

博士論文（要約）

**Economic Analyses of the “Reversed Gender Disparity”  
in Education and Development in the Philippines**

フィリピンにおける教育開発分野の  
「逆向きジェンダー格差」に関する経済分析

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by

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## LIST OF ORIGINAL SOURCES OF CONTENTS

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The contents of the present dissertation include the author's previous but recent publications with minor editions made for the dissertation. The original publishers permitted reproductions with some revisions/editions of all the published papers for the author's own doctoral dissertation, for which this author would like to express gratitude. The list of original sources of contents is as below.

### Part I

#### Chapter 1

- Newly written.

#### Chapter 2

- Okabe, Masayoshi. 2018. "'K to 12' Program as a National HRD Program to Develop the Workforce," *Philippine Journal of Labor and Industrial Relations* 35, nos. 1–2: 113–129, University of the Philippines, Diliman (in English). [Peer-reviewed]

### Part II

#### Chapter 3

- Okabe, Masayoshi. 2016. "Gender-preferential Intergenerational Patterns in Primary Education Attainment: An Econometric Analysis of a Case of Rural Mindanao, the Philippines," *International Journal of Educational Development* 46: 125–142, Elsevier (in English). [Peer-reviewed]

#### Chapter 4

- Okabe, Masayoshi. 2017. "Empirical Analysis of the Continuity of Sequential Demands for Education in a Rural Philippines: Gender and Parent–Child Relations," (originally in Japanese with a translation into English) *Asian Studies (Aziya kenkyū)* 63, no. 1: 1–26, Japan Association for Asian Studies. [Peer-reviewed]

### Part III

#### Chapter 5

- Okabe, Masayoshi. 2019. "Economic Analysis on Child Time-allocation Patterns in Pursuit of Backgrounds of Boys' Underperformance in Education: Evidence from Marinduque." A Background Paper Prepared for Keynote Speech in the Seminar of the Graduate School and College of Public Affairs and Development, at the University of the Philippines Los Baños, April 29, 2019. [Invited]

## Chapters 6

- Okabe, Masayoshi. 2019. "Economic Analysis on Child Time-allocation Patterns in Pursuit of Backgrounds of Boys' Underperformance in Education: Evidence from Marinduque." A Background Paper Prepared for Keynote Speech in the Seminar of the Graduate School and College of Public Affairs and Development, at the University of the Philippines Los Baños, April 29, 2019. [Invited]

## Chapter 7

- Okabe, Masayoshi. 2019. "Male Students' Augmented Underperformance with Teacher-Perceived Gender Stereotypes as Score Markers: Natural Experimental Evidence from Rural Philippines." *IDE Discussion Paper 734*, Institute of Developing Economies, Japan External Trade Organization (in English).
- Okabe, Masayoshi. 2018. "'Boys' Underperformance in Education'? Parent-Child Nexus, Stereotypes, and Poverty in the Philippines: A Quantitative Approach to Marinduque's Case." An Oral Presentation for the Philippine Studies Conference in Japan 4th, at Hiroshima University, November 18, 2018 (in English). [Peer-reviewed]

## Conclusion

### Chapter 8:

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## Appendices

### Appendix Chapter A

- Okabe, Masayoshi. 2019. "Inferences and Descriptive Analyses on Education, Livelihoods, and Rural Poverty through Fieldwork and Tailored Household Survey in Marinduque, the Philippines." *IDE Discussion Paper 754*, Institute of Developing Economies, Japan External Trade Organization (in English).

### Appendix Chapter B

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## LIST OF ABBREVIATED TERMS

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ARMM	: Autonomous Region for Muslim Mindanao
APIS	: Annual Poverty Indicator Survey
CAR	: Cordillera Administrative Region
CARAGA	: Caraga Administrative Region (Region XIII)
CALABARZON	: Cavite, Laguna, Barangas, Rizal, and Quezon (Region IV-A)
CCT	: Conditional Cash Transfer Program
DepED	: Department of Education
DSWD	: Department of Social Welfare and Development
EFA	: Education for All
FIES	: Family Income and Expenditure Survey
FLEMSS	: Functional Literacy, Education and Mass Media Survey
GPI	: Gender Parity Index
IV	: Instrumental variable (method)
LFS	: Labor Force Survey
MDG	: Millennium Development Goal
MIMAROPA	: Mindoro, Marinduque, Romblon and Palawan (Region IV-B)
NCR	: National Capital Region
NER	: Net Enrollment Rate
NSCB	: National Statistics Coordination Board
NSO	: National Statistics Office
OCW	: Overseas Contracted Worker
OFW	: Overseas Filipino Workers
OLS	: Ordinary Least Squares
OOSC	: Out-of-school Children
OOSY	: Out-of-school Youth
PSA	: Philippine Statistics Authority
SDG	: Sustainable Development Goal
SOCSEKARGEN	: South Cotabato, Cotabato Province, Sultan Kudarat, Sarangani, and General Santos City
UNGEI	: United Nations Girls' Education Initiative
UNICEF	: United Nations Children's Fund
UNESCO	: United Nations Education, Science, and Culture Organization
UNDP	: United Nations Development Programme
UP	: University of the Philippines
WB	: World Bank
WI	: Wealth Index
2SLS	: Two-stage Least Squares
3SLS	: Three-stage Least Squares
4Ps	: <i>Pantawid Pamilyang Pilipino</i> Program

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## SUMMARY

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This doctoral dissertation is attempted to be published as a monograph book by a publisher in the near future and/or its unpublished part likewise is done so to be published by academic journals in that future, as long as its publication comes true. Accordingly as a provisional measure until the publications are finalized, barring otherwise, the main chapters appeared in the original version of the doctoral dissertation are being replaced in the current file with this "Summary" from this line before "References."

### I. BACKGROUND

As is increasingly recognized worldwide, the improvement of basic education and achieving gender equality across every educational stage of it are among the most important goals in the fields of development economics and international education development. In the past quarter century, a great deal of effort has been put toward achieving education for all in developing regions. The subsequent, contemporary Sustainable Development Goals (SDGs), representing the development agendas in a "post-2015" circumstance, list the fourth goal as "Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all" and the fifth one as "Achieve gender equality and empower all women and girls."

The SDGs are the development goals that take over (but not fully) the ideas and spirit of the Millennium Development Goals effective until 2015. As SDG5 says to "empower all women and girls," gender equality generally refers to countering the structure of women's inferiority to men. Furthermore, the literature on education in developing countries has thus far focused on the elementary level of education rather than the secondary level onward. A somewhat neglected area of study is the policy options and implications regarding the trend of boys' underperformance in education, which is currently being observed in some developing regions and countries. The current dissertation is an ambitious research project that deals with these issues head on

by utilizing both existing data and his own original data collected in the Philippines.

## II. SUMMARY

### **Introduction**

The dissertation comprises ten chapters: eight chapters divided into three parts in the main body and two appendix chapters. In Chapter 1 “Introduction,” the author poses the main research question, namely, what the background of the “reversed gender disparity” in education and development is in the Philippines. Using international and domestic statistical data, he finds distinguished patterns that: (1) A majority of developing countries face conventional gender disparity in education, which is against girls; (2) Some developing countries have started to experience a reversed pattern, which is against boys; (3) The typical group whose gender disparity in education is against boys corresponds to Latin America and the Caribbean Region; and (4) The Philippines outstands Latin America and the Caribbean Region in terms of the degree of gender disparity against boys, according to the gender parity index based on data provided by the UNESCO Institute for Statistics. The author situates the Philippines as a typical case country for the current research issue regarding boys. The gender disparity of the Philippines is indeed against boys, and the extent to which boys lag behind girls in basic education shows typicality even over Latin America and the Caribbean Region.

In turn, using domestic statistical data from the Philippine Statistics Authority, a government agency dealing with statistical policies, the author makes intra-national comparisons within the Philippines. Interestingly, he uncovers that: (1) In terms of geography, reversed gender disparity is greater and more common in rural provinces than in Metro Manila and other urban centers; and (2) By socioeconomic strata, reversed gender disparity is more pronounced in poor households versus rich ones. The latter is a pattern observed across the country. The author estimates the relation between boys’ underperformance in education and poverty, and he continues more disaggregated research analyses for the rural areas of the country with a special focus on poor

households.

### **Intergenerational gender-preferential patterns in basic education**

The main body of the authors' research and analyses is found in Part II (Chapters 3 and 4) and Part III (Chapters 5, 6, and 7). In Part II, he sets intergenerational gender-preferential patterns in basic education as a key analytical concept. Using micro panel data collected in Bukidnon Province in Northern Mindanao Region by International Food Policy Research Institute in the United States between 1984–85 and 2003, the author performs highly empirical quantitative analyses. The main findings include: (1) The same-gender parent-child nexus in their education is robustly found among (i) sons and fathers and (ii) daughters and mothers; (2) The cross-gender pattern (i.e., sons-mothers or daughters-fathers) is not found; (iii) The magnitude of the intergenerational nexus within the same-gender parent-child relationships is stronger and more robust in the female case (i.e., daughters and mothers) than in the male case; and (iv) The magnitude explained in (iii) is more robustly detected in higher educational stages (i.e., secondary education compared to elementary, and tertiary education compared to secondary) than in lower stages. These findings are globally and academically recognized as high contributions and have been published by peer-reviewed journals, *International Journal of Educational Development* and *Asian Studies*, respectively.

### **Quantifying and determining laziness and “pro-educational” behavioral patterns**

While the discussions and findings in Part II per se outstand, the author's core studies of particular preeminence are, among others, found in the three chapters comprising Part III. The author dared to start his fieldwork and primary data collection in Marinduque Province, his research site, in the Mimaropa Region. Referring again to domestic statistical data, he situated this region as the one facing the most severe reversed gender disparity in education. The appendices attached at the end of the dissertation show the socioeconomic features of the province, including the fact that it is characterized as a highly rural economy.

Following the standard methods of stratified random sampling, the author extracted the sample constituting approximately three hundred children from one hundred fifty households in nine selected barangays (corresponding to villages) in three municipalities in the province. Including pilot surveys and a dry run of the questionnaire survey, he collected the main body of quantitative and qualitative data from August 2017 to March 2018. Through non-structured type fieldwork in which the author immersed himself with the locals, he identified a simple, possibly globally common story reported by the informants of his fieldwork—that is, boys (girls) are lazier (more diligent) than girls (boys).

The laziness of boys, while it may be globally recognized in an everyday-life level, is an intuitive but untested hypothesis. Whereas the locals as well as the author himself casually perceived that boys behaved relatively in a lazier manner in everyday life than girls did, this remained an academic problem: How can we detect it? How can we relate it to underperformance in education? The hypothesis itself is in a sense naïve, but the author attempted to quantify and empirically explore the links between the research topic and the hypothesis.

The author took a cue from the literature of time-use analysis. Related literature reveals that the quantity and quality of time-use analysis is underdeveloped for studying children, particularly in developing countries. Data that capture child time-allocation patterns to diagnose the degree of laziness (diligence) should be highly demanded. Accordingly, the author set the research design of the time-allocation survey for the children in the sample and administered a diary-type survey to them as well as a basic household survey to their parents/guardians. In the survey, the demographic profiles of household members and the children's school grades were collected.

The main findings based on multivariate analyses in regard to the time-allocation patterns include: (1) Boys spend more time on playing activities (leisure) and working activities (child labor) than girls; (2) The time-use factors that positively predict school grades includes the time spent studying at home when *ceteris paribus* for other time uses; and (3) The time-use factors that negatively predict school grades include the time

spent for child labor and leisure activities when *ceteris paribus* for other time uses. The author terms the increase of (2) and/or decrease of (3) as the more “pro-educational” time-allocation pattern. Based on (1), still, the time-allocation patterns of girls are significantly more likely to be pro-educational statistically. In these findings, the local representation of boys’ laziness is analytically confirmed.

Now readers may be curious about what factors predict more (less) pro-educational time-allocation patterns among boys and girls. In response to this question, the author performs highly econometric analyses to determine their pro-educational time allocations. He pays special attention to mothers’ labor force participation (MLFP) as a key independent variable. This reflects the Philippine socioeconomic background in which the working activities of Filipino women have been relatively accepted by the surrounding people, even in rural areas, and the MLFP indicates scarcity of time availability for mothers with their children compared to otherwise. Paying careful attention to endogeneity problems, the author constructs simultaneous equation models with instrumental variables to isolate the causality rather than single correlations. The main findings include: (1) the MLFP induces different responses in child time-allocation patterns between sons and daughters; (2) the MLFP generally promotes child pro-educational time allocations, but it also has an “unintended effect” that is unfavorable selectively against sons; (3) the unintended effect causes the sons’ time-allocation patterns to be less pro-educational than the daughters’, compared to the case where their mothers are not working. In sum, the author successfully pins down the causality that the status of mothers working outside the household brings segregation of pro-educational practices between boys and girls.

### **Augmented underperformance: Stereotyped boys in schools**

Up to the current discussion, it seems as if working mothers should be blamed as a source of boys’ underperformance in education. Nonetheless, the author asks for careful caution in this misleading discussion by running additional analyses and finding that the MLFP is heavily induced by husband-related variables, such as low educational

attainment and income. The author additionally shows a framework that, through MLFP, mothers (are implicitly forced to) cope with the fluctuating livelihood level of the household as if they serve as a sort of insurance. This statement is supported by various discourse- and social-norm-related studies; the author found Filipino women bearing a “dual burden,” that is, Filipino mothers play a supplementary or even primary role as household breadwinners—a role that is usually associated with fathers—and also function as primary child-rearers and educators in the household. The author warns that the nexus between the roles and statuses of Filipino mothers and boys’ educational underperformance may be misleading unless one also pays attention to these sorts of family dynamics.

Heretofore, the dissertation, as well as a considerable part of the literature, has approached gender bias in education mainly from a socioeconomic (demand-side) standpoint. While still considering students’ socioeconomic circumstances, the subsequent research combines the author’s primary data with confidential, raw, and student-level administrative data about the Philippines’ national achievement tests (NATs). This combination intentionally provides a supply-side focus. Specifically, Chapter 7 explores gendered stereotypes perceived by teachers as score markers against students. As in the literature, by applying a natural experimental identification strategy, the empirical analyses compare sources of the persistence of a negative male effect on test scores. We avail of the variations of blindness in rating systems between the NAT and teacher-rating report cards (RC). The results of sensitivity analyses in regressions support the hypothesis that male students are systematically more likely to receive lower scores when they are evaluated in a non-blind rating system in which teachers know who the examinees are.

Chapter 7 thus presents an insightful perspective about a channel in which Filipino schoolboys’ underperformance is further augmented through gender stereotypes perceived by the evaluators, in this case, the teachers. The discussion in Chapter 7, however, does not intend to point out that teachers are at fault, because the study did not prove that they intentionally or consciously exercised said stereotypes.

Nevertheless, the findings are noteworthy. The previous discussions in the literature provide us with empirically sound perspectives about demand-side circumstances that drive boys to perform poorly or to opt out of their own education. Chapter 7 now suggests other channels, supply-side interventions, e.g., related to the teacher-side backgrounds, and causes such as the high proportion of female teachers in the Philippines, in conjunction with demand-side interventions such as employment and stipend programs. Moreover, importantly, Chapter 7 also explains that the augmentation is ascribable to pure stereotyping based “unconditionally” on male students’ gender rather than the extent to which they were tidy enough to achieve certain RC scores. In a related move, because the directions of gendered stereotypes have been erratic in the literature, importantly, it is notable that stereotyping can be exercised not in an essentialistic, deterministic manner but purely socially in a local context.

Lastly, Chapter 8 sums up the dissertation’s significant topics, contributions, and future issues. It also revisits a critical inquiry into the semblance of reversed gender disparity in the Philippines, specifically referring to boys’ underperformance noted in previous chapters.



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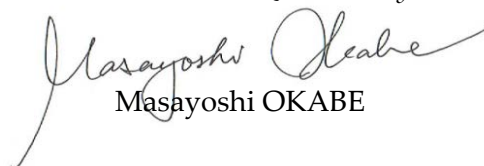
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