



Why women are progressive in education? Gender disparities in human capital, labor markets, and family arrangement in the Philippines[☆]

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ARTICLE INFO

Article history:

Received 16 December 2011

Received in revised form 30 August 2012

Accepted 6 September 2012

JEL classification:

I21

I25

J31

J71

Keywords:

Gender

Education

Labor market

Family

Philippines

ABSTRACT

This paper shows mutually consistent evidence to support female advantage in education and disadvantage in labor markets observed in the Philippines. We set up a model that shows multiple Nash equilibria to explain schooling and labor market behaviors for females and males. Our evidence from unique sibling data of schooling and work history and from the Philippine Labor Force Survey support that family arrangement to tighten commitment between daughters and parents keeps a high level of schooling investments in daughters. Because wage penalty to females in labor markets means that education is relatively important as a determinant of their earnings, parental investments in their daughters' education has larger impacts on the income of their daughters than on their sons. Parents expect larger income shared from better-educated adult daughters. In contrast, males stay in an equilibrium, with low levels of schooling investment and income sharing. Our results also imply that the above institutional arrangement is stronger among poor families.

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[☆] We would like to thank Micheal Alba, Agnes Quisumbing, and seminar participants at the University of the Philippines and the Philippine Institute for Development Study for useful comments. We are grateful to the following individuals: Yolanda Quijano, Ishidra Afunggol, Vanessa Arness, Keitaro Aoyagi, Hiroaki Asaoka, Fe Gascon, Violy Cordova, Pamela Castanar, Leonarda Ebron, AidaPapag, Keiji Otsuka, Judith Borja, Nanette Lee, Lorna Perez, Delia Carba, Abet Bas, Elizabeth King, Juliet Abunyawan, Felisberta Sanchez, Ali Subandoro, Surajit Baruah, Maureen Bugatti, and Joceyl Binumnya; to the following organizations: the Bureau of Elementary Education, the Research and Statistics Division, and Antique, Cebu, Ifugao, Iloilo, Leyte, Negros Oriental, Nueva Viscaya, and Western Samar division offices of the Philippine Department of Education, and the Office of Population Study of the University of San Carlos for collaboration, support, and guidance throughout this project. The findings, interpretations and conclusions expressed in this paper are entirely those of the authors, and do not necessarily represent the views of the World Bank, its Executive Directors, or the countries they represent.

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1. Introduction

Gender plays important roles in decisionmaking and resource allocations critical to economic development. Mothers' human capital improves child health and education, which determines the well-being of the next generations (for example, Behrman & Rosenzweig, 2002; Strauss & Thomas, 1995). Empowering women, who tend to allocate more resources into productive means is an important channel to improve economic performance in the long run (for example, Chattopadhyay & Duflo, 2004; Pitt & Khandker, 1998). Yet gender inequality remains an urgent policy issue.

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Table 1.1
College completion: sex differences.

Cohorts	Females	Males	Difference
20–49	19.26%	13.27%	5.99%
20–29	21.87%	13.81%	8.06%
30–39	18.85%	14.12%	4.73%
40–49	16.44%	11.65%	4.79%

Source: The Philippine Labor Force Survey, October 2009.

In this paper we take up the Philippine case that women are more progressive in education than men but still suffer from lower wages in the labor market (after controlling other factors). Though we observe many countries where both education and labor markets favor males (Blau & Kahn, 1992; King & Hill, 1998), we show that the Philippines represents a unique case in which women receive more schooling than men but penalty (discrimination) against women still exists in the labor market.¹ Advantage in schooling and disadvantage in earnings coexist for women in the Philippines.² In this paper, we argue that the above seemingly contradictory situation can be explained in a consistent way. That is, schooling investment in females has been an optimal response to the labor market discrimination.

Table 1.1 shows the percentages of males and females who completed college education in different cohorts. The data come from the October 2009 round of the Philippine Labor Force Survey.³ It is shown that a larger fraction of females graduated from college than males did in all cohorts, and the gap widened recently among younger cohorts. This means that women attain more education in the country; that is, more general human capital is embodied in women than in men.

Next we show female disadvantage in labor market earnings by estimating the standard wage equations (Table 1.2). In all cohorts, the female effect is significantly negative, which means that women experience penalty to their wages in the labor market, despite rather offsetting positive effects of more schooling attained among women. However, the female effect is becoming smaller in younger cohorts. Note that if more able women are likely to find jobs (therefore, their wages are observed), we expect upward bias in the above estimates, which implies that the true wage penalty (negative effect) is even larger. In Table 1.2, we did not control occupation and industry, so the female effect contains the effect of females' endogenous choices of occupations and industries within a region. On average, the

¹ Though wages are lower for females (after controlling schooling and age), returns to schooling are higher for females (Yamauchi & Liu, 2011). Our study argues that more schooling in females is the optimal action to overcome their disadvantaged position in the labor market. See Orbeta (2002) for labor force participation and education in the Philippines.

² Tsai, Liu, Chou, and Thornton (2009) provided an example from Taiwan that an expansion of compulsory school education contributed to narrowing gender gap in labor market employment. Though we argue that a larger schooling investment in women is a response to labor market discrimination against them, it is possible that such an investment can gradually change the labor market phenomena.

³ There are four rounds of Labor Force Survey each year: in January, April, July, and October. We are using only the October round for this study to allow for new graduates in labor markets.

Table 1.2
Returns to schooling: female effect.

Dependent: Log of daily earnings				
Cohort	20–49	20–29	30–39	40–49
Female	–0.283 (19.04)	–0.211 (14.09)	–0.303 (21.71)	–0.385 (17.46)
Some elementary	0.192 (4.96)	0.212 (3.61)	0.091 (1.20)	0.236 (3.52)
Elementary completed	0.245 (6.41)	0.221 (3.19)	0.162 (2.17)	0.326 (5.18)
Some high school	0.344 (9.11)	0.286 (3.88)	0.277 (3.58)	0.426 (6.15)
High school completed	0.491 (12.98)	0.443 (6.07)	0.392 (5.29)	0.574 (8.65)
Some college	0.750 (23.87)	0.707 (9.36)	0.650 (9.28)	0.807 (11.74)
College completed	1.308 (24.42)	1.173 (15.94)	1.208 (13.41)	1.550 (19.82)
Postgraduate	1.779 (20.22)	1.315 (10.46)	1.803 (16.92)	2.031 (16.36)
Age	0.040 (11.49)	0.171 (4.47)	–0.041 (1.34)	–0.027 (0.40)
Age squared	–0.0004 (9.67)	–0.0030 (3.97)	0.0008 (1.78)	0.0003 (0.45)
Region dummies	Yes	Yes	Yes	Yes
Number of observations	25,527	10,229	8366	6932
R-squared	0.4848	0.4700	0.4882	0.5188

Source: The Philippine Labor Force Survey, October 2009.

Note: Numbers in parentheses are absolute *t* values, based on robust standard errors using region clusters.

female effect is about 40 percent of the college premium (that is, income gain from completing college relative to high school).⁴

Discrimination against women implies that education plays a more important role in determining wages among women than among men. An additional year of schooling is more important among women because they experience unconditional penalty, unrelated to their human capital, in the labor market.⁵ Therefore, the labor market discrimination can motivate women to attain higher levels of education to have comparable earnings with men. Our intuition relies on the above observation.

⁴ Interestingly, we observe that the female effect is smaller among younger cohorts than among older cohorts. The trend is similar in many industrialized countries. College premiums are smaller in young cohorts. However, it is not straightforward to infer trends from the cross-cohort comparison. See Sakellariou (2004), Schady (2003), Lanzona (1998), and Yamauchi (2005) for existing estimates of returns to schooling in the Philippines. Sakellariou (2004) decomposed gender wage gaps. Both Schady (2003) and Yamauchi (2005) report convexity of the return structure. Yamauchi (2005) shows that higher returns to private school education are spurious in the sense that high-ability students are screened into private schools. Lanzona (1998) points out the importance of migration selectivity. Using the sample of former students (whose siblings are used in the current study), Yamauchi (2011) showed that the youth in the Philippines often change jobs at the early stage of their labor market experience, and that education increases the frequency of job changes, which significantly increases their wage growth.

⁵ Marginal utility from wage gain due to an additional year of schooling is larger if the wage level is lower. Yamauchi and Liu (2011) showed that the longterm impact of a large school intervention was in favor of girls, significantly raising their outcomes relative to boys. In a different context, Lai (2010) showed evidence from Beijing's middle schools that girls seem to have higher non-cognitive skills and compiled more with the test-oriented education system than boys.

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