



Estimate of the private return on education in Indonesia: Evidence from sibling data



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ABSTRACT

This study reexamines the return on education (ROE) in Indonesia to solve the puzzle between the high ROE from previous studies and the low enrollment rate for higher education by taking into account endogeneity and sample selectivity issues. This study finds the OLS estimates of ROE in between 10% and 12%. After controlling for unobserved family background using sibling data, the Household Fixed Effect estimate indicates ROE reduces from 10.8% to 5%. This study argues ROE is not as high as previously estimated and may explain why the enrollment rate for college has been stagnating in Indonesia.

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1. Introduction

From the past until present there are numerous studies that have been trying to estimate how much the return on education. One of the reasons is because resources are limited; therefore households especially in developing countries need to prioritize the allocation of resources to the investments that provides the highest returns (Cohn and Geske, 1990). Basically, the rate of return on education expresses the value of an additional year of education in terms of the increase in earnings or income (Wilson and Briscoe, 2004).

Previous studies in Indonesia indicate the private return for higher education is consistently higher than that for primary and secondary education (for a summary see Appendix A, Table A.1). It gives a signal that the investment in higher education is very favorable. However, the Central Bureau Statistics (BPS) reported the enrollment rate for college is much lower than other levels of education. The participation rate for college has only increased by 8.78% within 18 years (from 1994 to 2012). It means that the enrollment rate for college has been stagnating in Indonesia. This information raises the question why not all people could pursue higher education if previous studies have shown that higher education provides a higher return. This study argues the return on education in Indonesia maybe is not as high as what previously estimated (Table 1).

The low participation rate for college may be due to the high cost of education. The educational expenses for higher education in

Indonesia vary and depend on the type of university and faculty taken by students. As an illustration, Table 2 provides information about comparisons on cost of higher education between academic year 2004–2005 and that of 2009–2010. Based on this table, students and parents have to spend more for education expenses compared with five years before. In more detail, within five years the tuition fees have increased about 1.5 times for the low public higher education institutions; 4.5 times for the high public higher education institutions; and almost 10 times for the high private higher education institutions. If other expenses such as: books, lodging, food, transportation, and other personal cost are included in cost, then the total cost borne by students and parents has increased about 3.4 times for the low public higher education institutions; 1.3 times for the high public higher education institutions; and 2 times for the high private higher education institutions in the same range time.

Since costs increased significantly, people would expect a higher return if they want to pursue higher education. This is in accordance with the cost-benefit analysis in which a rational investor will consider the benefits and the costs of education and will invest more for additional schooling if the private costs are less than the private benefits (Jimenez and Patrinos, 2008). Considering the fact of high costs and low participation rate for tertiary education, the return on education in Indonesia may be not as high as previously estimated. In other words, people may stop enrolling in higher education since investment in this education is not beneficial.

In addition, open unemployment rates for Diploma and University level in Indonesia are still high despite the decreasing trend. In a range of five years (from 2007 to 2012), open unemployment rates for Diploma and University level have

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Table 1

The gross enrollment rate in Indonesia, 1994–2012 (percent).

Gross enrollment ratio (GER)	1994	1996	1998	2000	2002	2004	2006	2008	2010	2012
Elementary school (SD/MI)	107.13	107.19	107.60	107.68	105.99	107.13	109.96	109.41	111.63	104.15
Junior high school (SMP/MTs)	64.36	70.46	73.14	77.62	79.81	82.24	81.87	81.38	80.35	89.26
Senior high school (SMA/SMK/MA)	43.04	44.87	47.17	50.22	48.00	54.38	56.69	57.42	62.53	68.32
College (PT)	10.14	10.37	10.64	10.26	10.54	10.73	12.16	14.42	16.35	18.92

Source: www.bps.go.id.**Table 2**

Higher education cost borne by students and parents of first degree, academic year: 2004–2005 and 2009–2010 (rupiah).

		Special "one-time or "up front" fees	Public higher education institution				Private higher education institution	
			Low public		High public		High private	
			2004/2005	2009/2010	2004/2005	2009/2010	2004/2005	2009/2010
		NA	NA	NA	NA	NA	NA	
Instructional expenses	Tuition	300,000	449,951	1,000,000	4,498,031	4,000,000	39,370,079	
	Other fees	NA	NA	NA	NA	NA	NA	
	Books and other	900,000	885,827	1,350,000	885,827	2,250,000	885,827	
	Subtotal expenses of instruction	1,200,000	1,335,778	350,000	5,383,858	6,250,000	40,255,906	
Student living expenses	Lodging	900,000	9,842,520	9,000,000	9,842,520	10,800,000	10,826,772	
	Food	3,600,000	8,858,268	6,300,000	8,858,268	8,100,000	8,858,268	
	Transportation	315,000	393,701	450,000	393,701	2,250,000	393,701	
	Other personal expenses	800,000	2,952,756	2,700,000	2,952,756	3,600,000	2,952,756	
	Subtotal expenses of student living	5,615,000	22,047,244	18,450,000	22,047,244	24,750,000	23,031,496	
Total cost to parent and student		6,815,000	23,383,022	20,800,000	27,431,102	31,000,000	63,287,402	

Source: Collected from websites of Indonesian university, 2006 and 2010 (quoted from [Wicaksono and Friawan, 2008](#)).

Low public means low public tuition fees and lives at home with parents.

High public means high public tuition fees and lives with independent adult.

High private means high private tuition fees and lives in dormitory or shared apartment.

In the academic year 2009/2010, education expenses is in a real terms after adjusting for inflation rate in 2004

Table 3

Open unemployment rate based on educational attainment, 2007–2012 (percent).

Educational attainment	2007	2008	2009	2010	2011	2012
Primary school (SD) and under	4.59	4.57	3.78	3.81	3.56	3.64
Junior high school (SMP)	10.73	9.39	8.37	7.45	8.37	7.76
General senior high school (SMU)	16.57	14.31	14.5	11.9	10.66	9.6
Vocational senior high school (SMK)	21.00	17.26	14.59	11.87	10.43	9.87
Diploma I/II/III	13.26	11.21	13.66	12.78	7.16	6.21
University	13.61	12.59	13.08	11.92	8.02	5.91
Total	9.11	8.39	7.87	7.14	6.56	6.14

Source: www.bps.go.id.

decreased from 13.26% and 13.61% to 6.21% and 5.91%, respectively. Although open unemployment rate for tertiary education has declined, the rate was higher than that of primary school and under ([Table 3](#)). Aware of the fact the high unemployment rate for tertiary education, the household possibly will rethink before making a decision to invest in higher education, whether it is true that higher education provides optimal benefit as previously estimated.

Realizing the Indonesian situation, in which the gross enrollment rate for higher education is low, while the unemployment rate for higher education is high, this study argues that it is important to reexamine the return on education in Indonesia to give evidence whether higher education really provides higher returns. This study argues that the return on education is not as high as previously estimated.

There are a lot of studies about the return on education in Indonesia. However, they have limitations for some reasons. First, since most of their estimates were just focusing on specific types of school and specific levels of education, it was difficult to get information how much the return on education in general. Second, some of previous studies in Indonesia estimated the return on education with the OLS, despite the presence of endogeneity. Their

estimates are therefore potentially biased and inconsistent. Third, the majority of previous studies in Indonesia used outdated data before 2000 and their estimates of the return on education are quite high around 10%. If their estimates are true, then it is difficult to understand the low enrollment rate for college and the high unemployment rate for college graduates.

Aware of the limitations of previous studies in Indonesia, there are some contributions of this study. Firstly, the analyses in this study will provide the latest information about the return on education in Indonesia. Providing the updated rate of return on education is useful because various circumstances have occurred and imposed impacts on the structure of employment and hence on the return on education in Indonesia. Secondly, this study will contribute in term of methodology by applying all feasible and available methods to overcome possible bias when estimating the returns on education. Specifically, this study attempts to complement the existing studies in Indonesia. This is because there are trade-offs among methodologies when estimating the return on education in Indonesia.

Therefore, the purpose of this study is to estimate the causal effect of education on wages in Indonesia. In addition to the OLS estimates, this study reports estimates that correct for the

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