased rapidly. This is one of the attempt by the government to grow the national economy by pushing the financial services. This is also led by the understanding of people by using non-cash transaction to ease their financial activity.

4. FINANCIAL INCLUSION AND ECONOMIC GROWTH

The modern economic and social development are based on the broad access to well-developed financial services. The government policy across the world nowadays is promoting financial inclusion instead of financial exclusion. The financial inclusion defines as a state where its people have access to full of quality financial services and provided affordable prices in convenient manner [19]. To bridge the gap between financial inclusion and poor people, many international institution works with national government have been leading major policy initiatives [19]. Then, there is no denying that the ambitious target for zero-balance, the frills of the bank account can increase the number of accounts especially in the remote areas.

To make the analysis easy, financial inclusion can be categorized into three boards [19]. First, it allows receipt and transfer money cheques. Second, the dimension of financial inclusion offers the financial security for short to long-term management particularly for pension provisions. The third dimensions is to help individual to promote themselves especially for starting up enterprise. Financial inclusion not only affects for the future of individual but also to help better routine life.

Kodan and Chhikara [19] explained the costs and consequences of financial exclusion which need to be considered because, first, the transactions leads to higher charges and impose the individual to inherent risk of loss in storing money. Thus, it may lead to the cycle of poverty, high cost credit from debt and eventually the failure of the financial management. Second, the state may not realize the growth potential and lead to aggregate loss of welfare. At the wider level, financial exclusion may lead to social exclusion, poverty and social problems because it is not distributed throughout society but concentrated among the most advantage groups or communities [18]. And third, the outcomes of financial exclusion complicates day-to-day cash

flow management since the individual deal in cash and susceptible to irregular cash flows. Eventually, it is lack of financial planning and security in the absence of bank and saving opportunities for the retirement day.

5. DATA

We combine different sources of data to measure how compulsory and free-education policies affect financial inclusion in country-level. For the analysis, we use the data of in total 131 countries that are available in all data sources used in this study.

5.1 Education database of WORLD Policy Analysis Center

Based on the analysis of qualitative reports and national policies as of June 2014, WORLD Policy Analysis Center determined the educational conditions of children in UN member states [10]. The information on those education policies were gathered from several sources, mainly from UNESCO i.e. International Bureau of Education reports, 48th International Conference on Education reports, International Institute of Educational Planning database. For this study, we extract seven variables related to compulsory and free-education policies for three educational levels.

Table 1 Countries with tuition-free education policies (N = 131)

	Free tuition	**Paid tuition**	**Not available**
Primary education	125	5	1
Beginning secondary education	107	17	7
Completing secondary education	95	27	9

High education	64	54	13

Table 2 Countries with compulsory education policies (N= 131)

	Compulsory	**Not compulsory**	**Not available**
Primary education	122	8	1
Beginning secondary education	97	33	1
Completing secondary education	111	19	1

5.2 Global Financial Inclusion Index (Findex)

Global Findex database is the world's most comprehensive database on financial inclusion, launched by the World Bank in 2011, showing information of people's use of financial services across economies [11]. This database contains 123 financial inclusion indicators in country-level, mainly covering three following information.

- Financial account ownership (including how frequent the account used, mobile money ownership)
- Type of payments (how people receive and do payments)
- Saving and loan (people's behaviour on saving and borrowing)

In this study, we used 63 financial inclusion indicators in 2014 - the other 60 indicators are excluded because they are not available for all countries.

5.3 Education and financial literacy indicators

Apart from our two main datasets, education policy and Global Findex, five indicators related to education attainment and financial literacy in country-level are included in the analysis.

a. School enrollment rates

School enrollment rate is the most basic education indicators which measures the proportion of children enrolled in school. Net enrollment rate for primary[6] and secondary[7] education as well as gross enrollment rate for tertiary or higher[8] education in 2013 - 2015 are collected from World Bank's open databank. The average of three years data point is calculated and used in the analysis.

b. Adult literacy rate

Another basic education indicator used in this study is adult literacy rate, a measure of proportion of people above 15 years-old who is literate over the whole above 15 years-old population in a country. Adult literacy rate[9] in 2013 - 2015 is gathered from World Bank's databank, and for the analysis, we use the average of three years data point.

c. Financial literacy rate

In 2014 McGraw Hill Financial worked with Gallup, the World Bank Development Research Group, and Global Financial Literacy Excellence Center of George Washington University on the Standard & Poor's Global Financial Literacy Survey. It is the world's largest and most

[6] http://data.worldbank.org/indicator/SE.PRM.NENR
[7] http://data.worldbank.org/indicator/SE.SEC.NENR
[8] http://data.worldbank.org/indicator/SE.TER.ENRR
[9] http://data.worldbank.org/indicator/SE.ADT.LITR.ZS

comprehensive global measurement financial literacy, probing knowledge of four basic financial concepts i.e. risk diversification, inflation, numeracy and interest compounding [8]. The survey is based on interviews with more than 150,000 adults in over 140 countries.

6. FINANCIAL INCLUSION MEASURES

In this section, we use factor analysis to create new variables that represents 63 financial inclusion indicators gathered from Global Findex, in order to better analyse them together with education policy variable in the next section. Factor analysis operates on the notion that measurable and observable variables can be reduced to fewer latent variables that share a common variance and are unobservable, which is known as dimensional reduction [12]. These unobservable factors are not directly measured but are essentially hypothetical constructs that are used to represent variables [13].

From factor analysis, 63 financial inclusion indicators reduce into two main factors that explain 78.04% of the total variance observed. The first factor represents 56 variables related to access to financial account, payment, and saving, while the second factor represents seven variable to access to loan.

Table 3 Main factors represent 63 financial inclusion indicators

Factor	Eigenvalue	Difference	Proportion	Cumulative
Factor 1 : access to financial account, payment, and saving	39.52	29.66	62.83%	62.83%
Factor 2 : access to loan	9.86	6.15	15.68%	78.51%

7. EFFECT OF EDUCATION POLICIES ON FINANCIAL INCLUSION

In this section, effect of education policies on financial inclusion is examined using Structural Equation Modelling (SEM).

7.1 Direct effect of education policies on financial inclusion

We examine how compulsory and free-education policy directly explain financial inclusion, where 131 countries are excluded. The hypothesis is that compulsory and free-education policy can improve financial inclusion defined as (i) access to financial account, payment, saving and (ii) access to loan. There are seven education policies data gathered from WORLD Policy Analysis Center - which from those three latent variables of education policy are created for three education level respectively.

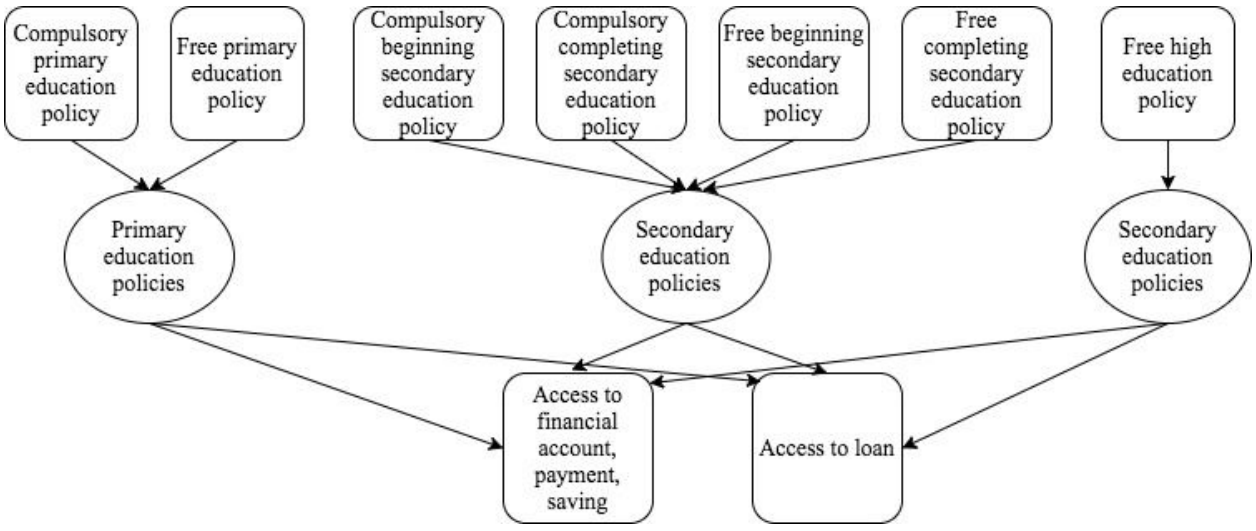

Figure 1 Path diagram : education policies to financial inclusion aspects

SEM estimates the coefficient of education policies for (i) access to financial account, payment, saving and (ii) access to loan using maximum likelihood method. The estimation suggests that free high education policies significantly affect the access of financial account, payment and saving ($p = 0.001$). In the meantime, it also suggests that both secondary education policies (compulsory and free) and free high education policy give significant contribution to the loan access ($p = 0.036$ and $p = 0.024$, respectively). However, education policies affect financial inclusion is not in a way we expected - the result shows the negative relationship between them.

In other words, the result suggest that when a country implements compulsory and free education policy, financial inclusion is getting worse. Firstly, in our case, countries implement free high education policies have less people with access to financial account, payment and saving. Secondly, countries apply compulsory and free secondary policy as well as free high education policy have less people with access to loan.

Table 4 Estimated coefficients of education policies for financial inclusion aspects

	Explanatory variables	**Coefficient**
Access to financial account, payment and saving	Primary education policies	-0.615
	Secondary education policies	1 (constrained)
	High education policies	-0.560*
Access to loan	Primary education policies	-2.811
	Secondary education policies	-0.638*
	High education policies	-0.375*

*p < 0.05

7.2 Education indicators and financial literacy as mediator variables

Based on the previous results, the direct effect of education policies on financial inclusion seems hard to interpret. In this section, we analyse the relationship of education policies and financial inclusion in 45 countries by including what is called mediator variables : enrollment rate, adult literacy rate and financial literacy rate. The structure of relationship among variables is defined in the diagram below.

The idea of below structure is based on the following hypotheses.

- Primary, secondary and high education policies affect enrollment rate of each respective education level
- Primary, secondary and high school enrollment rate affect adult literacy and financial literacy rate
- Adult literacy and financial literacy rate affect access to financial account, payment, saving and access to loan

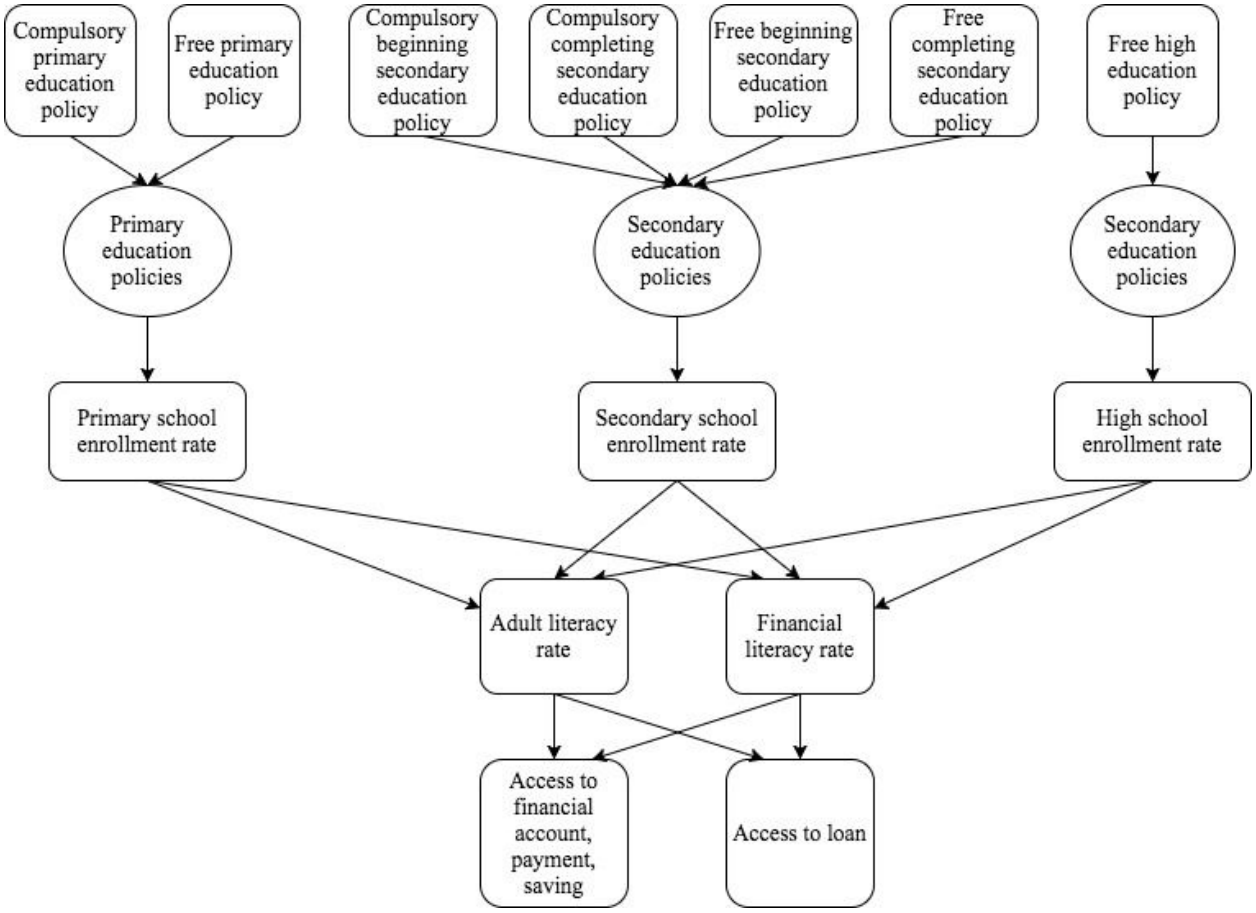

Figure 2 Path diagram : education policies to financial inclusion aspects with mediator variables

We examine the effect of education policies in three education level on the respective enrollment rate and the model suggests that only secondary education policies affect positively and significantly to secondary school enrollment rates ($p = 0.001$). When countries implement secondary education policies, secondary school enrollment rate raise significantly. Meanwhile, the positive effect of primary and high education policies on primary and high school enrollment rates, respectively, are not significant.

Moreover, it is suggested that both primary and secondary school enrollment rate contribute positively to the increase of adult literacy rate ($p = 0.009$ and $p < 0.001$, respectively). Meanwhile, there is no significant effect of high school enrollment rate on adult literacy rate. The sense behind these results is that indeed primary and secondary schools are crucial for children to develop and improve their literacy skills.

The model, however, reveals that school enrollment rate in three level of education doesn't significantly affect financial literacy rate. It means that none of general curriculum of primary, secondary and high education improve financial literacy skills. Referring to this result, we propose that specific curriculum in financial is needed to boost financial literacy besides general curriculum offered in the current education system. We also find that there is no significant correlation between adult literacy rate and literacy rate ($p = 0.405$), suggests that improvement in one of them doesn't mean improvement in another.

In the end, the model suggests that both literacy and financial literacy rate significantly and positively affect one of financial inclusion aspects, which is access to financial account, payment and saving ($p < 0.001$). This aspect actually represents a set of variables such as number of people having financial account, number of people do payment with bank account (instead of cash), number of people having mobile money account, number of people having saving account disaggregated by gender, age and rural-urban area. At the same time, it is also suggested that literacy and financial literacy rate have no significant effect on access to loan, which is another aspect of financial inclusion.

Table 5 Estimated coefficients of education policies for financial inclusion aspects with mediator variables

	Explanatory variables	Coefficient
Primary enrollment rate	Primary education policies	136.031
Secondary enrollment rate	Secondary education policies	22.510*
High enrollment rate	High education policies	5.441
Adult literacy rate	Primary enrollment rate	0.703*
	Secondary enrollment rate	0.552*
	High enrollment rate	-0.044
Financial literacy rate	Primary enrollment rate	0.037
	Secondary enrollment rate	-0.010
	High enrollment rate	0.119
Access to financial account, payment and saving	Adult literacy rate	0.026*
	Financial literacy rate	0.065*
Access to loan	Adult literacy rate	-0.014
	Financial literacy rate	0.003

*$p < 0.05$

8. DISCUSSION

In the previous section, we demonstrate the structure of compulsory and free-education policies on financial inclusion aspects with school enrollment rates, adult literacy rate and financial literacy rate as mediator variables. It suggests that adult literacy and financial literacy rate positively affect access to financial account, payment and saving. Adult literacy rate is affected

by primary and secondary enrollment rate, however they don't affect financial literacy rate - there is also no significant correlation between adult literacy and financial literacy rate. The only significant compulsory and free-education policy that affect the respective enrollment rate is secondary education level. Based on those results, in this section we discuss and raise some issues related to the relationship between education and financial inclusion.

8.1 Taking Into Account the Economic Setting Differences

Indeed there is potential differences on the relationship of compulsory and free-education policy and financial inclusion in different economic settings, i.e. low-, middle-, and high-income countries which is defined by the World Bank.

Basically, the effect of compulsory and free-education policies itself on enrollment rates may differ across low-, middle-, and high-income countries. In our analysis that includes 45 countries, only compulsory and free secondary education policies affect secondary enrollment rate, while the same policies in primary and high education don't have such effect in the respective enrollment rates. First, primary education is the starting point of formal education and getting started is always harder. Primary education can be free and compulsory, but in low-income countries but it is not about the policy but more about the mindset on the return to education or in high-income countries those policies is not necessary anymore because all children already go to school even if it's paid. Second, WORLD Policy Analysis Center only provides information on free high education policy, maybe because of majority of countries still don't make high education compulsory. It can be free, but if it is not compulsory, especially for low-income

countries, people may not see its importance for their future - again it can be about return to education in low-income countries. Meanwhile, secondary education is kind of safety zone. If children graduate from primary education, why don't they just continue to secondary education since it's free and compulsory. In the end, whether compulsory and free-education policies improve enrollment rates would depend on people's mindset on the return to education, which mainly depends on job opportunity and salary standards in their countries.

Since the effect of compulsory and free-education policy on enrollment rates can be different across different economic system, school enrollment rates may also affect adult literacy and financial literacy rate differently. In the end, low-, middle-, and high-income countries may experience the effect of both adult literacy and financial literacy rate to financial inclusion aspects differently.

We propose that the relationship between education and financial inclusion is complex, in which economic settings play an important role. Whether a country is a low-, middle, and high-income country would determine, for instance, job opportunity, salary standard and purchasing power. Macroeconomic and development indicators such as Gross Domestic Product and Human Development Index are also the results of the economic setting of countries. All of those variable, we propose, may need to be taken into account when examining the effect of compulsory and free-education policy to financial inclusion, besides education indicators and financial literacy.

8.2 Financial Education and Financial Literacy

Our results suggest adult literacy and financial literacy rate significantly affect one aspect of financial inclusion, i.e. access to financial account, payment and saving. However, it is showed that there is no significant correlation between adult literacy and financial literacy rate. Apart from that, we demonstrate none of primary, secondary and high school enrollment rates significantly affect financial literacy rate. Our future question is then which factors affect financial literacy or in other words what makes financial literacy improved. How about financial education?

The evidence of whether financial education affects financial literacy is limited and not as encouraging as we expect. Studies have often found almost no relationship between financial education and individual performance on financial literacy tests [23], [24]. Those studies document little correlation between high school student's financial knowledge levels and whether or not they have completed a financial education class. In the meantime, a study [25] evaluate a relatively large randomised financial education intervention in India and find that while financial education does not improve financial decisions that require numeracy, it does improve financial product awareness and individuals' attitudes towards making financial decisions. There is definitely room in the literature for more research using credible empirical methodologies that examine whether, or in what contexts, financial education actually impacts financial literacy.

Hastings et. al [26] propose interesting questions related to this issue. What are the basic financial competencies that individuals need? How do we best measure financial literacy? For policy makers the next questions would be, even if we can develop effective mechanisms to deliver financial education, how do we induce the people who most need financial education to get it? School-based financial education programs have the advantage that, while in school, students are a captive audience. But schools can only teach so much. Many of the financial decisions that individuals will face in their adult lives have little relevance to a 17-year-old high school student: purchasing life insurance, picking a fixed vs. an adjustable rate mortgage, choosing an asset allocation in a retirement savings account, whether to file for bankruptcy. How do we deliver financial education to adults before they make financial mistakes, or in ways that limit their financial mistakes, when we don't have a captive audience and financial education is only one of many things competing for time and attention? Finally, what is the appropriate role of government in either directly providing or funding the private provision of financial education?

9. SUMMARY

Recent insights into the effect of education and financial inclusion to economic growth motivated our investigation into the hypothesised relationship between education policies and financial inclusion. In this study we demonstrated that compulsory and free secondary education policy can potentially increase secondary enrollment rate, then enrollment to both primary and secondary education improves literacy skills. Finally, we suggested that literacy and financial literacy skills have significant contribution to improve financial inclusion in countries. In the

meantime, as further research, we propose to contribute on the investigation of exploring the effect of financial education or financial education policy on financial literacy and financial inclusion as well as how the effects differ across different economic settings. This research has important implications for policy-makers in shaping education policies, either formal education (i.e. primary, secondary and high education), financial education, or both, in order to make financial is inclusive for all people in countries, considering its direct impacts on GDP growth and productivity.

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