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PARENTS, MIGRANT DOMESTIC WORKERS, AND CHILDREN'S SPEAKING OF A SECOND LANGUAGE: EVIDENCE FROM HONG KONG

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DISCUSSION PAPER 15.04

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ABSTRACT

This paper explores the effects of different language home environments provided by English-speaking and non-English-speaking migrant domestic workers (MDWs) on Hong Kong children's ability to speak English. To isolate MDWs' language effect from parental and family effects, I use between-siblings comparisons and an empirical model of language acquisition. Results from between-siblings comparisons reveal a clear sign for the positive language effect of English-speaking MDWs. Estimates of the language acquisition model show that a child who is cared for by an English-speaking MDW and who has a bilingual mother is 45 percent more likely to speak English.

JEL classification: I21, J13, J61

Keywords: Educational economics; Between-siblings analysis; Bilingual children; Parents; Migrant domestic workers; Second language.

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1. Introduction

A conservative estimate by the International Labour Organization (ILO) puts the number of domestic workers worldwide at a minimum of 52.6 million, accounting for about 1.7 percent of global employment in 2010 (ILO, 2013).¹ Domestic workers are predominantly female (83 percent), and often migrant workers from low-income countries who are seeking higher paying jobs abroad.² They perform a variety of domestic chores as well as caring for elderly people and young children. Given their vital role in household production for many families in developing and developed countries, there have been surprisingly few studies assessing the effects of domestic workers on the family at the micro level.³ This paper attempts to contribute to filling this void in the literature by exploring the extent to which migrant domestic workers affect young children's ability to speak a second language.

Hong Kong provides an ideal location for studying the language effect of migrant domestic workers (MDWs) on children. It has a highly concentrated population of MDWs, who make up roughly 10 percent of the country's labor force. The number of MDWs in Hong Kong had reached 300,000 by 2011 and it is estimated that one in six households in Hong Kong now employ an MDW. An even more compelling reason for arguing that Hong Kong is an ideal location for the study is that MDWs working in Hong Kong are comprised of mainly one of two ethnic groups, in roughly equal numbers: Filipinos who speak English, which is an official language in Hong Kong, with their employers at home, and Indonesians, who speak Cantonese, which is the local language of Hong Kong, with their employers at home.

¹ The ILO acknowledges that 52.6 million is the most reliable minimum estimate, but the "true" number could be close to 100 million. Geographically, 41 percent of domestic workers are working in Asia, 37 percent in Latin America and the Caribbean, 10 percent in Africa, 7 percent in selected economically advanced countries, and 4 percent in the Middle East (ILO, 2013).

² The ILO states that: "Due to data limitations, it is not possible to give a reliable estimate of the share of migrants among domestic workers, but as the examples cited in this chapter show, it can be substantial." (ILO, 2013, p. 24)

³ See a review of related literature in Section 2.

This difference in the language used in the home environment between the two groups of MDWs provides the study with an approximate characterization as an “experiment” from which the language effect of English-speaking MDWs on children’s speaking of English as a second language can be assessed.⁴

The subjects of this study are Hong Kong children aged between five and 12 whose native language is not English.⁵ I am interested in identifying the extent to which children who are under the care of an English-speaking MDW in the family are more likely to be identified as English-speaking. Obviously, the key challenge in the study is that the language effect of English-speaking MDWs on children can be difficult to separate from those of the family, in particular, parental effects. Furthermore, observed and unobserved family factors may simultaneously influence children speaking English as a second language and whether they are under the care of an English-speaking MDW. To address these potential concerns, I use two identification strategies.

The first identification strategy focuses on those households with at least two children between the ages of five and 12 and compares the English-speaking ability of the older and the younger siblings within the same household. The rationale of this identification strategy is based on the premise that if English-speaking MDWs play an important role in enhancing the English-speaking ability of children under their care, siblings living within the same households in which an English-speaking MDW is employed should be more uniformly

⁴ Households employing an English-speaking MDW and households employing a non-English-speaking MDW have similar household and parental characteristics except for parental English-speaking ability (see the appendix for summary statistics); parents of households employing an English-speaking MDW are more likely to speak English. It is important to note that the number of English-speaking MDWs decreased substantially after the imposition of a retraining tax on MDWs by the Hong Kong government in 2003, forcing many Hong Kong families to employ non-English-speaking MDWs.

⁵ Cantonese and English are both official languages in Hong Kong. Unlike Cantonese, however, which is spoken by the majority of the population, English is spoken as a usual language by only 3.5 percent of the population. Another 42 percent of the Hong Kong population speaks English as a second language; that leads to the proportion of the English-speaking population being less than 50 percent of Hong Kong’s total population (based on the 2001 Population Census and 2006 Population Bi-census). Consequently, many children in Hong Kong live in a home environment in which neither one of their parents speaks any English, and they learn English as a core subject in school from grade one onwards.

capable of speaking English than siblings living in households without an English-speaking MDW, regardless of parental English ability. To conduct the analysis, proportions of the four possible comparison outcomes of [1, 1], [0, 0], [1, 0], and [0, 1] are calculated for households grouped according to whether they employ an English-speaking MDW, a non-English-speaking MDW, or no MDW, and according to whether both parents are capable of speaking English, only the mother is capable of speaking English, only the father is capable of speaking English, or neither parent is capable of speaking English.⁶

Results of the between-siblings analysis show that households employing an English-speaking MDW have much higher incidences of a [1, 1] outcome and much lower incidences of [0, 0] and [1, 0] outcomes compared to households that do not employ an MDW, regardless of parental English ability. This pattern of outcomes gives a strong indication of the English-enhancing effect of English-speaking MDWs on children under their care. In contrast, households employing a non-English-speaking MDW do not show a pattern of outcomes distinctively different from those households that do not employ an MDW. Furthermore, the analysis yields a score between -1 and 1 for each of the five pairwise comparisons performed.⁷ It finds that having both parents capable of speaking English is the top factor (0.37**), followed by only the mother speaking English (0.26**), an English-speaking MDW (0.16**), only the father speaking English (0.17*), and a non-English-speaking MDW (-0.03).⁸

⁶ [1, 1], [1, 0], [0, 1], and [0, 0] denote, respectively, both siblings being capable of speaking English, only the older sibling speaking English, only the younger sibling speaking English, and neither of the siblings being capable of speaking English.

⁷ The five pairwise comparisons performed are between households employing an English-speaking MDW and not employing an MDW, between households employing a non-English-speaking MDW and no MDW, between households with both parents capable of speaking English and with neither parent being capable of speaking English, between households with only the mother being capable of speaking English and with neither of the parents being capable of speaking English, and between households with only the father being capable of speaking English and with neither of the parents being capable of speaking English.

⁸ The score ranges from -1 to 1, with a score of 0 denoting identical outcomes between the two groups of households under comparison. A score of 1 denotes a maximum positive English-enhancing effect over and above the baseline group of households, whereas a score of -1 denotes a maximum negative English-enhancing effect over and above the baseline group of households. See Section 4 for an in-depth discussion of the

The second identification strategy empirically estimates a model that postulates that a child's acquisition of a foreign language is strongly influenced by the child's family, school, and carer. In particular, it recognizes that English-speaking MDWs can have a direct effect on children's learning of English as well as an indirect effect through their interactions with their parents at home. The empirical model is then estimated using two separate datasets: one is the baseline dataset consisting of primary school children between the ages of six and 12, and the other contains only pre-primary school children who are five years old. Estimates of the empirical model using the dataset of primary school students show that a child whose mother is capable of speaking English and who is under the care of an English-speaking MDW is 45 percent more likely to be able to speak English compared to a child who is not under the care of an English-speaking MDW and whose mother does not speak English. Similar results are obtained from the sample of pre-primary school children, even though the estimates are smaller in magnitude (36 percent). All in all, results from the empirical model point to maternal ability to speak English and childcare provided by an English-speaking MDW as being the two most important factors influencing Hong Kong children speaking English as a second language.

The remainder of the paper is organized into five sections. Section 2 discusses previous studies that are relevant to the current paper. Section 3 describes the datasets and variables obtained from samples of Hong Kong's 2001 Population Census and 2006 Population Bi-census. Section 4 gives an in-depth explanation of the between-siblings analysis and also presents and discusses its results. Section 5 presents the empirical model of language acquisition for young children and discusses the estimation results of this model. Finally, Section 6 summarizes and concludes the paper.

calculation of this score. ** and * denote statistical significance at the 5 percent and 10 percent levels respectively for rejecting the null hypothesis of the sum of differences being zero.

2. Related Studies

The relationship between non-maternal childcare and young children's cognitive and language development has been studied extensively in the developmental psychology literature.⁹ In this literature, the effect of non-maternal childcare is found to be mixed, depending critically on the age of the child, the type of childcare, and the quality and quantity of the childcare. For individual home care such as that provided by grandparents and nannies, some studies find that more hours of individual home care are associated with lower scores of orientation and engagement tasks for the child concerned, but no apparent effect is found on cognitive and language developments (Sylva et al., 2011). In addition to the developmental psychology literature, economists have also studied the relationship between maternal employment and children's cognitive and language development. This strand of literature appears to be more conclusive in finding that maternal employment or non-parental care, especially during infancy, is detrimental to the child's cognitive and language development (Baum, 2003; Bernal, 2008; Herbst, 2013; Liu et al., 2010; Ruhm, 2000; Yamauchi and Leigh, 2011).

There is a clear parallel between the current study and the strands of literature mentioned above, although the main focus of the current study is on the effect of English-speaking MDWs on children's English-speaking ability. For instance, in the dataset of primary school children used, the current study finds that mothers participating in the labor force are associated with a significant reduction in the likelihood (between 4 percent and 6 percent) of their children speaking English as a second language, even after controlling for parental English ability and a host of other household, parental, and child characteristics. This finding corroborates those previous studies that find non-parental care exerting a negative impact on children's cognitive and language development.

⁹ For comprehensive reviews of this literature, see Love (1996), Lamb (1998), NICHD (2000), and Melhuish (2004).

The current study is also relevant to previous studies that investigate the importance of the home environment and resources in young children's language and literacy development (Feng et al., 2014; Kalb and Ours, 2014). These studies find that parental reading to children at an early age and other home learning activities such as telling stories and singing songs have positive and significant effects on children's language and cognitive skills later in life. Moreover, there is evidence suggesting that early exposure to bilingualism is positively related to language and literacy development (Kovelman et al., 2008; Luk et al., 2011). The current study finds further evidence to support the contention that a home environment characterized by bilingual parents and an English-speaking MDW is much more conducive for young children's ability to learn English as a second language.

A small but growing body of studies focuses primarily on the effects of MDWs on children's cognitive and language development. A study by Tse et al. (2009) examines the English reading comprehension of a selected group of grade four students in Hong Kong. They find a statistically significant difference between the reading performance of students who had an English-speaking MDW and their peers who did not. They conclude that English-speaking MDWs may have a positive influence on how well students acquire English language skills in primary school. They also add that English-speaking MDWs tend to have a stronger influence on students' English learning than do the children's parents. Another study by Cheuk and Wong (2005) finds that children under the age of five and who are cared for by MDWs are associated with an increased risk and severity of specific language impairment. Hence, MDWs may affect children's language development either positively or negatively.

Some studies look at MDWs' effects on children's academic achievement rather than language development. Using survey data from Singapore, Cheo and Quah (2005) investigate the effects of maternal employment, live-in MDWs, and private tutoring, among other factors, on school children's academic results. Their empirical findings show that students

with working mothers, children who spend less time with a private tutor, and children who spend less time traveling to school have better academic performance. Live-in MDWs, however, are found to have little effect on school children's educational achievement. In contrast, Tang and Yung (2014) find that live-in English-speaking MDWs have a positive effect on Hong Kong children's academic outcomes.

3. Data and Variables

Data are constructed from samples of Hong Kong's 2001 Population Census and the 2006 Population Bi-census. Primary school children from middle-income households who are between the ages of six and 12 are the main subjects of the study. The Census and Statistics Department of Hong Kong (HKCSD) permitted a 5 percent random sample of the 2001 Population Census and the 2006 Population Bi-census to be used for the study. A dataset of primary school children is constructed from middle-income households for each 5 percent sample. To be included in the study, the primary school children must have lived with both of their parents in the same household. The samples from each census were then pooled. The pooled data contained a broad range of demographic and socioeconomic characteristics of 15,081 primary school children and all other persons who were living with the children in the same household (including MDWs). The proportion of households with working mothers in the pooled data was 55.2 percent or 8,320 households, while the remaining 44.8 percent or 6,761 of households had non-working mothers.

One of the questions included in the Censuses is the usual language spoken at home. From the answer provided to this question, I can identify children whose usual language spoken at home is not English. The data show that 99.2 percent of 15,081 primary school children (or 14,955) belong to this group, which constitutes the baseline sample of the study. The Censuses also ask whether a person can speak other languages in addition to the

language spoken at home. I can identify those children who can speak English as a second language from the answer to this question. Out of 14,955 children whose home language is not English, 6,490 (43.4 percent) are capable of speaking English as a second language. The dependent variable in the regressions is a dummy variable that takes on the value of one if a child is capable of speaking English as a second language, and zero otherwise.

A second dataset is constructed that includes only pre-primary school children who are five years old. There are 2,161 children in this dataset, out of which 574 (26.6 percent) speak English as a second language. The motivation for constructing the second dataset for only pre-primary school children is to check the consistency of the estimation results between primary school children and pre-primary school children. Pre-primary school children have not started formal school education, and thus should be primarily influenced by their parents and carers.

Figure 1 depicts the proportions of English-speaking children by parental English-speaking ability and grades. The figure shows clearly that children are much more likely to be able to speak English at every stage from pre-primary to grade six when both parents speak English. In contrast, children have the lowest likelihood of speaking English when neither of their parents speaks English. Furthermore, Figure 1 indicates that in households in which only the mother can speak English, the proportion of English-speaking children is higher in every grade than that in households in which only the father can speak English.

(Insert Figure 1 and 2 about here)

Figure 2 depicts the proportions of English-speaking children by types of childcare and grades. The figure shows clearly that children who are under the care of an English-speaking MDW who is Filipino are much more likely to speak English as a second language compared to children who are cared for by a non-English-speaking MDW who is Indonesian or by other means of childcare at every stage of development from pre-primary school to grade six. It is

important to note, however, that children under the care of an English-speaking MDW do not necessarily speak English. For instance, nearly 68 percent of pre-primary school children under the care of an English-speaking MDW do not speak English, and even 20 percent of grade six children under the care of an English-speaking MDW do not speak English.

4. Between-Siblings Analysis

4.1 Method

The between-siblings analysis compares the English-speaking ability of the older and younger siblings of the same household. There are four possible outcomes in a comparison: both siblings speak English [1, 1], neither speaks English [0, 0], only the older sibling speaks English [1, 0], or only the younger sibling speaks English [0, 1]. Any households with two children between the ages of five and 12 are included. Also included are households with more than two children, but only the oldest and the youngest siblings between the ages of five and 12 are used for comparison. For conducting the analysis, the outcomes are sorted both by types of childcare and by parental ability to speak English.

The between-siblings analysis makes use of a simple idea that siblings within the same household should be affected by the same set of parental and household characteristics, thereby making them alike in their abilities. For instance, when both parents in a household are capable of speaking English, all siblings in the household should be more likely to speak English than siblings in households in which neither parent is able to speak English. Similarly, English-speaking MDWs are expected to enhance the likelihood that all siblings in their care will speak English compared to siblings under the care of non-English-speaking MDWs. Thus, while the influences of household and parental factors should make [1, 1] and [0, 0] the dominant outcomes over the [1, 0] and [0, 1] outcomes, it is expected that the incidence of the [1, 1] outcome in households in which an English-speaking MDW is

employed will outstrip the incidence of the [1, 1] outcome in households in which a non-English-speaking MDW is employed or in households in which an MDW is not employed. In brief, if English-speaking MDWs are effective in enhancing children's English-speaking ability, siblings under their care should be more homogenous in their ability to speak English than siblings cared for by a non-English-speaking MDW or who have no MDW, regardless of parental English ability.

4.2 Results

(Insert Table 1 about here)

Table 1 summarizes the results obtained from comparing households employing an English-speaking MDW (HF) with households not employing an MDW (HW) across the four groups of households of different parental English abilities (BS, OM, OD, and BN). Column 1 shows the proportions of the four outcomes for households employing an English-speaking MDW and having both parents capable of speaking English (HF and BS). Column 2 shows the proportions of the four outcomes for households not employing an MDW and having both parents capable of speaking English (HW and BS). The proportions of the [1, 1] outcome in Columns 1 and 2 are, respectively, 76 percent and 53 percent, which suggests that employing an English-speaking MDW increases the proportion of the [1, 1] outcome in households in which both parents are capable of speaking English by 76 percent minus 53 percent = 23 percent (Column 9). Likewise, the differences in proportions of the [1, 1] outcome between HF and HW for households in which only the mother is capable of speaking English (OM), for households in which only the father is capable of speaking English (OF), and for households in which neither parent is capable of speaking English (BN) are, respectively, 17 percent, 19 percent, and 5 percent (Columns 10, 11, and 12). Summing the differences in proportions of the [1, 1] outcome between HF and HW gives an indication of the extent to which employing an English-speaking MDW enhances siblings' homogeneity

in speaking English. That is, adding 23 percent, 17 percent, 19 percent, and 5 percent from Columns 9 to 12 gives $\Sigma dif = 64$ percent in Column 13.¹⁰

It would be easier to interpret the comparison result of $\Sigma dif = 64\%$ if it were converted to a standardized score. When the incidences of the [1, 1] outcome are identical between HF and HW, the Σdif is zero, but when they are completely different in every group of households of varying parental English ability, the Σdif can reach a maximum of |400| percent. Hence, dividing the observed Σdif of the [1, 1] outcome by the maximum possible number of 400 gives a standardized score that ranges between -1 and 1. A score of 1 suggests that employing an English-speaking MDW in the household leads to all siblings being uniformly capable of speaking English compared to all of the siblings or at least one of the siblings being incapable of speaking English in households in which an MDW is not employed. By contrast, a score of -1 suggests that employing an English-speaking MDW in the household produces an outcome in which all of the siblings are or at least one of the siblings is incapable of speaking English compared to all siblings being uniformly capable of speaking English in households that do not employ an MDW. A score of zero means that the incidence of the [1, 1] outcome is identical between the two types of households and thus suggests the nonexistence of the language effect of English-speaking MDWs. Table 1 shows the Σdif of 64 percent for the [1, 1] outcome, which is statistically different from zero at the 5 percent significance level, and gives a score of $64/400 = 0.16$, suggesting that employing an English-speaking MDW significantly enhances the homogeneity of siblings' ability to speak English in the household.

¹⁰ An alternative way of looking at the language effect of English-speaking MDWs is to assess the extent of changes in the proportions of the [0, 0], [1, 0], and [0, 1] outcomes that can be attributed to English-speaking MDWs. In theory, the increase in the proportion of the [1, 1] outcome should be equal to the sum of reductions in the proportions of the [0, 0], [1, 0], and [0, 1] outcomes. Column 13 of Table 1 shows that the sums of differences (Σdif) in the proportions of the [0, 0], [1, 0], and [0, 1] outcomes between employing an English-speaking MDW and not employing an MDW are, respectively, -35 percent, -33 percent, and 2 percent. These proportions, when added together (-66 percent), are approximately equal in magnitude to the increase in the proportion of the [1, 1] outcome of $\Sigma dif = 64$ percent.

(Insert Table 2 about here)

Table 2 shows the results of the pairwise comparison between households employing a non-English-speaking MDW (HI) and not employing an MDW (HW). Using the same method of calculations, the Σdif for the [1, 1] outcome is -12, which is not statistically different from zero at any conventional significance levels, meaning that the incidence of the [1, 1] outcome between HI and HW in each case is not significantly different from each other. The comparison score is $-12/400 = -0.03$, which suggests that siblings in households employing a non-English-speaking MDW show a slightly lower likelihood of speaking English than siblings in households that do not employ an MDW.

(Insert Table 3 about here)

Table 3 summarizes the results of all the five pairwise comparisons performed. Rows 1 and 2 recapitulate the pairwise comparisons between HF and HW and between HI and HW discussed above. From these two comparisons, it can be concluded that siblings cared for by an English-speaking MDW have a significantly higher likelihood of speaking English than siblings cared for by a non-English-speaking MDW or no MDW. It is important to note that the comparisons are made while holding constant parental English-speaking ability. Thus, the significantly higher rate of English speaking among siblings cared for by an English-speaking MDW provides strong evidence for the effect of English-speaking MDWs.

Rows 3, 4, and 5 of Table 3 report the summary results of pairwise comparisons for the four groups of parental English-speaking ability while holding constant English-speaking MDW care, non-English-speaking MDW care, and non-MDW care. In brief, compared to households with neither parent capable of speaking English, households with both parents capable of speaking English have the highest likelihood of siblings speaking English (a score of 0.37), followed by households with only the mother capable of speaking English (a score

of 0.26), and households with only the father capable of speaking English (a score of 0.17).¹¹ It is interesting to note that while the English language effects of an English-speaking MDW (0.16) and an English-speaking father (0.17) are about the same, the effect of maternal English-speaking ability is substantially higher (0.26).

5. An Empirical Model of Language Acquisition

5.1 *Method*

The second method for identifying the language effect of English-speaking MDWs estimates an empirical model that postulates a framework of language acquisition for young children that combines the effects of family, carer, and school. Figure 3 illustrates the interplay of all these three main sources of influence. First, family is thought to exert a powerful and direct effect on children's language learning. The extent to which children are exposed to a foreign language at home and the amount of learning resources available in the home environment can be vital for children's acquisition of a foreign language. For instance, if children are read to at an early age by their parents, they are more likely to have better language skills. Second, when a child is cared for by someone other than his or her own parents, the carer plays an important role in shaping the child's language learning. Specifically, a carer who speaks a foreign language has the ability to hone the child's learning of that language.¹²

(Insert Figure 3 about here)

Another potential important channel of influence is the interaction between family members and the live-in MDWs at home. When family members communicate in their own native tongue among themselves, but switch to the foreign language of the live-in carer in her

¹¹ Tables of calculations for comparisons 3, 4, and 5 are omitted and not discussed for the sake of saving space, but can be provided by the author upon request.

¹² Previous studies show that parents and significant carers play a critical role in teaching language to young children (Feng et al., 2014; Kalb and Ours, 2014).

presence, then the child is exposed to learning of that foreign language even more than when the foreign language is used only between the carer and the child. In Hong Kong, there is anecdotal evidence that family members speak Cantonese among themselves, but switch to English when communicating with their live-in English-speaking MDWs. This behavior possibly facilitates children's learning of English as a second language in the home environment.

The implementation of the conceptual framework described above is done by estimating a Probit regression of the form given below:

$$(1) \quad \begin{aligned} Child_Eng_i = & \beta_0 + \beta_1(Mum_Eng_i) + \beta_2(Dad_Eng_i) + \beta_3(FMDW_i) + \\ & \beta_4(IMDW_i) + \beta_5(Mum_Eng_FMDW_i) + \beta_6(Dad_Eng_FMDW_i) + \\ & \beta_7(Mum_Eng_IMDW_i) + \beta_8(Dad_Eng_IMDW_i) + \beta(Control_i) + \mu_i \end{aligned}$$

where $Child_Eng_i$, Mum_Eng_i , Dad_Eng_i , $FMDW_i$, and $IMDW_i$ are dummy variables to denote the i^{th} child capable of speaking English, the mother capable of speaking English, the father capable of speaking English, the fact that an English-speaking MDW is employed in the household, and the fact that a non-English-speaking MDW is employed in the household. Equation (1) also includes four interaction variables, $Mum_Eng_FMDW_i$, $Dad_Eng_FMDW_i$, $Mum_Eng_IMDW_i$, and $Dad_Eng_IMDW_i$, capturing the interactions between parents and MDWs. Moreover, a host of variables describing household and child characteristics are added into the regression as controls. These variables include household income, parental education, ages of parents, maternal labor force participation, the length of the mother's residence in Hong Kong, the number of children in the household, the number of elderly persons in the household, and dummy variables indicating if the child is female and if the child attends a cross-district school. In addition, grade dummies and a dummy for 2001 data are included. The error term, μ_i , is a normally distributed random error with zero mean and unitary variance.

To measure the qualitative importance of maternal English-speaking ability on a child's ability to speak English when an English-speaking MDW is employed in the household, I report the average marginal effect:

$$(2) \quad \partial \text{prob}(\text{Child_Eng}_i = 1) / \partial \text{Mum_Eng}_i = \beta_1 + \beta_5 * \text{FMDW}_i$$

If an English-speaking MDW is not employed in the household, the marginal effect of maternal English-speaking ability is β_1 only. Likewise, to measure the qualitative importance of an English-speaking MDW on a child's ability to speak English when both parents speak English, I report the average marginal effect:

$$(3) \quad \partial \text{prob}(\text{Child_Eng}_i = 1) / \partial \text{FMDW}_i = \beta_3 + \beta_5 * \text{Mum_Eng}_i + \beta_6 * \text{Dad_Eng}_i$$

If neither parent in the household speaks English, the marginal effect of English-speaking MDWs is β_3 only. These marginal effects and their respective standard errors are reported in the next section.

A concern about endogeneity between children's ability to speak English and employing an English-speaking MDW in the household cannot be ignored. Some households may selectively employ an English-speaking MDW rather than a non-English-speaking MDW if their children are already capable of speaking English. This potential endogeneity could create an upward bias in the estimation of the effect of English-speaking MDWs on children's English-speaking ability. Ideally, inclusion of an exogenous variable that determines households' decisions to employ an English-speaking MDW and yet is unrelated to children's speaking of English would overcome this potential problem. Unfortunately, such an instrumental variable for English-speaking MDWs cannot be found because variables that are related to households' decisions to employ an English-speaking MDW are also likely to be related to children's ability to speak English and thus cannot be excluded from the regressions. The strategy then is to try to reduce this potential bias by controlling for the confounding factors and also by restricting the dataset to households in which the potential

bias is unlikely to be present. In particular, the endogeneity bias should be a serious issue only if the mother is capable of speaking English because when the mother is capable of speaking English, her children are more likely to speak English and also at the same time the household is more likely to employ an English-speaking MDW than a non-English-speaking MDW. This makes it essential to control for the effect of maternal English-speaking ability in the regressions. In addition, the subsamples of households in which only the father is capable of speaking English and households in which neither parent speaks English are particularly important in assessing the language effect of English-speaking MDWs because these subsamples are unlikely to be affected by the potential endogeneity bias.

A further issue is the lack of schooling information, which is unavailable from the Censuses. In particular, children may have a good command of English because they attend a school that uses English as a medium of instruction, which is common in private or international primary schools. In the absence of schooling information, the study controls for the effect of the grade in which the children are enrolled. In addition, the study excludes children from higher-income households and includes only children from middle-income households. Middle-income households are unlikely to be able to afford private schooling for their children, thus making the dataset under study more homogeneous in school quality. Finally, the study constructs a dataset of preschool children aged five. These children, who have yet to receive formal schooling, should only be influenced primarily by their parents and carers. Estimation results from the preschool children dataset can be used to check the sensitivity of the baseline results.

5.2 *Estimation Results of the Empirical Model*

Columns 1 to 3 in Table 4 show estimation results of Equation (1) using primary school children from middle-income households. Maternal ability to speak English is the most important factor affecting children's ability to speak English, which is estimated to

increase significantly the likelihood of children speaking English by 20.6 percent in working-mother households (Column 1), 22.9 percent in non-working mother households (Column 2), and 21.9 percent in overall middle-income households (Column 3) if an English-speaking MDW is not employed in the household. Paternal ability to speak English also has a significant effect on children's ability to speak English, but its estimated effect is only about half of the effect of maternal ability to speak English, at 11.8 percent for both working-mother and non-working-mother households, and 11.7 percent for overall middle-income households if an English-speaking MDW is not employed in the household. Another important factor is the gender of the child; females are estimated to be about 4 percent more likely to speak English. In addition, maternal labor force participation is estimated to reduce the likelihood of children speaking English by about 4 percent, a result that reconfirms the important role played by mothers in children's acquisition of language.

Column 1 in Table 4 shows that children under the care of an English-speaking MDW (FMDW) are 11.7 percent more likely to speak English in working-mother households, which is statistically significant at the one percent level. Furthermore, interaction between an English-speaking MDW and an English-speaking mother is associated with a 13.3 percent increase in the likelihood of children speaking English in working-mother households. In contrast, the estimated effect of interaction between an English-speaking MDW and an English-speaking father is small and insignificant (-1.0 percent). Thus, employing an English-speaking MDW in a working-mother household is associated (directly and indirectly) with a 24 percent increase in the likelihood of children speaking English when both parents are capable of speaking English.

(Insert Table 4 about here)

Column 2 in Table 4 shows that English-speaking MDWs do not appear to affect children speaking English in non-working-mother households. This is likely to be an

indication that MDWs employed in non-working-mother households are not the main carers of children and thus have only limited influence on children in the home environment. It is also important to note that non-English-speaking MDWs (IMDW) do not appear to play any role in affecting children speaking English, as shown by their insignificant estimates in Table 4.

In addition to the results of middle-income households, I also show the results of low-income households in Column 4 of Table 4. Low-income households are ineligible to employ an MDW, and thus could serve as a control group for checking the robustness of the estimated effects of parental and household factors. Column 4 in Table 4 shows that the results of low-income households are very similar to those of middle-income households. Maternal ability to speak English remains the most important factor in accounting for children speaking English (21.8 percent), followed by paternal ability to speak English (13.0 percent), mother's age (0.3 percent per annum), length of the mother's residency in Hong Kong (0.3 percent per annum), the fact that the child is female (3.4 percent), and the fact that the child attends a cross-district school (-3.5 percent).

In summary, based on the estimation results of Table 4, there is strong evidence to support the contention that maternal ability to speak English is the most important factor for children speaking English, followed by paternal ability to speak English. There is also a strong positive linkage between English-speaking MDWs and children speaking English in working-mother households, but not in non-working-mother households. Moreover, non-English-speaking MDWs appear to have little effect on children's English-speaking ability.

(Insert Table 5 about here)

As discussed earlier, an important concern about the results of Table 4 is the issue of endogeneity bias. In particular, the result for English-speaking MDWs may indicate that children who are cared for by an English-speaking MDW are more likely to speak English. It

may also be true, however, that children who are capable of speaking English are more likely to be cared for by an English-speaking MDW. In order to reduce this potential endogeneity bias and at the same time to have better control over unobserved household heterogeneities, I re-estimate Equation (1) using subsamples of households in which both parents speak English, only the mother speaks English, only the father speaks English, and neither parent speaks English. By directly controlling parental ability to speak English, I aim to check how the estimated effects of MDWs and other household and child characteristics vary across the different subsamples of parental English ability.

Column 1 in Table 5 shows that English-speaking MDWs are estimated to increase the likelihood of children speaking English by 26.2 percent in households in which both parents speak English, which is statistically significant at the one percent level. It is interesting to note that this estimate is very close to the sum of the estimated direct and indirect effects of the English-speaking MDWs in Column 3 of Table 4 (24.4 percent). Column 2 shows that when only the mother in the household speaks English, the estimated effect of English-speaking MDWs on children speaking English is 25.2 percent, which again is statistically significant at the one percent level. This estimate also matches the estimate of English-speaking MDWs in Table 4 (23 percent). It is also worth noting that maternal labor force participation is estimated to reduce children's likelihood of speaking English by about 6 percent in both Columns 1 and 2 of Table 5.

It can be seen from Columns 3 and 4 of Table 5 that when only the father speaks English or when neither parent speaks English, the estimated effect of English-speaking MDWs on children's English-speaking ability is substantially reduced, but is still statistically significant at the conventional levels. In households in which only the father speaks English, the likelihood of children speaking English is estimated to increase by 13.7 percent when an English-speaking MDW is employed in the household (the corresponding figure is

10.6 percent in Table 4). In households in which neither of the parents speaks English, the estimated effect of English-speaking MDWs is only 6.4 percent, which is statistically significant at the ten percent level (the corresponding figure is 9.2 percent in Table 4).

Are the results of the subsample analysis in Table 5 likely to be driven by endogeneity? Children in households in which the mother is incapable of speaking English or neither one of the parents is capable of speaking English face a difficult learning home environment for speaking English. It is thus unlikely that children from these households are able to learn English from their home environment except from an English-speaking MDW if one is employed in the household. More importantly, when the mother in the household is incapable of speaking English, there is little reason for the household to prefer an English-speaking MDW over a Cantonese-speaking MDW. In addition, grade dummies are added in the regressions in Table 5 to control for the school effect. Despite controlling for both the home language environment and school effect, the estimated effect of English-speaking MDWs is still significant in Columns 3 and 4 of Table 5. This is a strong indication that English-speaking MDWs do increase children's ability to speak English.

(Insert Table 6 about here)

To serve as a robustness check, the estimations of Tables 4 and 5 are repeated by using an alternative dataset of children who are aged five (the minimum age for identifying language ability) and thus have yet to start primary schooling. The reason for using preschool children only in the regressions is to check whether the baseline results in Tables 4 and 5 are mainly influenced by formal primary schooling. The results of this exercise are reported in Tables 6 and 7 below.

In brief, the results shown in Tables 6 and 7 are largely similar to those of Tables 4 and 5. When an English-speaking MDW is employed in the household, the estimated effect of maternal English-speaking ability is 23.7 percent for the sample of middle-income working-

mother households, whereas paternal English-speaking ability is estimated at 10.4 percent (Column 1 of Table 6). Both of these estimates are statistically significant at the conventional levels despite the fact that the interaction terms between each of the parents and English-speaking MDW are insignificant. English-speaking MDWs are estimated to increase children's likelihood of speaking English by about 26 percent when both parents are capable of speaking English in working-mother households, but not in non-working-mother households. Again, the estimated effect of the English-speaking MDWs is highly statistically significant despite both the estimated interaction terms being insignificant (P-value = 0.0000 for rejecting the null hypothesis of the effect of English-speaking MDWs being equal to zero). Column 4 in Table 6 shows the results of low-income households, which confirm that maternal English-speaking ability is the most important factor (15.2 percent), followed by paternal English-speaking ability (5.8 percent), and the number of children in the household (-2.3 percent).

(Insert Table 7 about here)

Results from the four subsamples of parental English-speaking ability for preschool children are shown in Table 7. The estimated effects of English-speaking MDWs on preschool children's ability to speak English are 37.2 percent, 20 percent, 29.2 percent, and 7.2 percent respectively for the subsamples of both parents speaking English, only the mother speaking English, only the father speaking English, and neither parent speaking English. These estimates are all statistically significant at the conventional levels, and also larger in magnitude than the subsample results of the primary school children (except for the subsample of only the mother speaking English). It is worthwhile to reemphasize that preschool children from households in which the mother does not speak English or neither one of the parents speaks English face a difficult home environment for learning to speak English. The estimates shown in Table 7 indicate, however, that when these five-year-old

children who have yet to start formal schooling are afforded the care of an English-speaking MDW at home, they show a significantly much larger likelihood of speaking English, and this result is especially revealing.

6. Summary and Conclusion

It has been well-established that early childhood is the most critical period for language acquisition and doing so requires social interaction with another human being (Kuhl, 2004). This study finds strong evidence that when young children are given the opportunity to interact with a key carer who speaks a foreign language in the home environment, they are much more likely to speak that foreign language. In the case of Hong Kong, it is important to recognize the positive contribution made by English-speaking MDWs to children's learning of English when they are the key carers of these children in the household.

This study uses two identification strategies: between-siblings comparisons and estimation of a model that describes children's language acquisition. The between-siblings comparisons make use of a simple idea that siblings living within the same household in which an English-speaking MDW is employed should be more uniformly capable of speaking English than siblings living in households without an English-speaking MDW. The results show clearly that the incidence of the [1, 1] outcome (both the older and younger siblings being capable of speaking English) in households in which an English-speaking MDW is employed dominate the incidence of the [1, 1] outcome in households that do not employ an MDW in every group of parental English-speaking ability. In contrast, households employing a non-English-speaking MDW show little difference in the incidence of the [1, 1] outcome from that of households that do not employ an MDW. Given that households employing an English-speaking MDW and households employing a non-English-speaking MDW are nearly identical except for parental English-speaking ability, and given that parental English-

speaking ability is held constant in the between-siblings comparisons, the results of the between-siblings comparisons provide strong evidence for English-speaking MDWs as an important factor for enhancing children's English-speaking ability.

The second identification strategy estimates a language acquisition model that incorporates the interactions between parental English-speaking ability and English-speaking MDWs. For the dataset of primary school children, the estimation results show that English-speaking MDWs increase children's likelihood of speaking English by 9.2 percent when neither of their parents speaks English, but 24.4 percent when both of their parents speak English, with interaction between parental English-speaking ability and English-speaking MDWs accounting for the additional effect. Moreover, the subsample results are consistent with the baseline results, showing 26.2 percent, 25.2 percent, 13.7 percent, and 6.4 percent, respectively, for households with both parents being capable of speaking English, only the mother being capable of speaking English, only the father being capable of speaking English, and neither of the parents being capable of speaking English. As a robustness check, an alternative dataset of five-year-old preschool children is used for estimating the model again and its results are fairly similar to those of the baseline estimation, except that the direct effect of English-speaking MDWs dominates the interaction effects between parental English-speaking ability and English-speaking MDWs.

In conclusion, the evidence uncovered from the analysis provides consistent support for the hypothesis that English-speaking MDWs enhance children's likelihood of speaking English. The estimated effects of English-speaking MDWs are both large and highly significant, indicating that children under the care of English-speaking MDWs are much more likely to speak English as a second language. Clearly, this contribution has some economic value, but current wages are regulated to be equalized between English-speaking and non-English-speaking MDWs in Hong Kong. Recently, a wide perception of declining

standards of English in Hong Kong after the end of British rule in 1997 and the switch to native-tongue education has been reported and reinforced by more emerging evidence (South China Morning Post, 19 November, 2014). Hence, the findings of this study can have a policy implication for arresting the declining standard of English written and spoken in Hong Kong.

Figure 1: Proportions of English-Speaking Children by Parents' English-Speaking Ability and Grades

Note: Both parents speak English (Both Speak), only mothers speak English (Mum Only), only fathers speak English (Dad Only), and neither parent speaks English (Both Don't). Both middle-income and low-income households are included in the calculation. Source: Author's work based on samples taken from the Hong Kong 2001 Population Census and 2006 Population Bi-census.

Figure 2: Proportions of English-Speaking Children by Types of Childcare and Grades

Note: FMDW represents children cared for by English-speaking Filipino MDWs, IMDW represents children cared for by Cantonese-speaking Indonesian MDWs, and Others represents children cared for by non-Filipino and non-Indonesian MDWs. Only middle-income households are included in the calculation. Source: Author's work based on samples taken from the Hong Kong 2001 Population Census and 2006 Population Bi-census.

Figure 3: Interactions Among MDWs, Family, and School in Children's Language Learning

Table 1: Comparing Between Households Employing an English-Speaking MDW and Households not Employing an MDW

Out- come (%)	BS		OM		OD		BN		FMDW Effect = HF – HW				
	HF (1)	HW (2)	HF (3)	HW (4)	HF (5)	HW (6)	HF (7)	HW (8)	BS (9)	OM (10)	OD (11)	BN (12)	Σdif (13)
[1, 1]	76	53	58	41	53	34	25	20	23	17	19	5	64
[0, 0]	15	26	19	33	34	44	60	60	-11	-14	-10	0	-35
[1, 0]	8	19	16	24	9	19	13	17	-11	-8	-10	-4	-33
[0, 1]	1	2	6	2	3	3	1	2	-1	4	0	-1	2
Total	100	100	100	100	100	100	100	100	n/a	n/a	n/a	n/a	n/a

Notes: [1, 1] = both siblings speak English, [0, 0] = neither sibling speaks English, [1, 0] = only the older sibling speaks English, and [0, 1] = only the younger sibling speaks English. HF = households employing an English-speaking MDW and HW = households not employing an MDW. BS, OM, OD, and BN denote, respectively, both parents being capable of speaking English, only the mother being capable of speaking English, only the father being capable of speaking English, and neither parent being capable of speaking English. FMDW effect = HF – HW, the effect of employing an English-speaking MDW. Σdif = the horizontal sum of each outcome from Columns 9 to 12.

Table 2: Comparing Between Households Employing a non-English-Speaking MDW and Households not Employing an MDW

Out- come %	BS		OM		OD		BN		IMDW Effect = HI – HW				
	HI (1)	HW (2)	HI (3)	HW (4)	HI (5)	HW (6)	HI (7)	HW (8)	BS (9)	OM (10)	OD (11)	BN (12)	Σdif (13)
[1, 1]	45	53	44	41	28	34	19	20	-8	3	-6	-1	-12
[0, 0]	37	26	30	33	54	44	61	60	11	-3	10	1	19
[1, 0]	17	19	24	24	16	19	16	17	-2	0	-3	-1	-6
[0, 1]	1	2	2	2	2	3	3	2	-1	0	-1	1	-1
Total	100	100	100	100	100	100	100	100	n/a	n/a	n/a	n/a	n/a

Notes: [1, 1] = both siblings speak English, [0, 0] = neither sibling speaks English, [1, 0] = only the older sibling speaks English, and [0, 1] = only the younger sibling speaks English. HI = households employing a non-English-speaking MDW and HW = households not employing an MDW. BS, OM, OD, and BN denote, respectively, both parents being capable of speaking English, only the mother being capable of speaking English, only the father being capable of speaking English, and neither parent being capable of speaking English. IMDW effect = HI – HW, the effect of employing a non-English-speaking MDW. Σdif = the horizontal sum of each outcome from Columns 9 to 12.

Table 3: Summary of Results for the Five Pairwise Comparisons Performed

	Comparing household group A to household group B		[1, 1] Σdif	Score
	A	B		
1	English-speaking MDW	Without an MDW	64**	0.16
2	Non-English-speaking MDW	Without an MDW	-12	-0.03
3	Both parents speak English	Neither parent speaks English	110**	0.37
4	Only mother speaks English	Neither parent speaks English	79**	0.26
5	Only father speaks English	Neither parent speaks English	51*	0.17

Notes: ** and * denote statistical significance at the 5 percent and 10 percent levels respectively for rejecting the null hypothesis of Σdif = 0. The score is calculated by dividing Σdif by 400 in comparisons 1 and 2, and by 300 in comparisons 3, 4, and 5. It ranges from -1 to 1, with -1 indicating that household group A has a 0 percent incidence of an [1, 1] outcome and that household group B has a 100 percent incidence of a [1, 1] outcome, and 1 indicating that household group A has a 100 percent incidence of a [1, 1] outcome and that household group B has a 0 percent incidence of a [1, 1] outcome. A score of 0 indicates that the incidence of the [1, 1] outcome is identical between the two household groups.

Table 4: Childcare, Family, and Primary School Children's English-Speaking Ability

	Middle-Income			Low-Income
	Working Mothers (1)	Non-Working Mothers (2)	All Households (3)	All Households (4)
English-speaking mothers	0.206*** (0.014)	0.229*** (0.015)	0.219*** (0.010)	0.218*** (0.014)
English-speaking fathers	0.118*** (0.014)	0.118*** (0.014)	0.117*** (0.010)	0.130*** (0.013)
Mother's age	0.006*** (0.002)	0.001 (0.002)	0.004*** (0.001)	0.003*** (0.001)
Father's age	-0.001 (0.001)	0.005*** (0.001)	0.002*** (0.001)	0.002* (0.001)
Maternal education	-0.001* (0.001)	-0.000 (0.001)	-0.001* (0.0005)	0.000 (0.001)
Paternal education	0.000 (0.001)	-0.001 (0.001)	-0.000 (0.001)	0.000 (0.001)
Mother's Hong Kong residency	0.002* (0.001)	0.002 (0.001)	0.002** (0.001)	0.003*** (0.001)
Mother's labor force participation	N/A	N/A	-0.044*** (0.008)	0.008 (0.010)
Parents' income	0.015 (0.010)	0.005 (0.007)	0.008 (0.006)	-0.001 (0.008)
Female child	0.042*** (0.010)	0.035*** (0.011)	0.039*** (0.008)	0.034*** (0.009)
No. of children in the household	-0.011 (0.008)	-0.013* (0.008)	-0.012** (0.006)	-0.011** (0.006)
Elderly people in household	0.012 (0.015)	-0.010 (0.022)	0.005 (0.012)	-0.011 (0.018)
Cross school district	-0.004 (0.012)	0.008 (0.013)	0.002 (0.009)	-0.035*** (0.012)
Filipino MDW (FMDW)	0.117*** (0.041)	0.019 (0.066)	0.092*** (0.034)	N/A
Indonesian MDW (IMDW)	0.037 (0.033)	0.054 (0.052)	0.049* (0.028)	N/A
FMDW-Mother English interaction	0.133*** (0.046)	0.133 (0.086)	0.138*** (0.039)	N/A
FMDW-Father English interaction	-0.010 (0.040)	0.103 (0.085)	0.014 (0.036)	N/A
IMDW-Mother English interaction	0.050 (0.042)	0.017 (0.087)	0.027 (0.036)	N/A
IMDW-Father English interaction	-0.088** (0.039)	0.025 (0.086)	-0.065 (0.035)	N/A
2001 dummy	Yes	Yes	Yes	Yes
Grade dummies	Yes	Yes	Yes	Yes
Observations	7,641	6,303	13,944	9,934
Pseudo R ²	0.15	0.14	0.14	0.11

Notes: The dependent variable is a dummy variable indicating whether the child speaks English as a second language. The estimated coefficients shown above are mean marginal effects. Heteroskedastic-robust standard errors are in parentheses. ***, **, and * denote, respectively, statistical significances at the 1 percent, 5 percent, and 10 percent levels.

**Table 5: Childcare, Family, and Primary School Children's English-Speaking Ability
(Middle-Income Household Subsamples)**

	Both Parents Speak English (1)	Only Mother Speaks English (2)	Only Father Speaks English (3)	Neither Parent Speaks English (4)
Filipino MDW	0.262*** (0.021)	0.252*** (0.043)	0.137** (0.059)	0.064* (0.039)
Indonesian MDW	0.031 (0.024)	0.068 (0.044)	-0.026 (0.055)	0.036 (0.029)
Mother's age	0.005** (0.002)	0.006 (0.004)	0.010*** (0.004)	0.003** (0.001)
Father's age	0.000 (0.002)	-0.001 (0.003)	-0.004 (0.003)	0.004*** (0.001)
Maternal education	-0.001 (0.001)	-0.002 (0.002)	0.001 (0.002)	-0.001 (0.001)
Paternal education	0.000 (0.001)	-0.003 (0.002)	0.002 (0.002)	-0.000 (0.001)
Mother's Hong Kong residency	0.002 (0.002)	0.001 (0.004)	-0.005** (0.002)	0.003*** (0.001)
Mother's labor force participation	-0.057*** (0.015)	-0.059** (0.030)	-0.029 (0.026)	-0.036*** (0.011)
Parents' income	-0.009 (0.010)	0.034 (0.022)	0.010 (0.016)	0.011 (0.009)
Female child	0.056*** (0.014)	0.046* (0.026)	0.047** (0.024)	0.024** (0.011)
No. of children in the household	-0.028** (0.011)	-0.001 (0.020)	-0.008 (0.018)	-0.003 (0.007)
Elderly people in household	0.006 (0.023)	-0.115*** (0.044)	-0.011 (0.034)	0.033** (0.016)
Cross school district	0.027* (0.015)	0.041 (0.029)	-0.011 (0.028)	-0.031** (0.014)
2001 dummy	Yes	Yes	Yes	Yes
Grade dummies	Yes	Yes	Yes	Yes
Observations	4,217	1,362	1,571	6,794
Pseudo R ²	0.08	0.07	0.07	0.05

Notes: The dependent variable is a dummy variable indicating whether the child speaks English as a second language. The estimated coefficients shown above are mean marginal effects. Heteroskedastic-robust standard errors are in parentheses. ***, **, and * denote, respectively, statistical significances at the 1 percent, 5 percent, and 10 percent levels.

Table 6: Childcare, Family, and Pre-School Children's English-Speaking Ability

	Middle-Income			Low-Income
	Working Mothers (1)	Non-Working Mothers (2)	All Households (3)	All Households (4)
English-speaking mothers	0.178*** (0.039)	0.090*** (0.021)	0.169*** (0.026)	0.152*** (0.023)
English-speaking fathers	0.091** (0.037)	0.055*** (0.021)	0.097*** (0.025)	0.058*** (0.022)
Mother's age	0.003 (0.004)	-0.002 (0.002)	-0.003 (0.003)	0.001 (0.002)
Father's age	-0.001 (0.003)	0.003* (0.002)	0.003 (0.002)	-0.001 (0.002)
Maternal education	-0.006*** 0.002	0.002* (0.001)	-0.001 (0.001)	0.001 (0.001)
Paternal education	0.003* (0.002)	-0.002 (0.001)	0.001 (0.001)	-0.003* (0.002)
Mother's Hong Kong residency	-0.007*** (0.003)	-0.000 (0.001)	-0.002 (0.002)	-0.002 (0.001)
Mother's labor force participation	N/A	N/A	-0.007 (0.020)	0.011 (0.025)
Parents' income	0.020 (0.020)	-0.004 (0.006)	0.002 (0.010)	-0.003 (0.005)
Female child	0.026 (0.024)	0.016 (0.015)	0.029* (0.018)	0.016 (0.018)
No. of children in the household	-0.029 (0.019)	-0.012 (0.011)	-0.022* (0.013)	-0.023** (0.011)
Elderly people in household	-0.042 (0.040)	-0.039 (0.037)	-0.041 (0.034)	0.021 (0.035)
Cross school district	0.041 (0.026)	0.017 (0.018)	0.029 (0.019)	0.030 (0.022)
Filipino MDW (FMDW)	0.190** (0.083)	0.033 (0.087)	0.203*** (0.064)	N/A
Indonesian MDW (IMDW)	-0.022 (0.080)	0.054 (0.067)	0.052 (0.059)	N/A
FMDW-Mother English interaction	0.059 (0.092)	-0.095 (0.072)	-0.009 (0.071)	N/A
FMDW-Father English interaction	0.013 (0.073)	0.166* (0.092)	0.059 (0.060)	N/A
IMDW-Mother English interaction	0.152 (0.104)	-0.173** (0.085)	0.037 (0.077)	N/A
IMDW-Father English interaction	-0.101 (0.084)	0.095 (0.093)	-0.075 (0.069)	N/A
2001 dummy	Yes	Yes	Yes	Yes
Observations	1,167	1,554	2,032	1,070
Pseudo R ²	0.16	0.11	0.16	0.14

Notes: The dependent variable is a dummy variable indicating whether the child speaks English as a second language. The estimated coefficients shown above are mean marginal effects. Heteroskedastic-robust standard errors are in parentheses. ***, **, and * denote, respectively, statistical significances at the 1 percent, 5 percent, and 10 percent levels.

**Table 7: Childcare, Family, and Preschool Children's English-Speaking Ability
(Middle-Income Household Subsamples)**

	Both Parents Speak English (1)	Only Mother Speaks English (2)	Only Father Speaks English (3)	Neither Parent Speaks English (4)
Filipino MDW	0.372*** (0.039)	0.200*** (0.074)	0.290*** (0.096)	0.072* (0.044)
Indonesian MDW	0.039 (0.049)	0.106 (0.089)	0.072 (0.100)	-0.001 (0.043)
Mother's age	-0.006 (0.005)	-0.007 (0.008)	0.007 (0.007)	-0.001 (0.002)
Father's age	0.004 (0.005)	0.018*** (0.007)	-0.011* (0.007)	0.002 (0.002)
Maternal education	-0.005** (0.002)	0.004 (0.004)	-0.009* (0.004)	0.002 (0.001)
Paternal education	-0.000 (0.002)	0.001 (0.003)	0.001 (0.004)	-0.000 (0.001)
Mother's Hong Kong residency	-0.004 (0.004)	0.003 (0.009)	-0.007 (0.005)	-0.002 (0.002)
Mother's labor force participation	-0.052 (0.038)	0.056 (0.071)	-0.025 (0.065)	0.013 (0.020)
Parents' income	-0.019 (0.021)	-0.007 (0.027)	0.096 (0.068)	0.025 (0.026)
Female child	0.042 (0.033)	0.028 (0.057)	0.016 (0.053)	0.003 (0.020)
No. of children in the household	-0.064** (0.025)	-0.041 (0.044)	0.073* (0.040)	-0.009 (0.014)
Elderly people in household	-0.102 (0.066)	-0.207* (0.118)	0.033 (0.079)	0.029 (0.028)
Cross school district	0.019 (0.034)	0.013 (0.060)	0.075 (0.064)	0.039* (0.023)
2001 dummy	Yes	Yes	Yes	Yes
Observations	812	242	220	758
Pseudo R ²	0.09	0.10	0.12	0.10

Notes: The dependent variable is a dummy variable indicating whether the child speaks English as a second language. The estimated coefficients shown above are mean marginal effects. Heteroskedastic-robust standard errors are in parentheses. ***, **, and * denote, respectively, statistical significances at the 1 percent, 5 percent, and 10 percent levels.

Appendix: Summary Statistics (Children Aged Between Five and 12 in Middle-Income Households)

	Filipino MDW	Indonesian MDW	No MDW
Mother's age	38.5	37.9	38.6
Mother's years of schooling	16.2	16.2	12.1
Mother's years of Hong Kong residency	18.9	18.9	16.6
Proportion of mothers participating in the labor force	0.80	0.82	0.51
Mother's income in log	7.3	7.4	4.5
Proportion of mothers speaking English	0.83	0.65	0.36
Father's age	41.9	41.4	42.7
Father's years of schooling	15.0	15.0	12.2
Father's income in log	9.4	9.6	9.6
Proportion of fathers speaking English	0.71	0.57	0.38
Number of children per household	1.8	1.9	1.8
Average age of children	8.0	7.9	8.9
Proportion of children in cross school district ^c	0.36	0.31	0.25
Number of elderly persons per household	0.09	0.11	0.09
Proportion of children speaking English	0.71	0.46	0.39
MDW's age	33.5	26.9	n/a
MDW's years of schooling	14.7	11.1	n/a
MDW's years of Hong Kong residency	4.6	2.5	n/a
Number of observations	1649	1264	16382

Notes:

- Children aged between five and 12 from a household with income between HK\$15,000 and HK\$45,000 per month are included.
- Figures given above are mean figures calculated using a pooled dataset of 2001 Population Census and 2006 Population Bi-census.
- Cross school district refers to a child attending a school which is not located in the district where the child lives.

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