

## Are women influencing the uptake of hygienic latrines?

Analyzing the gender impact of the CHOPA sanitation program at the household level in Vietnam

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## List of Acronyms

CHOPA	Community Hygiene Output-Based Aid Program
EMW	East Meets West
GoV	Government of Vietnam
IEC	Information and Education Campaign
KAP	Knowledge, Attitudes, Practices
OLS	Ordinary Least Squares
VBSP	Vietnam Bank for Social Policy
VND	Vietnamese Dong
VWU	Vietnam Women's Union
WASH	Water, Sanitation and Hygiene

## Abstract

Little research has been carried out on whether sanitation programs can empower women to increase their role in household decision-making. This study, carried out by East Meets West/ Thrive Networks, aims to address this gap analyzing data from a large-scale rural sanitation program in Vietnam which encouraged over 120,000 poor families to build hygienic latrines in under four years. The study examines which member of the household was the primary decision maker in the latrine decision and analyzes the aspects of the program that empowered women with a greater voice. Furthermore, the study examines whether increasing women's participation in household latrine decisions improves sanitation outcomes.

The results showed that two of the program components significantly increased the wife's decision-making role: help with obtaining a loan, and an information, education and communications campaign. Promoting hygienic latrines and education on health benefits did not influence the "balance of power," while practical information regarding latrine options, costs, and masons increased the wife's decision-making. Husbands gave greater weight to costs while women emphasized family health, though "comfort and convenience" was the main reason for building a new latrine. When the wife decided rather than the husband, the latrines were more hygienic and expensive.

## Executive Summary

A lack of proper sanitation facilities disproportionately affects women and girls, who face additional challenges related to menstrual hygiene, personal safety, sexual harassment and violence. However, relatively little research has been carried out on whether sanitation programs can go further in empowering women to give them a greater say in household decision-making. Where such studies exist, they have generally been qualitative in nature. This study, carried out by East Meets West (EMW)/ Thrive Networks, aims to both fill this gap and complement existing research by taking a quantitative approach to the evaluation of a large-scale rural sanitation program in Vietnam.

The Community Hygiene Output-Based Aid (CHOBA) program encouraged over 120,000 poor families to build hygienic latrines in less than four years. It was implemented by EMW in 500 communes from 10 provinces. Over 5,000 VWU volunteers from the Vietnam Women's Union (VWU) undertook most of the fieldwork. CHOBA targeted the poorest 40% of the rural population and had a clear focus on results through output-based incentives to poor households, the Women's Union and its volunteers, and to participating communes. This research examines which member of the household was the primary decision maker and analyzes the aspects of the program that empowered women with a greater voice in the latrine decision. **This study therefore has two key research questions:**

- 1. What factors, including CHOBA-related components, increase the wife's household decision-making power, and by how much?**
- 2. Does this empowerment result in any practical consequences in terms of latrine choice?**

The starting point for the research is a conceptual model reflecting the most recent gender research, in which women's (and men's) bargaining power is seen as a function of their human capital (e.g. education, skills, training), financial capital (e.g. income, loans, savings), physical capital (e.g. land, animals) and social capital (e.g. networks, mentors). The research tool used was an extensive Knowledge, Attitudes and Practices (KAP) survey administered three times to the same 1,900 households. However, the main analysis was carried out on a sub-set from the end-line survey of 517 households for which we had detailed data on both spouses. Linear, ordinary least square regressions were used to analyze the impact of household characteristics, spouses' attributes, and program elements on which spouse was the main decision maker in the latrine purchase.

The results regarding socio-economic factors were consistent with most gender research: the wife's bargaining power increased with her age, education and outside cash income. Similarly, she had a greater say in the latrine decision if she was more educated than her husband. Family size and income did not have any impact.

**More importantly, the results showed that two CHOBA program components significantly increased the wife's decision-making role: (1) help with obtaining a loan, and (2) the information, education and communications (IEC) campaign. Promoting hygienic latrines and education on health benefits did not influence the "balance of power," while practical information regarding latrine options, costs, and masons did increase the wife's bargaining power. Without CHOBA, the wives would be the sole or joint decision makers in 45% of the households. Thanks to CHOBA this percentage increased to 69%. Finally, the analysis showed that men gave greater weight to costs while women emphasized family health (although "comfort and convenience" was the main reason for building a new latrine). When the wife decided rather than the husband, the latrines were more hygienic and expensive.**

# I. Introduction and Overview of CHOBA program

Much has been written about the negative effect that inadequate sanitation facilities has on women and girls' health and safety. While several studies have documented the qualitative impacts of improved WASH conditions on gender-related outcomes, few studies have looked quantitatively at the impact that a WASH program can have on women's empowerment at the household level. This study seeks to fill this gap, by analyzing the impact of a large-scale rural sanitation program in Vietnam on women's empowerment at the household level.

It is now widely accepted that a gendered approach to sanitation is needed. Burt et al. (2016) argue that sanitation must be designed explicitly for the unique needs of women and girls. Fisher (2008) goes one step further in claiming that: *"There is a great deal of evidence of the positive effects arising from positioning women and their interests at the heart of planning and implementation of improvements to water supply and sanitation."*

The Community Hygiene Output-Based Aid (CHOBA) project was a large-scale sanitation program designed and implemented primarily by women. It was financed by the Bill and Melinda Gates Foundation and implemented by East Meets West (EMW) in 500 communes from 10 provinces. The main partner was the Vietnam Women's Union (VWU) that fielded over 5,000 volunteers as motivators and facilitators. Because only about one percent of the rural population practices open defecation (JMP 2015), the Government's strategy targets households that use fishpond, single pit, or bucket latrines and seeks to move them "up the sanitation ladder."<sup>1</sup>

In less than four years CHOBA encouraged 113,500 poor households to build hygienic latrines (almost exclusively septic tanks). Thus, CHOBA had a direct impact on the health and well-being of nearly half a million people—all belonging to the poorest 40%. It was designed to influence households at critical stages of their decision making process and incorporated the key elements of traditional sanitation promotion programs:

- An information and education campaign;
- Supply chain improvement; and
- Access to affordable credit (primarily from the Vietnam Bank for Social Policy, VBSP);

A unique feature of CHOBA was its clear focus on results through output-based incentives to poor households, the Women's Union and its volunteers, and communes to participate in the program. Poor families who purchased and installed a latrine received incentive payments in the form of rebates of approximately USD 28. Implementing partners and local governments who worked together to promote latrine uptake and manage the rebate process were paid based on the number of latrines installed and used by poor households, as were village promoters who conducted community engagement and awareness-building activities.<sup>2</sup>

This paper is divided into several parts. Part II provides an overview of the status of gender equality and women's empowerment in Vietnam. Part III summarizes the latest literature on the relationship

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<sup>1</sup> The main sanitation target expressed in the government's key strategy document (MARD 2010) is that by year 2020, 90% of rural population will use *approved hygienic* latrines. Technical guidelines issued by the Ministry of Health define which type of latrine is "hygienic."

<sup>2</sup> For a more comprehensive description of CHOBA, see Ljung et al. (2015).

between gender and water, sanitation and hygiene (WASH). Part IV reviews existing literature on the key factors influencing women's decision-making and bargaining power at the household level. Parts V to VII encompass the conceptual model, the data and analysis, and key results. The paper ends with Part IX, conclusions and implications.

## II. Gender equality and women's empowerment in Vietnam

The Communist Party and the Government of Vietnam have had gender equality as an important policy objective since their establishment (Desai 2001 and UN Women 2016). The Government has adopted a legal framework based on gender equality, and created institutions and programs to support women's advancement.

Consequently, Vietnam performs well on commonly-used indicators of gender equality and women's empowerment. While the female literacy rate of 93% lags behind that of men (World Bank 2017), this is largely a generational problem. At every level from primary to upper secondary school, attendance and completion rates for girls are presently at par with or exceed those of boys (GSO 2016).

The female labor force participation rate at 72% is one of the highest in the developing world (World Bank 2017). The World Economic Forum estimates that the earned income of women in Vietnam is 83% of men's, representing one of the lowest income gaps in the world (WEF 2016). In their analysis of the 2009 census, Bélanger et al. (2012), note that there is a slight reverse gender gap (in favor of women) in the distribution of men and women who are professional and technical workers (ratio of 1.09). However, they also found that, in spite of significant progress over the preceding two decades, women represented only about one quarter of legislators, senior officials, and managers.

Domestic violence remains a problem in Vietnam: the rate of women experiencing physical violence from their husbands was 32% in 2010 (World Bank 2011). Still, the World Bank notes that this figure is actually below the average rate found in other countries using a similar methodology.

Little comparative data exist on the gender distribution of child care and household chores, but the few studies that have been undertaken in Vietnam (see UN Women 2016 for an overview) indicate that the pattern is rather similar to that found in high income countries with high labor force participation rates. Some typically female tasks like collecting water appear to be impose less of a burden on women in Vietnam than in Sub-Saharan Africa and South Asia (Sorenson et al. 2011).

It is also worth mentioning that the average household (3.7 persons) owns two motorcycles. As a consequence, women in Vietnam enjoy a physical mobility that far exceeds that in other developing countries at a similar income level.

This research was undertaken in two provinces: Hai Duong in the northern Red River Delta and Tien Giang in the southern Mekong River Delta. Although the overwhelming majority of the population in the two provinces is ethnic Vietnamese and the average household income is about the same, there are some noticeable socio-economic and cultural differences between the two (Table 1). In Hai Duong (and the Red River Delta in general) greater importance is placed on the education of girls which is reflected in a higher literacy rate for women and more girls attending upper secondary schools (grades 10 through

12).<sup>3</sup> The labor force participation rate for women is also higher in Hai Duong. Somewhat unexpectedly, women in Hai Duong have more children than in Tien Giang. The most striking difference, however, is the very unbalanced sex ratio at birth in Hai Duong. This suggests that much of the Confucian belief systems may remain intact in the north. In the words of the World Bank (2011), this is reflected in “a culture of son preference which values sons not only for their economic contributions and support to parents in old age, but also on symbolic grounds to maintain the ancestral line.”

**Table 1: Key Social Indicators for Research Provinces**

Indicator	Hai Duong	Tien Giang	Census Year	Basis
Female literacy rate (Age 15 and older)	96.7%	92.3%	2014	Rural Areas
Percent Girls attending Upper Secondary School	76.1%	64.0%	2014	Rural Areas
Singulate mean age at marriage, female	22.9	22.0	2014	Whole Province
Labor force participation rate, female	89.0%	81.9%	2009	Rural Areas
Total fertility rate (children per woman)	2.08	1.97	2009	Rural Areas
Sex ratio at birth (boys per 100 girls)	123.4	109.7	2009	Rural Areas

Comment: The latest full census was in 2009. An Intercensal Population and Housing Survey was conducted in 2014.

Schuler et al. (2006) argue that Vietnam is far ahead of most other countries at similar income levels in terms of human development and gender equity, but some “*inegalitarian gender norms have also persisted.*” This apparent incongruity pervades gender studies in Vietnam. Santillan et al. (2004) concluded that:

*“... one cannot understand gender in Vietnam without appreciating contradictions in gender norms. Norms that have evolved from Confucian traditions prescribe a hierarchical relationship between husband and wife, in which the wife is subordinate by nature. Socialist ideology promoted by the Women’s Union and the Communist Party have labelled such ideas as ‘backward’ and ‘feudal’ and have emphasized equality of men and women... At present, these two sets of opposing views about gender co-exist in Vietnamese culture and society.”*

In short, Vietnam has come a long way towards achieving equality between women and men, but still traditional values, norms and gender roles linger on. It is within this context that we analyze CHOPA’s effect on the empowerment of women.

### III. Gender and WASH

Water, sanitation and hygiene (WASH) are closely interrelated. Sahoo et al. (2015) notes that sanitation practices encompass more than defecation and urination and include carrying water, washing, bathing, menstrual management, and changing clothes. Indeed, WASH activities do not only satisfy individual needs but can also expand into the social sphere. O’Reilly (2010) examined a sanitation program in the Indian state of Rajasthan where *purdah* is practiced. By constructing toilet facilities within the family compound, the women lost the freedom to travel—in groups—away from home to defecate and to

<sup>3</sup> In Vietnam, the first 9 years are obligatory for both boys and girls, although there is some modest dropout at the lower secondary level (grades 6 through 9).



dispose privately of the menstrual material far from the house. In many settings, collecting water plays a similar social role. Thus, WASH programs can both support and work against strategic and direct gender interests.

The literature on WASH and gender essentially falls into four categories: (i) studies of how WASH programs benefit women; (ii) implementation of programs that take a gendered approach and/or seeks to empower women in order to improve WASH outcomes; (iii) assessments of how and to what extent WASH programs empowers women; and (iv) studies examining how empowerment of women influences latrine decisions.

With regard to the first category, a number of existing studies have sought to analyze how WASH programs benefit women and improve gender outcomes. This body of literature has established several key links. First, women often face a disproportionate burden from inadequate WASH facilities. Several studies have shown that improved access to WASH services reduces the burden of carrying water or caring for sick family members, responsibilities which most often fall to women (NEWAH 2004, Willetts et al. 2010, Fisher 2008, and Kilsby 2012). Other studies have shown that WASH programs can positively impact women's privacy and dignity as well as self-confidence (Ivens 2008, Fisher 2008). Recent research has highlighted the psychosocial stress that women and girls experience when defecating in the open or use inadequate sanitation facilities (Hirve et al. 2015, Hulland et al. 2015, Sahoo et al. 2015). Improving WASH services for women therefore leads to direct and positive changes in their health and well-being.

Within the second category, several studies have shown that focusing on gender and encouraging women's meaningful participation in WASH initiatives increases their effectiveness and sustainability (Ivens 2008, Fisher 2008, and O'Reilly 2010). For example, Ivens (2008) argues that gender equality is crucial for the sustainability of water programs. If a water supply facility breaks down, women are much more likely to demand its immediate repair given their workload and well-being is most directly affected. In order for this to happen, women must be involved in private and public decision-making and local community structures (Ivens 2008).

The third category of literature demonstrates the role of WASH programs in improving gender outcomes for women more broadly, including women's empowerment. A number of case studies provide examples of changes in household decision-making as a result of water programs.<sup>4</sup> Through a review of documented gender equality outcomes from WASH programs and empirical research carried out in Fiji and Vanuatu, Carrard et al. (2013) developed a framework summarizing the types of gender equality outcomes achieved by WASH programs to date. The authors found that gender outcomes associated with WASH initiatives could be classified across two dimensions: *"1) whether outcomes relate to individual changes or changes in relationships; and 2) whether outcomes are experienced within the household sphere or in the wider 'public' arena"* (Carrard et al. 2013). Their review found that the largest number of outcomes identified in the literature review (approximately one third) were situated within the individual household sphere. A study conducted on the NGO, Plan International's WASH program in Vietnam to understand its contribution to changes in gender outcomes similarly found that *"experiences of change at household level were more common than those in the public sphere (i.e. at wider community level). The most commonly reported strategic gender outcome within households was communication for decision-making in household"* (Leahy et al. 2016).

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<sup>4</sup> For examples, see Bell 2001, Shrestha 2002, Well 2005, GWA and UNDP 2006, Smirat 2006, UN OSAGI cited in Ivens 2008.

The fourth most recent—and still emerging—category of studies is examining how empowerment of women influences latrine decisions. Using data from the 2008/9 Kenyan Demographic and Health Survey, Hirai et al. (2016) concluded that *“women’s decision making power ... was positively associated with households having better sanitation ( $p < 0.05$ ).”* This finding supports the premise that engaging women in WASH programs enhance their effectiveness. However, this might not be universally true at the household level. For example, Routray et al. (2017) examined women’s role in sanitation decision making in the Indian state of Odisha. They found that: *“Households where women were more involved in general decision making processes were no more likely to build a latrine, compared to households where they were excluded from decisions.”*

This study therefore seeks to contribute further to the literature on the impact of WASH programs on gender outcomes at the household level, and in particular, to fill the gap identified by Carrard et al. (2013) on literature regarding changes in relationships within the household sphere. Furthermore, we will examine whether empowerment of women and giving them a greater voice in household latrine decisions will improve sanitation outcomes.

## IV. Gender and Household Decision Making

Numerous studies have sought to determine the most important factors that influence women’s bargaining and decision-making power within the household. This section highlights the most salient literature. Given that the focus of this research is on decision-making within the family, we intentionally emphasize literature that analyzes decision-making dynamics within a household couple, not on all dimensions of gender empowerment (of which there are many).

We draw on two seminal studies on women’s empowerment as the basis for our literature review, and later our conceptual model (Golla et al. 2011 and Kabeer 1999). The literature suggests that a number of factors and resources influence a women’s level of bargaining power. As summarized by Golla et al. (2011), these resources should be viewed not just as monetary resources, but include several categories, namely human capital (e.g. education, skills, training), financial capital (e.g. loans, savings), social capital (e.g. networks, mentors), and physical capital (e.g. land, machinery). Kabeer (1999) similarly argues that the ability to exercise choice can be thought of in terms of three inter-related dimensions: resources (pre-conditions), agency (process), and achievements (outcomes). We review the impact of these various categories of resources below.

### a) Education and Information

Kabeer (2011) found that in a multi-country study across Ghana, Bangladesh, and Egypt, education, and in particular secondary education, emerged as a significant factor influencing women’s attitudes and agency across all three contexts. Several other studies highlight female education as an important determinant of her empowerment, including Masbout and van Staveren (2010), Toufique (2016), Rahman et al. (2009) and Friedberg and Webb (2006). The husband’s level of education is also an important factor in some cases. Escardíbul and Albert note that in Spain, the education level of both the husband and wife has a positive effect in terms of a more equal decision-making process related to expenditures. In Latin America, increases in male education in Venezuela raised the probability that couples made decisions equally regarding the purchase of household goods and the management of household finances (Lawrence and Mancini 2008). Rahman et al. (2009) also found that husbands’ education increased women’s empowerment. However, certain studies have also found the husbands’

education to have little or negative effect on women's empowerment (Anderson and Eswaran 2007, Kabeer 2011, Sathar and Kazi 2000, and Toufique 2016). Finally, some studies found that the relative education between husband and wife was an important factor, for example, Carlsson et al. (2009) found that in China, women with more education than their husbands had a stronger influence on joint decisions.

Beyond education, access to information and knowledge is also a factor that can contribute to increased women's empowerment and bargaining power. Research conducted on the NGO Plan International's WASH program in Vietnam, revealed that many positive changes came about through women accessing information and knowledge, either through formal education or meetings and discussions in the community (Leahy et al. 2016).

### **b) Income and Assets**

Earning cash income is seen to increase women's decision-making across several contexts (Acharya et al. 2010, Anderson and Eswaran 2007, Antman 2014, Sathar and Kazi 2000, Kabeer 2005, Toufique 2016). Several studies have emphasized the significance of women earning income *outside* of the home. Antman (2014) found that when spouses worked outside of the home, they were more likely to be involved in household decisions. Toufique (2016) and Anderson and Eswaran (2007) also found the impact of off-house earnings to have a significant on women's empowerment. Carlsson et al. (2009)'s study in China found that if women's earning contributions to the households were higher than their husbands', their influence on joint decisions was higher.

The significance of husbands' employment or income varies by context. In Egypt, the head of household's occupation had minimal impact on women's empowerment, but in Bangladesh, women in households with husbands' engaged in skilled employment did report more positive outcomes in terms of empowerment than women whose husbands were unemployed or casual laborers (Kabeer 2011).

Wives' ownership of assets has long been argued to increase their bargaining power and empowerment within the household, particularly the ownership of land in agrarian economies (Boserup 1970, Agarwal 1984, Dyson and Moore 1983). Doss (1996) found that the relative level of assets owned by women affects the expenditure decisions of households. A randomized control trial in the Philippines found that having access to individually-held commitment savings products led to an increase in female decision-making power within the household, particularly for women who had below-median bargaining power at baseline. Access to such savings products was also found to lead to increased purchases of female-oriented durable goods within the household (Ashraf et al. 2006). Joint ownership of land and houses can also improve women's decision making power (Datta 2006).

### **c) Social Capital**

A woman's level of social capital (e.g. networks, mentors) can also influence her level of bargaining power. In China, Carlsson et al. (2009) found that women with Communist Party memberships had a stronger influence on joint household decisions. Holvoet (2005) finds that when access to credit (microfinance) is combined with financial and social group intermediation, women's group membership significantly shifts decision-making behavior away from male decision-making towards more joint and female decision-making. Associational activity, particularly when religious in nature, has also been linked to positive social and economic changes in women's lives in various contexts (Kabeer 2011).

#### **d) Women's life stage and status (age, family characteristics)**

Age is a frequently mentioned factor in the literature on women's economic empowerment. Acharya et al. (2010) found that in a study on women's autonomy in household decision-making in Nepal, older women had a greater voice in major household decisions. Several other studies across a range of geographies and contexts have found similar results. Friedberg and Webb (2006) found that the increased age of both spouses reduced the husband's bargaining power in the U.S. A wife's age was found to be a significant factor in increasing her household bargaining power and/or empowerment in Ethiopia (Masbout and van Staveren 2010) and Pakistan (Sathar and Kazi 2000), and Bangladesh (Toufique 2016). However, the literature is not unanimous on this point. A study by Rahman et al. (2009) on factors influencing women's economic empowerment among microcredit borrowers in Bangladesh found that the age of the woman was negatively correlated with women's empowerment – in other words, younger women were more empowered. However, the literature on the whole seems to suggest that a woman's empowerment increases with her age.

Also important is the role of the husband's age, a factor on which existing literature comes to divergent conclusions. Rahman et al. (2009) found that younger and more educated husbands led to greater empowerment among women. Anderson and Eswaran (2007), however, find that husbands' characteristics do not consistently affect women's level of autonomy. Finally, the age difference between partners also appears to influence bargaining power (Friedberg and Webb 2006; Masbout and van Staveren 2010).

Various family characteristics have been studied as possible factors affecting women's bargaining power and empowerment. In Nepal, women's autonomy increased with her number of living children (Acharya et al. 2010). In the U.S. context, having children under the age of 18 significantly reduced the husband's reported bargaining power (Friedberg and Webb 2006). In certain contexts, the presence of a woman's mother-in-law reduces her relative bargaining power (Anderson and Eswaran 2009). Similarly, Sathar and Kazi (2000) find that women living in nuclear households in Pakistan are able to make more decisions inside and outside of the home than their peers living in non-nuclear households, and Toufique (2016) finds that a woman's bargaining power in Bangladesh is significantly reduced if she lives with her extended family. Interestingly, several studies have found overall family income to have an insignificant effect on women's empowerment (Anderson and Eswaran 2009, Sathar and Kazi 2000).

#### **e) Cultural factors**

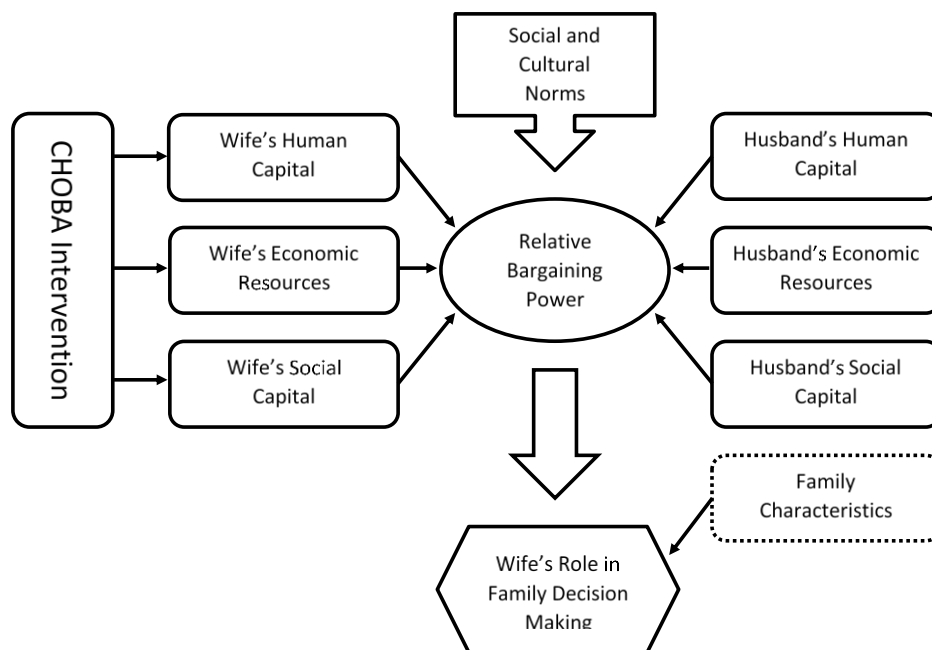
The measurement of women's empowerment and level of bargaining is highly context-specific (Toufique 2016, Kabeer 2011), and it would be unrealistic to assume that household-level characteristics alone influence a woman's degree of autonomy. Research has shown that a number of cultural factors and/or local norms also play an important role, and that levels of female bargaining power can vary significantly between and within countries (Kabeer 2011, Mason 2005). Masbout and van Staveren (2010) argue that women's bargaining power should not only be analyzed at the individual or household level, but also at the institutional level, given that women's individual level of bargaining power may be overruled by cultural influences or gendered institutions within society

## V. Conceptual Model

Building on Kabeer (1999) and Golla et al. (2011) and drawing on the broader literature, we therefore propose a model which emphasizes both wives' and husbands' characteristics (as well as family characteristics) as important factors for determining wives' roles in household decision-making. As seen from the literature, women's role in household decision-making has long been used as a way to operationalize and measure her bargaining power (Upadhyaya et al. 2014, Dyson and Moore 1983). Given our goal is to understand the gender impact of CHOBA at the household-level, our primary focus is on decision-making within the family.

The work of the VWU centers on the women in the household. The IEC campaign under CHOBA educates them about health, hygiene and the merits of proper sanitation and increase their knowledge about latrines. The VWU also facilitates access to credit. In short, CHOBA helps to build human capital and provide access to financial resources. The figure below provides a schematic picture of the factors that influences the role of women—especially wives – in the decision making process, and highlights those influenced by the CHOBA program. The main goal of our empirical analysis is to validate this model.

**Figure 1: Conceptual model for analyzing the role of CHOBA on female decision-making in Vietnam**



## VI. Data and Analysis

### Data:

The CHOBA endline survey was undertaken in Hai Duong and Tien Giang provinces in January 2015 and March 2015, respectively. A total of 1,991 households were interviewed, about evenly split between the two provinces. The survey collected data on the respondent and on the head of household. As noted earlier, the oldest individual is usually designated the head (Desai 2001). Since husbands typically are a few years older than their spouses, the men are generally “head of household.” This meant that when a man was interviewed, we did not get any information about his wife. However, when a married woman was interviewed, we generally collected information also on her husband (if he was the head of household). In some cases, the father, mother, son, daughter, son-in-law or daughter-in-law of the “head of household” was interviewed.

There were 713 households where the wife was interviewed and we had basic demographic information on the husband. We excluded all households that did not own a latrine or where the respondent stated that a third party (e.g. a son, a mother or somebody outside the immediate family) decided on construction of the latrine. This left us with a sample of 517 households that owned a latrine and where the information on both spouses was complete and the decision to build the latrine was taken by the husband, the wife or jointly by both spouses.

### Analysis:

Changing gender roles is a slow process requiring action at all levels of society from political and legislative action to education and training of young children. Consequently, it is naïve to believe that a sanitation and hygiene program would reduce domestic violence or give women an equal say in family finances. If CHOBA empowers women, it is likely to be primarily reflected in the decision to install a latrine (and/or what type of latrine to build).

The relevant survey question was: “Which member in your household made the decision to install this latrine?” In a pure patriarchal society, the answer would be “the husband decided.” In the context of CHOBA, the decision to build the latrine was not a simple yes/no choice. Rather it involved a myriad of choices: Septic tank or dry pit latrine; squatting pan or toilet seat; with or without adjacent bathroom or washroom; material for superstructure; location; type of tiles on walls and floor; financing source(s), etc. Thus, the influence of the wife on the decision making process can cover different aspects of the latrine investment and, as Kabeer (1999) noted, take various forms, including bargaining and negotiation, deception and manipulation, subversion and resistance as well as more intangible, cognitive processes of reflection and analysis. Also pertinent are the observations by Santillán et al. (2004) that

*“...in Vietnam women exert a significant degree of control in daily decision making about productive activities, while still conforming to inegalitarian gender norms by stating that men should be the final decision makers about all family matters.”*

*“...most respondents reported that, in general, the couple discussed and made joint decisions, giving the impression that these interactions were very democratic, but when the interviewer focused on what happened when there was disagreement, it often became clear that men had more power in this area.”*

Unfortunately, it was beyond the scope of the CHOPA endline survey to dive deeply into the nature of the decision making process. Accordingly, we use the wife’s answer to the above question as an indication of her perception of her own role in the process. The options are (i) husband; (ii) husband and wife jointly; and (iii) wife. In our sample, relatively few women/wives answered that they took the decision and, consequently, the regressions using “wife decided” as the dependent variable had very low explanatory power. Thus, we use “husband decided” as the main measure of women’s empowerment.<sup>5</sup>

### The Model:

The dependent variable (“husband decided”) is dichotomous, i.e. it is either “yes” or “no” (or rather “0” or “1”). The usual way of analyzing such relationships is to use binary logistic functions. The survey results on the question “who decided to build the latrine” are:

Husband decided	47.0%
Joint decision	39.1%
Wife decided	13.9%

The sample probability for our selected dependent variable is well within the 20% - 80% interval (in which results of traditional linear regression models are practically the same as the results of logistic models). Since the results of the linear models are much easier to interpret, we use a linear regression of the form:

$$Y = \alpha_0 + \alpha_1 * x_1 + \alpha_2 * x_2 + \dots + \alpha_n * x_n$$

Following our conceptual model, we group the explanatory variable into five categories: (i) human capital; (ii) economic resources; (iii) social capital; (iv) family characteristics; and (v) social and cultural norms.

**Human Capital.** The main variable is the wife’s formal education. While the literature shows rather convincingly that education empowers women, the exact relationship between education and decision making roles is not obvious. We use a set of dummy variables to capture wife’s formal education. Each dummy variable takes value 1 for the wife’s highest completed level of education (primary school, lower secondary school, etc.), and 0 for all other levels, with no education serving as the base category.

We also regard age as one component of human capital. Life experiences and information gradually builds non-academic knowledge and wisdom, i.e. human capital. Since it is unrealistic to assume that the probability of women participating in the decision making process is a linear function of her age, we use dummy variables for different life stages: young (39 or below); middle age; and elderly (65 and above).

The education and the age of the spouses are strongly correlated. To avoid the multicollinearity problem, we use the differences in age and education of the spouses instead of the age and education

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<sup>5</sup> In mathematical terms, this yields the same results as using “wife decided plus joint decision” although the regression coefficients have opposite signs. Thus, in our formulation, a negative coefficient implies that the husband’s role went down and the wife’s increased.

of the husband. Another way of looking at this issue is to assume that the bargaining power of spouses depends on their relative age and relative education level.

Other indicators of human capital capture specific knowledge regarding latrines and the health impact of contact with feces as well as access to information regarding latrines. Finally, we include several information activities conducted by the Women's Union as part of CHOBA regarding latrine options, access to credit and the availability of the consumer rebate.

**Economic Resources.** As we have seen earlier, the wife's income influences her bargaining power. Our survey did not collect income data for each of the spouses, but we can identify if she has outside cash income, which is the variable we use. We use a similar indicator for the husband (non-farm cash income). Two CHOBA activities fall under this category: provision of loans from VBSP and Women's Union assistance in preparing and processing loan applications.

**Social Capital.** Dalton et al. (2002) found that the levels of social capital and social trust are relatively high among the Vietnamese public, especially in comparison to nations at the same level of economic development and that family ties remained the center of social networks for many individuals. The Vietnam Women's Union with 17 million members is the largest such network in Vietnam. In the World Values Survey undertaken in 2006, 94% of the respondents expressed that they had "a great deal" or "quite a lot" of confidence in women's organizations. The corresponding answers in Indonesia, India and Thailand were 61%, 41% and 39%, respectively. Thus, beyond the family, we would expect the VWU to be the main source of social capital for Vietnamese women. Our survey did not record if the wife was a member of the VWU or not. Consequently, we use the number of visits by the Women's Union's volunteers as an indicator of the social capital that the wife could draw on.

**Family Characteristics.** Based on the findings of the literature review, two measures related to general family characteristics are included in the analysis: family size and household income.

**Social and Cultural Norms.** Our review of women's empowerment and gender equality in Vietnam indicates that traditions and norms might differ between Hai Duong in the northern Red River Delta and Tien Giang in the southern Mekong River Delta. To find out if this is the case, we include a dummy variable for Hai Duong.

For a summary of the variables used in the analysis, and results of the analysis, see Table 2.

## VII. Results

The results of the ordinary least square (OLS) regression are presented in Table 3 and analyzed below.

**Human Capital:** Consistent with most other studies, we find that the wife's education has a significant impact on her decision making role. If the wife is illiterate or has not completed primary school, the husband would be the sole decision maker in 64% of the households. This percentage gradually declines to 38% if the wife has completed upper secondary school.



The age of the wife has a clear influence on the latrine decision.<sup>6</sup> A similar conclusion was reached by Acharya et al. (2010) who reported that *“older women had a greater voice in major household purchases.”* Similar conclusions were reached by Sathar et al. (2000). While this appears to confirm that age contributes to the wife’s human capital, we would expect that the coefficients for middle age and over 65 would be more similar. Thus, we speculate that the wife’s age can be a proxy for the time that the couple has been married and that couples develop a more collaborative decision making approach over time.<sup>7</sup>

The ages and education levels of the spouses are highly correlated and the differences between the means are small: Husbands are, on average 2.6 years older than their wives and have 0.4 years more of education. Thus, the coefficients for the age difference and education difference variables are not significant. Still, it is noteworthy that the coefficients have the “right” signs. If the wife is considerably younger than her husband, she has a lesser influence on the latrine decision—and vice versa. Mabsout and van Staveren (2010) also found that the age difference between the spouses affected women’s empowerment.

Similarly, if the husband is less educated than his wife, his role declines. Conversely, when the wife was more educated than the husband, her role increased. This is consistent with the findings of Carlsson et al. (2010) who concluded that *“women with more education than their husbands... have a stronger influence on the joint decision.”* We interpret this as an indication that the bargaining/decision making power that the spouses possess is influenced by the relative amount of “human capital” that each spouse holds.

Perhaps surprisingly, knowledge about the about the linkages between contact with human feces and diseases has no significant impact on the wife’s role in the latrine decision. However, knowledge about what type of latrine is hygienic, i.e. good for health, is highly significant (virtually everybody knows that septic tanks are hygienic and, thus, we have used knowledge that double-pit latrines are classified as a hygienic as the key indicator of latrine knowledge).

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<sup>6</sup> While the coefficient for the woman’s age is not significant at the 10% level in the results presented here, in most variations of the model, it is clearly significant.

<sup>7</sup> This might be a universal phenomenon. In developed countries where the divorce rates are high and easy to measure accurately, after an initial rise, the divorce rates tend to decline with the number of years the couple has been married. In England and Wales, for example, couples that have been married 5 years have a 3% probability of getting divorced over the subsequent 12 months. After 35 years of marriage, the probability has fallen to 0.3% (Wilson and Smallwood 2008).

**Table 2: Results of the Regression Analysis**

<u>Variable Description</u>	<u>Full Model</u>		<u>Reduced Model</u>	
	<u>Coefficient</u>	<u>Significance</u>	<u>Coefficient</u>	<u>Significance</u>
<b>Indicators of Wife's Empowerment (dependent variable)</b>				
The husband decided on installation of the latrine (intercept)	.631	.000 ***	.712	.000 ***
<b>Wife's Human Capital</b>				
Has completed primary school (incl. grade 5)	-.126	.232	-.125	.219
Has completed lower secondary school (incl. grade 9)	-.194	.102	-.201	.061 *
Has completed upper secondary school or higher (12+ years)	-.258	.064 *	-.264	.027 **
Between 41 and 64 years of age	-.035	.564	-.047	.416
65 years or older	-.181	.111	-.174	.102
<i>Knows no diseases caused by contact with feces</i>	-.001	.985		
<i>Knows at least 2 diseases caused by contact with feces</i>	.046	.419		
<i>Knows that ventilated double pit latrine is "hygienic"</i>	-.146	.028 **	-.148	.022 **
<i>VWU informed about hygienic latrines</i>	-.077	.170	-.060	.234
<i>VWU provided information about loans</i>	-.099	.365		
<i>VWU provided information about the consumer rebate</i>	-.011	.858		
<b>Wife's Financial Resources</b>				
Wife is employed and earns independent cash income	-.140	.019 **	-.140	.017 **
<i>The family obtained a loan fromVBSP (usually through the VWU)</i>	-.059	.233	-.067	.159
<i>VWU assisted in preparing loan application and obtain loan</i>	-.109	.102	-.114	.075 *
<b>Wife's Social Capital</b>				
<i>Volunteer from VWU did not visit the household last year</i>	.017	.825		
<i>Volunteer from VWU visited the household at least 3 times</i>	-.027	.611		
<b>Husband's Human Capital</b>				
Education difference between husband and wife	.004	.586		
Age difference between husband and wife	.008	.253	.007	.282
<b>Husband's Financial Resources</b>				
Husband has non-farm income	.075	.143	.076	.125
<b>Husband's Social Capital</b>				
No Variable available	n.a.	n.a.		
<b>Family Characteristics</b>				
Family/household has 3 or 4 members	.017	.794		
Family/household has at least 5 members	.059	.415		
Household income less than VND 20 million in previous year	.032	.585		
Household income more than VND 50 million in previous year	.013	.813		
<b>Social and Cultural Norms</b>				
The household lives in Hai Duong province	.095	.142	.107	.082 *

**NOTE: Negative coefficients imply that the wife's decision making role increases**

\*\*\* Significant at 1% level

\*\* Significant at 5% level

\* Significant at 10% level

*Note on variables: Loans were in the names of the wives, hence the variable under wife's economic resources. Almost everybody in Vietnam knows that septic tanks are hygienic and, thus, we have used knowledge that double-pit latrines are classified as a hygienic as the key indicator of latrine knowledge.*

Of the information provided by the Women's Union's volunteers and through community meetings, information regarding latrines and latrine options seem to increase the wife's decision making power. However, there is little evidence that financial information regarding access to loans and the availability of the consumer rebate gave women a greater voice in the latrine decision.

**Economic Resources.** If the wife has outside work that brings in a cash income (e.g. employed as laborer or civil servant or running a small business), her decision making role is significantly increased (by 14 percentage points). Similar findings regarding cash income are reported by Acharya et al. (2010) and Mason (2005). If the husband had non-farm income, his decision making power was similarly increased, albeit to a lesser extent.

A key component of CHOBA was to increase the access to credit from VBSP. VBSP loans were channeled through the Women's Union and its volunteers helped with the application and the processing of the loan. It should be noted that the loans were in the names of the wives. The coefficient for "Women's Union helped with the loan" is clearly significant. The impact on the wife's bargaining power of the use of VBSP loan for financing of the latrine was somewhat weaker but still noteworthy. Although Vaessen et al. (2014) in their systematic review of microfinance studies found that there was no consistent evidence for an effect of microcredit on women's control over household spending, they concluded:

*...the way in which microcredit is delivered, in combination with the given gender relations context, seem to determine to a large extent whether or not microcredit can make a difference for women's decision-making power and control over resources in the household.*

Thus, we believe that the way the VBSP loans were targeted at women and the assistance provided by the Women's Union explain the apparent empowerment of the wives in our study.

**Social Capital.** Our proxy variable for social capital—the number of visits by the Women's Union—is inconsequential. This result might be because of a poor choice of proxy-variable or because social capital is of little importance for household decision making.

**Family Characteristics.** Like most studies, we found that the effect of total family income was insignificant. Similarly, family size had negligible impact of decision making roles in the household. In the initial screening, we also examined the impact of family income and household size. Neither one was found to be significant.

**Social and Cultural Factors.** As we noted earlier, there are indications that traditional Confucian 'family values' are more prominent in Hai Duong. The regression results tend to support this observation.

The most significant CHOBA-related factors on women's empowerment were thus as follows:

- Whether the VWU informed households about which latrines are hygienic
- Whether the family obtained a loan from VBSP
- Whether the VWU assisted in the preparation of the loan application.

### **The impact of CHOBA on women's decision making roles**

We have seen from the preceding sections that our model provides a reasonable basis for analyzing how CHOBA (and other development projects) can empower women and give them greater leverage in key household decisions. This leads to two related questions:

1. How much is the wife's decision making power changed by CHOBA?
2. Does the empowerment result in any practical consequences in terms of latrine choice?

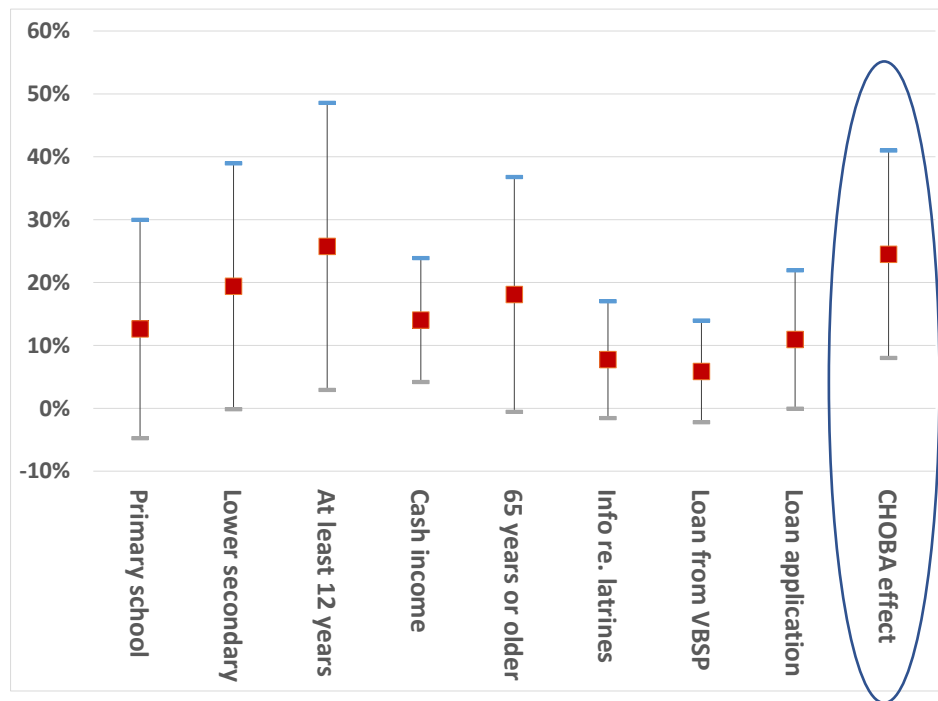
To address the first question, we also use a reduced form of the original equation. In this version, we exclude all variables that were of little significance ( $p > 0.30$ ). The selected variables and the regression results are presented in Table 2 above.

To highlight the combined effects of CHOBA activities, we present the consolidated results of the full and reduced models in Table 3. We can see that while only one of the three CHOBA variables is significant at the 10% level (in the reduced model), the combined effect is significant at the 1-1.5% level. Of the CHOBA effects, the assistance from the VWU volunteers accounts for about half the empowerment impact and the other two components account for about a quarter each.

**Table 3: Assessing the Impact of CHOBA**

	Full Model				Reduced Model			
	Coeff.	Std Err.	t-value	Signif.	Coeff.	Std Err.	t-value	Signif.
<i>Constant plus other variables</i>	0.562	<i>n.a.</i>	<i>n.a.</i>	<i>n.a.</i>	0.553	<i>n.a.</i>	<i>n.a.</i>	<i>n.a.</i>
VWU informed about hygienic latrines	-0.077	0.056	-1.374	0.170	-0.060	.050	-1.192	.234
The family obtained a loan from VBSP	-0.059	0.049	-1.195	0.233	-0.067	.048	-1.411	.159
VWU assisted in preparation of loan application	-0.109	0.067	-1.638	0.102	-.114	.064	-1.781	.075
<b><i>Combined effect of CHOBA activities</i></b>	<b>-0.245</b>	<b>0.100</b>	<b>-2.444</b>	<b>0.015</b>	<b>-0.241</b>	<b>0.094</b>	<b>-2.557</b>	<b>0.011</b>

**Figure 2: Key Factors Increasing the Wife's Role in the Latrine Decision**



Without CHOBA, the wives would be the sole or joint decision makers in 45% of the households. Thanks to CHOBA this percentage increases to 69%. Thus, key elements of CHOBA gave the wives a greater say in latrine decision. A key question is: Does it make any difference?

### The impact on latrine choice

Deciding to build a new latrine is not a simple yes/no decision. There are many partial decisions. Our data do not allow us to delve into the complexities of the decision making process. However, we can look at some of the reasons driving the final decision and at the outcome. The three rounds of surveys clearly showed that men and women universally prefer septic tanks and that they have virtually the same opinion about the disadvantages with traditional latrines. However, they appear to have different trade-offs. Looking at the reasons for installing a latrine, we find that “convenience, comfort, and cleanliness” and “improving family health” are more important considerations when the wife is involved in the latrine decision while the men seems to give greater weight to the cost (Table 4).

**Table 4: Three Main Considerations/Reasons for Installing a New Latrine**

	Husband Decided	Wife or Joint Decision
<b>Reason for New Latrine</b>		
Convenience, Comfort, Cleanliness	73.7%	82.8%
Improve family health	31.7%	42.0%
Reasonable cost	18.5%	14.2%
<b>Outcome</b>		
Septic Tank	64.6%	76.6%
Construction Cost (Median)	5.9 M	7.6 M

These different trade-offs are reflected in the choice of latrine type. Around 77% of the households installed a septic tank when the wife was actively involved in the decision. If the husband alone decided, only 65% built septic tanks (this difference is significant at the 1% level). The husbands’ greater concern about the cost is reflected in the survey data: the average investment in a latrine decided on by the husband was VND 8.1 million and VND 9.2 million if the wife participated in the choice. The difference between the median costs was even greater: VND 5.9 million versus VND 7.6 million.

These results could be due to some confounding variables; for example, richer households could be more likely to have the wife participating in the decision and also spend more on the latrine. Because the sample mean for households owning a septic tank (71%) is in the outer part of the interval where an ordinary least square (OLS) model gives reasonable results, we used both an OLS and a binary logistic equation. The latter has the form:

$$\ln \{p/(1-p)\} = \beta_0 + \beta_1 * x_1 + \beta_2 * x_2 + \dots + \beta_k * x_k$$

Where: p is the probability that the household owns a septic tank latrine;  
 $\ln \{p/(1-p)\}$  is the natural logarithm;  
 $x_i$  is an explanatory variable; and  
 $\beta_i$  is the relevant regression coefficient.

**Consumer preferences** for comfort and convenience have the strongest influence on the selection of septic tanks (Table 5). Concerns about family health is also a significant factor in the decision. On the other hand, if cost is a major consideration, the probability that the household has a septic tank declines drastically. If the wife participated in the latrine decision, the likelihood that the household has a septic tank increases by 11 percentage points in large part due to the different preferences of the spouses (as illustrated in Table 4).

**Table 5: Factors Influencing the Selection of Septic Tanks**

Variable	Ordinary Least Square		Binary Logistic Regression		
	Coefficient	Significance Level	Coefficient	Odds Ratio	Significance Level
Husband decided on latrine	-.056	*	-.476	.621	*
Household has piped water	.129	***	.926	2.524	***
Household income in top two quintiles	.055	*	.438	1.549	
Household residing in Hai Duong province	-.054		-.402	.669	
Household living in commune where CHODA rebate was offered	.087	***	.717	2.049	***
Either one or both spouses are government employees	.119	*	1.826	6.209	*
Convenience and comfort is a major consideration in latrine choice	.312	***	1.659	5.253	***
Family health is a major consideration in latrine choice	.072	**	.528	1.695	*
Construction cost is a major consideration in latrine choice	-.365	***	-2.121	.120	***

*Significance levels: \*\*\* 1%; \*\* 5%; \* 10%*

**Economic incentives**—although modest (less than 10% of the cost) and targeted only at the poorest 40% of the households—have a significant impact on latrine choice. In the study communes where the consumer rebate was offered, the probability of households having septic tanks is about 9 percentage points higher than in communes where no rebates were provided.

**Environmental conditions**—broadly defined—also have a clear impact on latrine choice. If the household has access to a piped water system, the probability that it has a septic tank increases drastically from around 65 percent to around 78 percent. The dummy variable for Hai Duong is negative (and, in most model formulations, significant at the 10% level). This is expected since most of Tien Giang has a high groundwater table and is subject to occasional flooding. Thus, dry pit latrines are not suitable and the main option for a hygienic latrine is a septic tank

**Socio-economic factors** such as the age of the husband and wife, family size, the number of children, elderly or females in the household turned out to have no significant impact on the latrine choice. Similarly, the type of latrine that the household used prior to installing the present one has negligible impact on the probability that it owns a septic tank. The occupation of the husband and wife were insignificant, with one exception: if either one of the spouses is a civil servant, the ownership of septic tanks exceeds 95%. The reason is that the government exerts strong pressure on its employees to own a hygienic latrine. Finally, as expected, households with incomes in the upper two income quintiles are more likely to own a septic tank.

## VIII. Limitations

Unfortunately, it was beyond the scope of the CHOPA endline survey to dive deeply into the nature of the decision making process. As a result, the study has a couple of limitations. First, it focused on households that owned a latrine and examined the decision making process that led to the installation of the present toilet. It did not explicitly examine decisions not to upgrade or install a hygienic latrine. Building a (new) latrine involves choices of location, size and type of superstructure, inclusion of washing and bathing/shower facilities, etc. In this research, it was not possible to examine this myriad of smaller decisions. Furthermore, Kabeer (1999) argues that decision making can take various forms, including bargaining and negotiation, deception and manipulation, subversion and resistance as well as more intangible, cognitive processes of reflection and analysis. It was beyond the scope of this study to delve into the exact nature of how Vietnamese women exercise agency and decision making power.

## IX. Conclusion

Inadequate sanitation facilities disproportionately affect women and girls due to menstrual hygiene, personal safety, sexual harassment and violence-related challenges. However, relatively little research has been carried out on whether sanitation programs can go further in empowering women to give them a greater say in household decision making. Where such studies exist, they are generally qualitative in nature. In undertaking this research, we took a quantitative approach to identify which program components were most effective in giving women a greater say in the decision to install a new latrine. The research was based on a conceptual model that incorporated the key resources (human, financial/economic and social resources) of both the wife and the husband as well as how different aspects of the sanitation program enhanced the wife's resources.

The results regarding socio-economic factors were consistent with most gender research: the wife's bargaining power increased with her age, education and outside cash income. Family size and income did not have any impact.

More importantly, the results showed that two of the program components significantly increased the decision making role of the wife: help with obtaining a loan and the IEC campaign. Promoting hygienic latrines and education on health benefits did not influence the "balance of power," while practical information regarding latrine options, costs, and masons did increase the wife's bargaining power. Finally, the analysis showed that men gave relatively greater weight to financial cost, while women emphasized comfort, convenience and family health. When the wife decided—alone or jointly--rather than the husband, the latrines were more hygienic.

The conclusion that a greater decision making role for the wife resulted in the installation of a more hygienic latrine was confirmed through a subsequent analysis of the factors that influenced the selection of a septic tank. This analysis showed that CHOPA's modest consumer rebate encouraged households to build septic tanks. The provision of piped water had a similar effect. Comfort and convenience had the strongest influence on the latrine choice followed by family health. On the other hand, if cost was a major consideration, the probability that the household had a septic tank declined drastically. Finally, according to the regression results, if the wife participated in the latrine decision, the likelihood that the household owned a septic tank increases by 11 percentage points.





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