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Women Economic Empowerment as Determinant of Child Health Outcomes in the Philippines

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Abstract
The leave no one behind principle of the 2030 Sustainable Development Goal (SDG) highlights the need to accelerate and strengthen the efforts of the United Nations (UN) members states to empower one of the world's biggest marginalized groups – the women. Studies examining SDG 5 for Gender Equality and Women Empowerment has been emerging, due to its argued positive 'spillover effect' on the achievement of other goals such as the SDG 3 for good health and wellbeing. Grounded on Chiappori's Collective Model (1988) which rejects the Unitary Neoclassical Model of the Household and recognizes the role of intrahousehold resource allocation and bargaining power in household decisions, this study examined the influence of women's economic empowerment (SDG 5) on the health and wellbeing of their children (SDG 3). A multivariate logistic regression was used to determine if women's economic empowerment, represented by education, employment and intrahousehold bargaining power, corresponds to antenatal visits, childhood immunization, and under-5 mortality as child health outcomes of the 2017 Philippine National Demographic and Health Survey. The results showed that the more economically empowered women expect better health outcomes for their children. For instance, better-educated women consistently showed a higher probability of acquiring adequate antenatal care, complete childhood immunization, and a lower probability of experiencing under-5 mortality. Employment, on the other hand, positively influences the acquisition of antenatal care and complete childhood immunization, but also a higher probability of under-5 death. Among the socio-economic and empowerment variables examined, women's educational attainment was found to be the most significant protective factor in all child health outcomes. Thus, the government may continue the implementation and improve the strategies to equalize access to education for all such as its provision of Free Technical-Vocational Education and Training (TVET) and the Universal Access to Quality Tertiary Education Act of 2017 (RA 10931).
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1. Introduction

'To leave no one behind' is the driving principle of the 2030 Agenda for Sustainable Development. This agenda includes 17 Sustainable Development Goals (SDGs) that seek to realize the rights of all people, especially the marginalized and the furthest behind.

Women are among the several disempowered subgroups of society who continuously face inequality in the access to valued resources, services, and opportunities. They are often overlooked in the process of economic development and are usually treated as passive recipients of development initiatives. The adoption of the SDG 5 for Gender Equality, however, argues the active role that women play in economic development as partners of change, rather than as beneficiaries.

Several studies have already established that gender parity and women empowerment are the impetus for multiplying development efforts. These studies were done by linking women's economic empowerment with one or more determinants of economic development namely: per capita GDP, poverty reduction, and better child health outcomes.

Efforts directed towards the attainment of SDG 5 are being strengthened because it is argued to have a positive spillover effect on the attainment of other goals such as SDG 3 for good health and well-being. Since in many

cultures, women serve as primary caregivers of children, the State of the World's Children (2007) asserted that women empowerment generates the 'double dividend' of benefiting both the mother and child and is central to the health and development of families. Thus, in this study, it is hypothesized that the SDG 5 and SDG 3 are interconnected. That is, initiatives directed towards economically empowering women will also have a positive and significant impact on the health and well-being of children.

Almost 9 years after the SDGs were adopted, the Philippines has made great improvements in terms of promoting gender parity and women empowerment. In the World Economic Forum's (WEF) 2023 Global Gender Gap report, the Philippines had been able to close its gender gap by 79.1 percent, ranking 16th in the world. The country's high ranking has been consistent with the Philippines maintaining its status as the most gender equal country in Southeast Asia since 2006 (Philippine Commission on Women, 2023).

A closer look, however, is required to further examine the factors affecting the re-opening of the previously closed gap in the areas of education and health with scores equal to 0.999 and 0.968, respectively. Furthermore, serious improvement has to be made in areas under Economic Participation and Opportunity (0.789) and Political Empowerment (0.409). According to the World Bank (2023), the labor force participation rate of females in the Philippines is recorded at 46%, a considerably low percentage compared to that of the male labor force participation rate of 72%. Although there are several factors that hinder women from participating in economic activities, women's reproductive roles and unpaid domestic work remain the major barriers for women (Asian Development Bank, 2013).

With these, it is therefore essential to go beyond the Philippines' high ranking as the most gender-equal country in Asia and have a closer inspection at the real status of women empowerment in the Philippines. Data on labor force participation rate, wage equality, access to resources, and pervasive gender discrimination in employment and politics would reveal that there is more work that needs to be done to fully eradicate the gender gap in the country.

Another challenge for the Philippines that needs urgent action is the health and nutrition of the younger generation. In the 2019 report of the United Nations International Children's Emergency Fund (UNICEF), approximately 95 Filipino children die as a result of malnutrition every day and 28 for every 1,000 children do not reach the age of 5. While several infectious diseases and deaths could have been prevented through the completion of childhood immunization, only 26.30% of children aged 12-23 months are considered fully immunized based on the 2017 National Demographic and Health Survey (NDHS). Furthermore, only 84.11% of Filipino mothers have reported that they had at least four prenatal care visits, which is the minimum number of visits prescribed by the World Health Organization (WHO).

With the pressing problem of the Philippines in terms of gender parity and child health, this study further explores the hypothesized 'double dividend' effect of women empowerment in both the woman and their children, thus providing more empirical support to the interconnectedness of SDG 5 and SDG 3.

2. Women Economic Empowerment

Regarded as a catalyst for multiplying development efforts, several governmental and non-governmental organizations have included the achievement of gender parity and women empowerment in their priority goals. Its achievement, however, proves to be a difficult task as the concept of women's empowerment is very complex.

In the literature explored, several authors have come up with a definition of women's economic empowerment. For instance, the Oxford Committee for Famine Relief or Oxfam America (2017) defined women economic empowerment (WEE) as a process that paves the way for women to enjoy their rights to control and benefit from income, assets, and resources which enhances their ability to improve their own economic well-being and status. Similarly, Golla et al (2016) argues that there are two conditions that must be satisfied for a woman to be considered as 'economically empowered'. First is the ability to 'succeed and advance economically' which can be achieved through human capital investment and second is the agency to choose and act on economic decisions.

As the definition of the concept varies, the measures of women economic empowerment also vary across the literature and studies explored; however, common indicators can be identified. For instance, in all the studies explored, the socioeconomic variables of age, place of residence, household wealth, and empowerment variables of education, employment, and decision-making power were always included in the analysis. These measures of women's economic empowerment were also reflective of the adopted definition from Oxfam America's (2017) and the criteria from Golla et al (2016).

2.1 Theoretical Framework

This study is grounded on Chiappori's Collective Model (1988) which recognizes the differences in preferences among the members of the household and enables bargaining power to play a role in household decisions. This rejects the Unitary Neoclassical Model of the Household, which considers the household as a single unit with common utility, choices, and decisions. The collective model, unlike the unitary model, argues that there is an incentive for the members not to pool income but rather to allocate resources over which they have a preference toward goods they especially care about.

This rejection of the income pooling hypothesis enables empirical arguments that empowering mothers will yield more benefits to children than empowering fathers (Cherchye, De Rock, & Vermeulen, 2012). In Chiappori's Collective Model, children's welfare is considered as a public Beckerian (1965) domestic good that is influenced by the parental time and expenditures invested in children. Since in many cultures, women serve as the primary caregivers of children, they are inclined to spend greater parental time with their children compared to their husbands.

Aside from the greater parental time spent with children, the OECD (2012) has provided evidence of the differences in preference and expenditure behavior between mothers and fathers. Specifically, mothers were found to devote a more substantial proportion of family resources to child-health expenditures compared to their husbands (OECD, 2012).

Existing studies also provide empirical evidence that established the link between women's intrahousehold bargaining power and improved child health outcomes. In the earlier study by Thomas (1990), for instance, it was discovered that the unearned income controlled by the mother has a more significant influence on the health of the family than the income controlled by the father. Furthermore, its impact on child survival probabilities is almost twenty times bigger than that of the father's (Thomas, 1990). This complements Smith, et al. (2003) findings that the decision-making power of women is strongly correlated with their child's nutrition.

3. Multivariate Logistic Regression

Consistent with the majority of the related studies (Salting & Varona, 2019; Ibrahim & Pandey, 2014; Alemayehu et al., 2015; Griffis, 2012; Basu & Koolwal, 2005), this research utilized Multivariate Logistic Regression to analyze the data from the 2017 Philippines National Demographic and Health Survey (NDHS) published by the Philippine Statistics Authority (PSA) from August 14 to October 27, 2017. Although the initial key indicators report of the 2022 NDHS was already released on February 2023, the metadata for the said survey is still not accessible.

In the 2017 NDHS, two questionnaires were utilized namely, the Household Questionnaire and the Woman's Questionnaire. This study focused on 25,074 married women aged 15-49 who were successfully interviewed for the women's questionnaire. Furthermore, the study set common characteristics that the respondents should possess in order to be included in the research sample. These common characteristics are: (a) should be women aged 15-49 and (b) should have given birth in the past five years. Filtering the dataset based on the criterion above, the study's sample was then limited to the 15, 814 women respondents.

To show that women empowerment through socioeconomic characteristics of women, education, employment, and their intrahousehold bargaining power is a function of child health outcomes, the multivariate logistic econometric model is presented as

$$log\left[\frac{Y}{1-Y}\right] - \beta_0 + \sum_{i=0}^{n} \beta_i X_{ik}^{2017} + \rho_i E_k + \delta_i M_k + \alpha_i I_k + \varepsilon_i$$

where $log\left[\frac{Y}{1\ Y}\right]$ is the log-likelihood of child health outcomes such as Antenatal Visits, Childhood Immunization, and Under-5 Mortality, X_{ik}^{2017} refers to the socioeconomic characteristics of women in 2017 where $i = 1\ to\ 3$ for k women, E is women's education, M is employment, and I is intrahousehold bargaining power. In the model, the socioeconomic characteristics of women are age, residence, and wealth, while intrahousehold bargaining power was based on women's involvement in household decision-making with regard to women's health, major purchases, mobility, and their control over the husband's earnings.

In the original 2017 NDHS questionnaire, women were asked the question, 'Who usually makes decisions about health care for yourself?' 'About making major household purchases?' 'About visits to your family or relatives?' and, 'How your husband's/partner's earnings will be used?' The respondents then have five choices namely, (1)

respondent alone, (2) respondent and husband/partner, (3) husband/partner alone, (4) someone else, and (5) others.

In this study, a woman is considered empowered in making household decisions if she answers either choices (1) or (2), because in these choices, the woman has a say in the decision-making process. Empowerment in each decision-making area is coded as 1. Otherwise, a value of 0 is assigned to represent a woman who is not empowered. These unempowered women are those who answered among the choices (3), (4), or (5) because in these choices, women do not have a voice or bargaining power in the decision-making process.

Once coded with the value of 1 or 0, the scores in the four areas of decision-making were summed up. Thus, the scores in the intrahousehold bargaining power could have a maximum value of 4, representing an empowered woman in all areas of decision-making considered in this study. On the other hand, it could have a minimum score of 0 indicating that the woman has no bargaining power inside the household.

Once the scores were summed up, they were classified into three empowerment levels namely, low, medium, and high empowerment level. A woman gaining a score of 0 in the intrahousehold bargaining power was classified under a low empowerment level. Medium empowerment, on the other hand, refers to those women who garnered a score of 1-3. Finally, women were classified under a high empowerment level when they gained a perfect score of 4 in terms of their involvement in household decision-making. Low, Medium, and High empowerment levels were coded as 1, 2, and 3, respectively.

On the other hand, the dependent variables were coded as follows: (1) Antenatal care was assigned a value of 1 when a woman has at least four antenatal visits, 0 if otherwise, (2) Childhood immunization was assigned a value of 1 if their child is fully immunized, 0 if otherwise, and (3) Under-5 Mortality was assigned a value of 1 for births resulting in death between the age 0 to age 5, 0 if otherwise. Note that a child is said to be fully immunized if they received all basic vaccinations namely, one dose of Bacille Calmette-Guerin (BCG), measles vaccine, and three doses each of DPT (diphtheria, tetanus toxoids and pertussis), and polio vaccine (PSA, 2017). All the statistical data analysis was conducted through Stata.

4. Results

A multivariate logistic regression analysis was utilized to examine if the socio-economic characteristics and empowerment variables of the women significantly influence the three child health outcomes considered in this study which are antenatal visits, childhood immunization, and under-5 mortality.

4.1 Antenatal Care

Antenatal care (ANC), sometimes called as pregnancy or maternity care, is a preventive health service where women receive care from skilled health professionals during their pregnancy. Based on the World Health Organization's (WHO) recommendation in 2017, the adequate number of maternity care visits should not be less than four visits. This provides an opportunity for families to screen and detect possible complications and diseases, which can then reduce negative health outcomes such as morbidity and mortality. Because of its importance, WHO implemented a new ANC model in 2018, which increases the recommended number of ANC visits from four to eight visits.

Table 1. Multiple Logistic Regression Results (Coefficients)

	Antenatal Care	Immunization	Under-5 Mortality
Constant	.162621	-2.509955***	-4.055217***
Age	.0017394	.0221034***	.025371***
Residence	.0748591	.1320001*	-.0189786
Wealth (base = poorest)			
Poorer	.3046857***	.1767505*	.1527935
Middle	.4396769***	.0140064	.0807581
Richer	.6816542***	.031939	-.4327355*
Richest	1.174951***	.1147769	-.1233521
Education	.1476728***	.0480245***	-.0927226***
Employment	.2221935***	.2365096***	.3337496***
Intrahousehold Bargaining (base=low)			
Medium	-.2891599	.3304137	-.0734089
High	-.3402273	.1030817	.0376378
Number of observations	7307	4899	14077
LR chi2 (9)	549.95***	95.22***	79.26***
Pseudo R2	0.0862	0.0169	0.0277

Note: *p<0.1, **p<0.05, ***p<0.01

As observed in Table 1, the age of women is positively correlated with antenatal care, thus indicating that as women become older, the likelihood that they will visit health professionals for consultations during their pregnancy also increases. In terms of women's place of residence, women from urban areas have a 7.8% higher probability of having at least four antenatal care visits compared to their rural counterparts. This finding is not surprising as it is seen in the Philippines that disparity still exists between rural and urban areas in terms of accessibility to health care, with urban areas having greater access.

For similar reasons of greater and easier access to resources and health services, it was also discovered that household wealth is a positive and significant factor for the acquisition of adequate ANC. Specifically, the logistic regression revealed that women in the poorer, middle, and richer income categories have 35.62%, 55.22%, and 97.71% higher likelihood of acquiring adequate ANC visits compared to women in the poorest households.

In terms of the empowerment variables, Table 1 also revealed a positive and significant relationship between education and antenatal care. The variable education has an odds ratio of 1.159134, which implies that for each additional year of schooling, the likelihood of having adequate antenatal care also increases by 15.91%. Similar to women's education, employment status is also found to be significant at 0.01 level of significance. The regression results also revealed that employed women have a 24.88% higher probability of acquiring adequate antenatal care compared to their unemployed counterparts.

Finally, women's intrahousehold bargaining power which is comprised of their involvement on decisions with regard to their health, mobility, major household purchases, and control over their husband's earnings, was found to be not a significant factor in the acquisition of antenatal care. Furthermore, the coefficients yielded an interesting result since the signs revealed a negative correlation between intrahousehold bargaining power and antenatal care. With an odds ratio of .7488925 and .7116086, women in the medium and high empowerment levels have a 25.11% and 28.84% lower likelihood of acquiring adequate antenatal care compared to women in the low empowerment level.

4.2 Childhood immunization

In addition to antenatal care, another child health outcome considered in this study is childhood immunization. As known to many, children are considered the most vulnerable portion of the population, however, various illnesses and diseases that may affect them could be avoided through the completion of childhood immunization (Roy, 2010).

Table 1 shows that all the socio-economic variables examined yielded positive coefficients indicating that the age of the woman, their urban residence, and their household wealth quintile positively influence the probability that the child will receive complete immunization.

Specifically, women's age and urban residence increase the likelihood of receiving complete immunization by

2.23% and 15.94%, respectively. Similarly, women belonging to the poorer, middle, richer, and richest households have 19.33%, 1.41%, 3.24%, and 12.16% higher probability of acquiring full immunization for their children than women from the poorest households.

All empowerment variables also yielded positive coefficients. For instance, the model revealed that every additional year in women's schooling translates to a 4.92% higher likelihood that their children will be fully immunized. Employed women were also found to have a 26.68% higher probability that their children will acquire full vaccinations compared to their unemployed counterparts and women with medium and high empowerment have a 39.15% and 10.89% higher probability of complete childhood immunization compared to women with low empowerment.

4.3 Under-five Mortality

In the Philippines, Under-5 Mortality is defined as the probability of dying between birth and the fifth birthday. It combines the following two measures: Infant Mortality and Child Mortality, which are some of the widely used indicators of a country's health status and level of development (Reidpath & Allotey, 2003).

The logistic regression results revealed that the older the age of the mother is, the higher the probability of under-5 mortality. This positive and significant correlation is consistent with the idea that older women are more likely to have complications during pregnancy and delivery (Cavazos-Rehg et al., 2015). In terms of place of residence, women in the urban area have a 1.9% lower probability of under-5 death compared to their rural counterparts.

Meanwhile, household wealth status revealed interesting results. Poorer and middle-income households were found to have a higher probability of experiencing under-5 death compared to the poorest households, while the richer and richest households have a lower probability. This finding may be associated with the result of women's employment, since the model revealed that the risk of experiencing under-5 mortality is 39.62% higher for employed women compared to their unemployed counterparts. Majority of the poorer and middle-income households heavily rely on their employment income for their daily expenditure as many of the free public services are only accessible to the poor households and not to them.

Another measure of women's economic empowerment is the mother's education. From the results, it can be inferred that every additional year in women's schooling lowers the risk of experiencing under-5 mortality by 7.06%. Women's educational attainment, along with their age and employment status were found to be significant at 0.01 level of significance. Finally, there is not enough evidence to arrive at the same conclusion in terms of the significance of women's intrahousehold bargaining power.

5. Discussion

All socioeconomic characteristics of women have a positive relationship with child health outcomes except under-5 mortality.

5.1 Socio-economic Characteristics

The age of women serves as a protective factor for both antenatal care and childhood immunization but is a risk factor for under-5 mortality. This implies that as women become older, the likelihood that they will visit health professionals for consultations during their pregnancy and the immunization of their children also increases. Conversely, as women age, the probability that they will have complications during pregnancy and delivery also increases thereby explaining the positive correlation discovered between age and under-5 mortality (Cavazos-Rehg et al., 2015).

In terms of residence, women from the urban area consistently reported better health service utilization and child health outcomes compared to their rural counterparts. This is not surprising as urban dwellers have easier physical access to health facilities and necessary drugs and medical equipment compared to many rural dwellers (World Health Organization, 2019).

For similar reasons of greater and easier access to resources and health services, it was also discovered that household wealth consistently serves as a protective factor for ANC visits and childhood immunization. Interestingly, household wealth status showed varied results in terms of its influence in the probability of experiencing under-5 mortality. Women from the richer and richest households yielded the expected negative correlation wherein they reported a lower likelihood of experiencing under-5 mortality than the poorest

household, while women from the poorer and middle-income category reported a higher likelihood of experiencing under-5 mortality than the poorest household.

While several factors may have influenced the results, one possible explanation would be the availability of public social services that are accessible only to poor households and not to the middle classes. This was reflected in the argument raised by Remulla (2018) in which he stated that the middle classes also encounter the challenges encountered by the poor, but the latter are often overlooked by the government.

Since the middle class has limited access to free public services, the majority of them rely heavily on their employment income for their daily expenditure. This was supported by the study of Albert, Santos, & Vizmanos (2018) where they have identified that one of the characteristics of a middle-income household is that their members who are of working age tend to be employed. Employment, especially, women's employment when their children are of critical development age was found in some studies to be positively correlated with under-5 death.

5.2 Empowerment Variables

In this study, women's economic empowerment is measured through women's educational attainment, employment, and intrahousehold bargaining power. Among the empowerment variables, educational attainment was found to be the most significant protective factor for all child health outcomes. That is, every additional year in women's schooling translates to a higher likelihood of acquiring adequate antenatal care, a higher likelihood that their children will be fully immunized, and a lower probability of under-5 mortality.

Education is identified in many studies as the most dominating factor in influencing the increased utilization of antenatal care and childhood immunization (Hossain & Hoque, 2015; Manyeh et al., 2020; Adedokun & Yaya, 2020; Lu et al., 2021, and Wirawan et al., 2022). Not only is the study's finding widely supported by related literature but it is also consistent with the idea that in general, better-educated women are more knowledgeable about the use of health facilities and about the more appropriate and timely information about child healthcare (Adedokun & Yaya, 2020).

Surprisingly, women's employment was found to be a significant protective factor for both ANC visits and childhood immunization but is a risk factor for under-5 mortality. As to the expectation that employed women should have a lower probability of infant and child death, the results showed the contrary. It revealed that the risk of experiencing under-5 mortality is higher for employed women compared to their unemployed counterparts. This positive correlation was also discovered by Hossain (2015) wherein he explained that women's employment may result in less care and infrequent breastfeeding, which may influence the chance of child survival. However, this does not imply that women's employment should be discouraged; instead, Hossain (2015) emphasized the need for viable childcare alternatives for working women and the renegotiation of gender roles.

Finally, women's intrahousehold bargaining power, which is represented by women's participation in household decision-making with regard to their health, major household purchases, mobility, and control over their husbands' earnings, was found to be not significant factors in the acquisition of antenatal care, complete childhood immunization, and under-5 mortality. Not enough evidence was found to establish the relationship between child health outcomes and women's intrahousehold bargaining power since the effect of poverty constraints may overpower this link.

Having better bargaining power in household decision-making may be a necessary factor for better child health outcomes, but it is not enough, especially when women are subjected to poverty constraints. It is possible that women understand the importance of immunization, vitamin supplements, and healthcare check-ups, but do not possess the economic resources to afford these.

6. Conclusion and Recommendations

This study contributes to the existing body of knowledge that empirically supports the 'double dividend' or 'spill-over effect' of empowering women to the health and well-being of their children. Women's educational attainment, employment status, and intrahousehold bargaining power were considered as measures of women's economic empowerment. Although not enough evidence was found to establish the link between intrahousehold bargaining power and child health outcomes, the other indicators of women's economic empowerment showed that the more economically empowered the women are, the better health outcomes are expected for their children. Specifically, the results of the logistic regression emphasized the crucial role of education as it was discovered to

be the most significant protective factor in all child health outcomes. This serves as an addition to the existing reservoir of knowledge that recognizes the crucial role of women's education as a development tool in achieving healthier, stronger, more educated, and more productive families and communities.

Meanwhile, employment status was discovered to positively influence both ANC visits and childhood immunization but is also positively correlated with under-5 mortality. While this result shows that employed women have higher likelihood of experiencing under-5 mortality compared to their unemployed counterparts, it should be noted that this finding should not discourage employment, but should highlight the need for viable childcare alternatives for working women, policies supporting flexible working arrangements, and the renegotiation of gender roles and gender relations in domestic and care responsibilities.

Following the argument that children should thrive and not only survive, this research can be extended to further explore the influence of women empowerment on early childhood development. Early childhood development includes physical, cognitive, socio-emotional, and language development of children. This can be easily done since the area of early childhood development is recently included in the 2022 NDHS.

Furthermore, NDHS is done every five years, thus it is also possible for other researchers to have a longitudinal analysis and compare determinants of women empowerment and child health outcomes for different time periods. This would then show the status of these indicators over time and the effectiveness of the policies implemented relative to these indicators.

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