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**Women's Work and the Demand for
Children in Hong Kong**

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**WOMEN'S WORK AND THE DEMAND FOR CHILDREN
IN HONG KONG**

by

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Introduction

In this paper I study two inter-related aspects of the behaviour of married women in Hong Kong that are living with their spouses. They are fertility demand and work supply behaviour. Fertility behaviour is characterized as a demand for both the quantity and quality of children. Quantity is operationally defined as the number of living children and quality as the average educational attainment of the children in terms of schooling years. If a woman decides to join the labour, then her work behaviour is characterized as a choice of either one of two forms of working arrangement. The in-firm work arrangement necessitates the worker to perform her tasks in the firm, which is typical of most modern jobs. The out-firm work arrangement allows the worker to perform her tasks anywhere she chooses, i.e., outside the firm; she can, for example, take it home.

The modern economic analysis of the work behaviour of married women within the family context began with the work of Mincer (1962), and has since developed rapidly; up-to-date surveys of this literature have been made by Killingsworth (1981) and Heckman and McCurdy (1981). The major novelty introduced in this paper which has not been previously studied is the distinction between in-firm and out-firm work

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arrangements. The characteristic feature of out-firm work suggests that it may be an attractive form of employment for women who have to spend a considerable amount of time to take care of their children at home. This arrangement represents an intermediate step between in-firm work and total withdrawal from the labour force, and the decision to accept such a work arrangement would depend on, among other things, previous and expected fertility patterns.

In order to understand the fertility decisions of women, I rely on the theory developed by Becker (1981). Since this is well-documented elsewhere it will not be repeated here in detail. The most important point to note is that child-rearing is a very mother's time-intensive activity. Hence, an increase in the market productivity of wife's time would reduce her demand for children, because her value of time has increased. Furthermore, the demand for children may be realized more in the form of quality rather than quantity, implying a tradeoff between quantity and quality components. This is because market productivity is often positively correlated with home productivity, hence, the cost of quantity will rise relative to the cost of quality. This is rather standard analysis. However, if out-firm work is introduced into the picture, then we have a new twist. The distinctive feature of out-firm work is that it allows a woman to perform both market and homework at the same time. This reduces the cost of having children. It may also be argued that the simultaneous production of market and home services at the same time may not result in the same quality of child-care provided. If this is the case, then the effect on the increase in demand for children

may be expressed more in the form of quantity than in quality.

Throughout this paper I use simple economic models to interpret the findings. The quantity and quality components of fertility behaviour, and the in-firm and out-firm work arrangement choices are studied within the framework which explicitly recognizes their mutual interdependencies. The econometric techniques may appear somewhat involved for some readers, but can be easily understood heuristically. I will not go into the technical details.

The Hong Kong Context

The last two decades have been a period of rapid economic growth for Hong Kong. Public subsidies to schooling resulted in a rapid increase in educational capital formation. Table 1 gives the distribution in percentages of the population over the age of 5, by years of schooling for both men and women from 1961 to 1981. The fraction of men with no schooling fell from 12.7 per cent to 8.6 per cent; and those with college education rose from 2.5 per cent to 6.6 per cent. For women, the fraction with no schooling fell from 41.8 per cent to 23.1 per cent; and those with college education rose from .8 per cent to 4.1 per cent. The most impressive gains were clearly made by the women. The profound changes in the schooling of women had the effect of increasing the market value of time of women relative to men. This brought about very significant changes in labour force participation behaviour between the sexes, and also in the fertility behaviour of women.

Table 2 gives the labour force participation rates of both men

TABLE 1

PERCENTAGE DISTRIBUTION OF POPULATION AGED 5 AND OVER
BY SCHOOLING AND SEX IN 1961, 1971, 1976 AND 1981

	Male				Female			
	1961	1971	1976	1981	1961	1971	1976	1981
Schooling								
None	12.7	11.7	10.1	8.6	41.8	30.5	27.3	23.1
Primary	61.8	56.9	50.0	41.9	45.3	49.1	44.3	37.5
Secondary	23.0	28.7	36.4	42.9	12.1	19.5	27.0	35.3
College	2.5	2.7	3.5	6.6	0.8	0.9	1.4	4.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Hong Kong Census Main Report. (Hong Kong: Hong Kong Government Press).

and women from 1961 to 1981, in various age groups. The labour force participation rate of men was quite stable for those between 20 and 55 years of age, but declined considerably over time for both younger and older men. The overall labour force participation rate of men above the age of 15 declined from 90.4 per cent to 82.5 per cent in the two decades. For women the labour force participation rate rose in all age groups above 20 years of age. The overall rate rose from 36.8 per cent to 49.5 per cent during the same period. Except for the very large magnitudes, these changes are similar to those found in most growing economies. One observes over time a rising level of educational attainment and labour force participation among women, especially in the younger age groups. One finds also a greater incentive among the women to postpone their age of marriage than the men. The mean age of first marriage was 20.9 for women who married in 1961, and it rose to 21.8 in 1976. The corresponding figure for men was much more stable, rising from 25.2 in 1961 to 25.4 in 1976. More dramatic is the rate of decline in fertility. The crude birth rate per thousand population fell from 35.0 in 1961 to 17.7 in 1976. The numbers reflect the improvement in the market opportunities of women, which make delayed marriages and fewer children more attractive.

An even more remarkable result appears when we divide the workers into in-firm and out-firm groups. Table 3 gives the percentages of out-firm workers in the labour force by age groups for both men and women from 1961 to 1981. In 1961 and 1971 the fraction of out-firm workers in the labour force was negligible. But the percentages rose

TABLE 2

PERCENTAGE LABOR FORCE PARTICIPATION RATE IN 1961, 1971, 1976 and 1981

Age	1961		1971		1976		1981	
	Male	Female	Male	Female	Male	Female	Male	Female
	Labor Force Participation Rate							
15 - 19	54.3	47.9	50.4	56.4	43.0	47.2	45.2	42.6
20 - 24	89.2	51.1	90.2	69.5	87.8	71.8	90.9	79.7
25 - 34	97.8	33.9	98.4	39.6	97.7	47.7	98.3	56.8
35 - 44	98.3	38.0	98.6	38.7	98.4	42.9	98.6	53.4
45 - 54	96.9	42.1	96.6	38.9	95.0	39.6	96.0	46.7
55 and over	73.6	20.7	70.1	24.1	61.1	22.4	60.3	24.9
Overall (15 and over)	90.4	36.8	84.7	42.8	80.4	43.6	82.5	49.5

Source: Hong Kong Census Main Report. (Hong Kong: Hong Kong Government Press).

TABLE 3

PERCENTAGE OF OUT-FIRM WORKERS IN THE LABOR FORCE

Age	1961		1971		1976		1981	
	Male	Female	Male	Female	Male	Female	Male	Female
	Percentage of Out-Firm Workers							
15 - 19	.32	.84	.14	.25	.46	.98	.22	.45
20 - 24	.41	1.05	.15	.20	.70	1.83	.26	1.00
25 - 34	.59	1.91	.21	.32	1.07	11.37	.45	7.16
35 - 44	.70	2.01	.26	.48	1.75	18.59	.89	11.58
45 - 54	.78	1.30	.31	.39	1.63	10.74	1.07	6.49
55 and over	.57	.86	.37	.48	2.13	8.33	1.31	5.49
Overall (15 and over)	.62	1.50	.25	.34	1.30	7.44	.68	5.05

dramatically in 1976 and 1981 for the women, and they took place in the age groups that were 25 years of age or above. In other words, there was a tremendous increase in the fraction of married women who joined the labour force as an out-firm worker. Throughout the period, the fraction of men who were out-firm workers remained much more stable with no discernable secular trend. They were always a negligible fraction of the labour force, responding perhaps to temporary economic conditions. The tremendous growth of out-firm workers in the mid-70s was probably demand induced through the expansion of garment, toys and plastic products industries. These were particularly susceptible to out-firm work arrangements. Since then the demand boom has slowed down and so has the number of out-firm workers. Although out-firm work in Hong Kong's export oriented economy is largely demand-determined, the role of out-firm work in shaping women's labour force and fertility behaviour is independent and can be explored separately. As such, our findings may have bearing for other economies where out-firm work is or can be important, and need not be determined by international market.

Data

The relationships between fertility and work behaviour of married women will be analyzed using a 10 per cent sample of the 1976 By-Census of the population in Hong Kong. The sample was chosen because it contained extremely detailed information on the maternity behaviour of women. The entire data set contained information on approximately

10,000 households. A list of the variables used in the present study is given in the Appendix.

In the study of labour force behaviour the sample of all Chinese women who were living with spouses who were working heads of households between the ages of 20 and 59 were used. This gave a sample size of 4,156 individuals. In the study of fertility the sample size was further reduced to women that were between the ages of 35 and 49. This assured that most women in the sample have completed their fertility. Older women were not included because the census did not contain maternity history information for women 50 or older. The resulting sample size was 2,462, of which 234 had no surviving child at the time of survey.

In-firm and Out-firm work of Married Women

In response to child-caring activities a married woman in Hong Kong can choose among three alternatives in terms of work behaviour. She can withdraw from the labour force and specialize in home production activities (denote this state 0), remain in the labour force as an out-firm worker (denote this state 1), or remain in the labour force as an in-firm worker (denote this state 2). In 1976, among women who were married to household heads aged 20 to 59, 24.1 per cent were in-firm workers and 7.5 per cent were out-firm workers; 68.4 per cent were not in the labour force. The average in-firm worker earned \$567 per month and worked 46 hours a week. The average out-firm worker earned \$162 a month, which is 28.6 per cent of that of the in-firm worker. Although

hours of work information is not available for the out-firm workers, the earnings figures suggest that most of them are likely to be part-time workers.

The choice among the three alternative states for the married woman would depend on her reservation wage, her respective market wages as an in-firm or out-firm worker, and any fixed money and time costs that may be associated with working as an in-firm or out-firm worker. For trichotomous choices one can define the probability of being in state 0 as P_{0j} , in state 1 as P_{1j} , and in state 2 as P_{2j} . The probabilities would differ for any individual j but must satisfy $P_{0j} + P_{1j} + P_{2j} = 1$. These probabilities can be postulated to depend on a set of explanatory variables, and their effects on the probabilities can be estimated by specifying a statistical model. One such commonly used model is the trinomial logistic model which has been discussed by McFadden (1973). The maximum likelihood estimates of the model are given in Table 4. The effects of the explanatory variables on the probabilities are evaluated at the sample means and are given in corresponding columns of the table under the description "partial derivatives of probabilities."

The estimates show that a 10 per cent increase in the market productivity of the wife, as measured by her predicted log earnings (FLINC), increases her probability of working as an in-firm worker significantly by 2.6 per cent; but decreases her probability of working as an out-firm worker also significantly by 1.3 per cent. This latter result suggests that out-firm work may not require a high level of

TABLE 4
MULTIPLE LOGISTIC MODEL OF WOMEN'S WORK BEHAVIOUR

	IN-FIRM WORKER		OUT-FIRM WORKER	
	Logit Coefficients	Partial Derivatives of Probabilities	Logit Coefficients	Partial Derivatives of Probabilities
CONSTANT	-2.766 (2.70)		16.021 (5.70)	
MLINC	-.628 (8.13)	-.106	-.788 (5.60)	-.035
PAGE	-.032 (6.14)	-.006	-.039 (4.01)	-.002
FED	-.017 (1.16)	-.004	.064 (2.42)	.004
FLINC	1.241 (7.16)	.262	-1.903 (4.24)	-.127
CHD:0-3	-.790 (9.94)	-.145	-.235 (2.07)	-.001
CHD:4-6	-.401 (5.51)	-.078	.178 (1.82)	.016
CHD:7-12	-.031 (.79)	-.011	.315 (5.68)	.018
CHD:>12	-.009 (.43)	-.003	.066 (1.87)	.004
-2 log Likelihood Ratio = 6334.26		n = 4156		

NOTE: Absolute t-values in parenthesis.

market skills. The effect of an increase in home productivity of the wife, as measured by an additional year of schooling (FED), increases significantly by 0.4 per cent her probability of being an out-firm worker; but has an insignificant negative effect on her probability of being an in-firm worker.

The effect of wife's age (FAGE) significantly reduces the probability of both in-firm and out-firm work; the strength of effect is stronger for in-firm work. They may reflect both life-cycle and cohort effects. Since entry into the labour market entails certain fixed costs whose return can only be recaptured over a period of time, hence, individuals that are early in the life-cycle will be more willing to bear such costs. It is interesting to note that the probability of entry into in-firm work is greater than out-firm work at a younger age, and is consistent with the suggestion that fixed costs are lower for out-firm work. Husband's log earnings (MLINC) significantly reduce the probability of both in-firm and out-firm work; the effect is stronger for in-firm work. This shows that husband's and wife's time are substitutes in home production. An income effect is also in operation which raises the shadow price of wife's time, but is probably dominated by the substitution effect.

The effects of the children variables are most interesting. One may wish to think of the children variables as introducing fixed costs into the decision regarding work behaviour. An additional child aged 0 to 3 has an extremely large and significant effect in reducing the probability by 14.5 per cent of being an in-firm worker. It has a much

smaller but still significant effect in reducing the probability 0-1 per cent of being an out-firm worker. An additional child aged 4 to 6 significantly reduces the probability by 7.8 per cent of being an in-firm worker, but marginally raises the probability of being an out-firm worker. An additional child aged 7 to 12 has an insignificant negative effect on the probability of being an in-firm worker. Additional children over 12 years of age again have no effect on the probability of being an in-firm worker, but marginally increases the probability of being an out-firm worker. These results confirm two sets of hypotheses. First, young children are highly intensive in mother's time and so reduces her probability of becoming an in-firm worker. The effects are diminished as the children grow older. These findings are similar to most other findings on women's labour market behaviour. Second, out-firm work is clearly an intermediate option between in-firm work and not working at all. A married woman can withdraw from the labour force partially in the presence of young children (aged 0 to 3), and make a partial return as soon as they grow slightly older.

It is important to recognize that by allowing the worker to have control over both when and where to work, out-firm work has additional features of flexibility over and above those associated with part-time jobs. These features are of great value to women whose shadow price of time may be high because of young children, but whose market wages are low. Although the model that has been estimated does not incorporate life-cycle aspects of the decision-making process, it is not unlikely that for most women out-firm work may only be a temporary form of work

arrangement, which is chosen during or immediately following the maternity period. This would facilitate market activities and investments in market skills or their preservation in a way that would have been more difficult if out-firm work had not been available as an alternative.

Fertility of Married Women

Becker (1981) applied an expanded version of his household production theory to the analysis of the interaction between quantity and quality in the demand for children. Family size is interpreted as a multidimensional goal. One obvious dimension is the number of births a couple has, while the other can represent any of a number of attributes of children that parents value. These latter qualitative attributes may include child health or survival, school achievement, adult earnings and socioeconomic status. Becker postulated that quantity and quality are substitutes because an increase in the number of children will raise the cost of providing for the same average quality, and an increase in the average quality will raise the unit cost of having an additional child.

The importance of such a framework is that the effects of family wealth, husband's market and home productivities, and wife's market and home productivities, on the demand for children can be consistently interpreted. Tables 5 and 6 give estimates of the regression models for the demand for quantity and quality of children. These were performed on married women aged 35 to 49 with spouses present. Table 5 uses the sample of all such women and Table 6 restricts the sample to those women who have had at least one surviving child at

TABLE 5

DEMAND FOR CHILDREN REGRESSIONS: WOMEN AGED 35-49, SPOUSE PRESENT

DEP. VAR.	CHDLIVE		CHDEDUC	
	1st Stage	2nd Stage	1st Stage	2nd Stage
CONSTANT	-5.744 (5.23)	7.776 (3.60)	1.300 (9.04)	1.264 (9.79)
FED	-.074 (5.82)	-	.008 (4.82)	.007 (4.22)
FLINC	1.046 (6.11)	-	-.092 (4.10)	-.082 (4.33)
FAGE	.021 (2.12)	.040 (2.49)	.002 (1.58)	.002 (1.75)
FMYR	.002 (2.57)	.002 (1.36)	-.0003 (.26)	
PR/INWK	-3.736 (7.83)	-3.002 (4.71)	.043 (.69)	-
PR/OUTWK	6.791 (9.94)	6.367 (5.87)	-.060 (.67)	-
CHD:TWIN	.399 (4.44)	.209 (1.40)	-.019 (1.64)	-.013 (1.09)
CHD:DEAD	-.485 (3.83)	-.910 (3.97)	-.043 (2.60)	-.050 (3.02)
CHD:M>F	.411 (13.92)	.339 (6.64)	-.007 (1.92)	-
CHD:F>M	.500 (17.33)	.388 (7.00)	-.012 (3.06)	-
SUBHOME	.437 (5.59)	.387 (3.14)	-.004 (.36)	.004 (.38)
OWNHOME	.422 (4.80)	.780 (5.31)	.035 (2.99)	.041 (3.50)
MED	-.040 (4.18)	.033 (1.45)	.007 (5.32)	.006 (4.80)
MLINC	.018 (2.38)	.259 (3.35)	.011 (1.68)	.012 (5.71)
MAGE	.123 (2.97)	.032 (3.04)	.001 (1.77)	.002 (2.07)
CHDLIVE				-.015 (9.79)
CHDEDUC		-9.920 (4.18)		
R ²	.378	.193	.074	.074
n	2462	2462	2462	2462

NOTE: Absolute t-values in parenthesis.

TABLE 6

DEMAND FOR CHILDREN REGRESSIONS: WOMEN AGED 35-49,
SPOUSE PRESENT, AT LEAST ONE CHILD LIVING

DEP. VAR.	CHDLIVE		CHDEDUC	
	1st Stage	2nd Stage	1st Stage	2nd Stage
CONSTANT	-3.542 (2.67)	6.308 (3.41)	1.262 (6.80)	1.275 (9.29)
FED	-.078 (6.18)	-	.009 (5.02)	.008 (4.27)
FLINC	.884 (5.22)	-	-.097 (4.09)	-.087 (4.32)
FAGE	.034 (3.51)	.054 (3.50)	.002 (1.64)	.003 (1.92)
FMYR	-.002 (2.34)	.002 (1.32)	.00002 (.24)	
PR/INWK	-2.843 (6.05)	-2.340 (3.87)	.051 (.77)	-
PR/OUTWK	6.961 (10.42)	6.647 (6.54)	-.038 (.41)	-
CHD:TWIN	.378 (4.38)	.203 (1.47)	-.020 (1.64)	-.013 (1.02)
CHD:DEAD	-.487 (3.79)	-.888 (4.01)	-.045 (2.51)	-.053 (2.96)
CHD:M>F	.304 (10.49)	.223 (4.53)	-.009 (2.26)	-
CHD:F>M	.408 (14.47)	.292 (5.52)	-.013 (3.33)	-
SUBHOME	.248 (3.16)	.195 (1.65)	-.006 (.51)	.0009 (.09)
OWNHOME	.325 (3.65)	.648 (4.58)	.036 (2.91)	.042 (3.36)
MED	-.038 (4.06)	.026 (1.20)	.007 (5.40)	.006 (4.80)
MLINC	.013 (2.06)	.298 (3.96)	.014 (1.91)	.013 (5.66)
MAGE	.174 (3.43)	.029 (2.72)	.002 (1.96)	.002 (2.18)
CHDLIVE				-.019 (3.65)
CHDEDUC		-8.90 (3.41)		
R ²	.326	.170	.081	.080
n	2328	2328	2328	2328

NOTE: Absolute t-values in parenthesis.

the time of the survey. The results are quite similar and the ensuing discussion will not distinguish between them. In the empirical model, quantity is proxied by the number of children who are still alive at the time of the survey (CHDLIVE) and quality is proxied by an index of average child schooling level (CHDEDUC) (see Appendix for definition). Both reduced form and structural regression equations are presented. The 1st stage results are reduced form results obtained by ordinary least squares estimation, and the 2nd stage results are structural results obtained by two-stage least squares estimation. In order to identify the coefficients in the structural equations, a number of variables has been omitted from the second stage regressions. It has often been argued that in many similar studies of fertility demand, the choice as to which variables should be omitted can be quite arbitrary. The structural equations that are reported were obtained by eliminating those variables that contributed the least explanatory power in R² sense in the second-stage regressions. Fortunately, in our case extensive experimentation has shown that the major results of interest are not sensitive to the choice of which variables should be omitted.

The most important results are the significant negative coefficients of CHDEDUC in the CHDLIVE regression, and CHDLIVE in the CHDEDUC regression. This shows that quantity and quality are indeed substitutable. Family wealth is proxied by whether the family lives in owned housing (OWNHOME) and whether the family lives in government subsidized housing (SUBHOME). The latter represents a transfer of wealth towards the family. All the significant coefficients in both the

the reduced form and structural equations are positive as expected. The means that an increase in family wealth increases the demand for both the quantity and quality of children.

The market productivity of men is proxied by husband's log earnings (MLINC) and home productivity by years of schooling (MED). The MLINC coefficients are generally significant and positive in both the structural and reduced form equations. As a whole, the results confirm the expectation that the major effect of an increase in men's market productivity is to increase the demand for children, both in quantity and quality terms. This is because child-rearing is not father's time intensive; hence, income effects will tend to dominate. The MED coefficients are significantly positive in both the reduced form and structural CHDEDUC equations. The evidence is mixed for the CHDLIVE equations; it is significantly negative in the reduced form equation. Hence, an increase in husband's home productivity raises the demand for child quality but has an ambiguous effect on child quantity.

The birth of twins may often be considered as an exogenous event. Interestingly, both the structural coefficients of the number of twins (CHD:TWIN) are statistically insignificant in both the CHDLIVE and CHDEDUC equation. This suggests that the family attempts generally to make subsequent fertility readjustments so that there is no net increase in the number of children with no decline in the educational attainment of the children on average. Interestingly, the reduced form coefficient in the CHDLIVE equation is significantly positive, implying that families are on average not totally successful

in making subsequent fertility adjustment as is to be expected.

The number of child deaths in a family (CHD:DEAD) is interestingly found to have a significant negative effect on CHDLIVE with a coefficient of $-.9$ in the structural equations. This means that most families are in general unable or unwilling to replace occurred child deaths. The effect of CHD:DEAD on CHDEDUC is also significantly negative. These results imply that families with more child deaths probably have a high cost of producing quality, and therefore would produce less of it.

The variables for wife's age (FAGE), wife's total married years (FMYR), and husband's age (MAGE) attempt to capture a myriad of life-cycle and cohort effects. In general, older men and older women tend to have more children and more educated children.

Sex preferences for children are captured by variables denoting the excess number of male children over female children (CHD:M>F), and the excess number of female children over male children (CHD:F>M). The coefficients are significantly positive for both variables in the CHDLIVE equations, reduced form and structural. This suggests that as a whole families prefer to have sexual balance. The point estimates are not very different between the two variables. There are no coefficients for the structural CHDEDUC equations because they have been omitted from the second stage regressions. The first stage coefficients are significantly negative, indicating perhaps a tradeoff between quantity and quality. That is sexual balance in the family is acquired by having more children, which results in a lower average

quality. But, since the structural coefficients are omitted because of their low statistical significance, such an interpretation may be highly conjectural.

Wife's home and market productivity are much more difficult to capture. In the CHDLIVE structural equation we use the predicted probability of in-firm work (PR/INWK) to capture wife's market productivity, and the coefficient is significantly negative. We found also that the coefficient of the predicted probability of out-firm work (PR/OUTWK) is significantly positive in the structural CHDLIVE equation. In the CHDEDUC structural wife's schooling (FED) is used to proxy home productivity and wife's predicted log earnings (FLINC) is used to proxy her market productivity. The FED coefficient is significantly positive and the FLINC coefficient is significantly negative. Hence, an increase in wife's home productivity increases her demand for quality, but an increase in her market productivity reduces her demand for quality. All these results are in accordance with expectations. The reason for excluding the PR/INWK and PR/OUTWK variables from the structural CHDLIVE equations, and the FED and FLINC variables from the structural CHDEDUC equations, is that they were not significant in the structural equations.

Conclusion

The most important finding in this paper is that young children encourage a mother to seek out-firm but not in-firm work. The kind of out-firm work pattern that is presented here, using cross-section

data, underlines the importance of competing uses of a mother's time between home and market production, and how fixed costs associated with such production can be reduced through out-firm work arrangements. Similarly, the presence of out-firm work leads a woman to have more children, quantity-wise. This parallel effect emphasizes the fact that decisions regarding fertility and work choices are made jointly. In this respect, it is important to note that policies which aim at manipulating work patterns of women will at the same time affect their fertility behaviour. For example, attempts to bring women in to the labour force by providing child-care services or making provisions for out-firm arrangements may lead to a higher birth rate, if such policies are perceived to be permanent.

In the case of Hong Kong, the growth of out-firm workers was not a result of conscious government policy but an autonomous development of the international demand (or derived demand) for such services. By the early 80s such demand had declined considerably. It is not clear whether the demand for out-firm workers during this period has been perceived as a sufficiently permanent effect so that family fertility decisions have been irreversibly altered; the extent of effect would also depend upon future demand for out-firm work.

APPENDIX

Variable Name	Definition
CHD:0-3	Number of children aged 0 to 3 living in the same household.
CHD:4-6	Number of children aged 4 to 6 living in the same household.
CHD:7-12	Number of children aged 7 to 12 living in the same household.
CHD:>12	Number of children aged greater than 12 living in the same household.
CHD:F>M	Excess number of female children over male children.
CHD:M>F	Excess number of male children over female children.
CHD:DEAD	Number of children who are dead at time of interview.
CHD:TWIN	Number of children who were born as twins.
CHDLIVE	Number of children who are living at time of interview.
CHDEDUC	Index of education level attained by children living in the same household. ¹
FAGE	Wife's age in years.
FED	Wife's schooling in years.
FLINC	Predicted log earnings of wife. ²
FMYR	Number of years wife has been married.
MAGE	Husband's age in years.
MED	Husband's schooling in years.
MLINC	Husband's log earnings.
PR/INWK	Predicted probability wife is an in-firm worker. ³
PR/OUTWK	Predicted probability wife is an out-firm worker. ⁴
SUBHOME	Family living in government subsidized housing.
OWNHOME	Family living in owner occupied housing.

¹CHDEDUC is defined as follows:

$$\frac{1}{N} \sum_{i=1}^N \frac{s_{it}}{s_t}$$

where N = number of children aged 6 or above, s_{it} = schooling attainment of child i aged t, and s_t = mean schooling attainment of all children aged t.

²This is predicted from a regression equation estimated on the sample of women who are in the labour force. The explanatory variables included years of schooling, years of schooling squared, years elapsed since the completion of schooling, years elapsed since the completion of schooling squared, dummy for being born locally, dummy for having acquired some form of training.

³This is predicted from the coefficients of the trinomial logistic model given in Table 4.

⁴Same as above.

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香港婦女對子女需求與工作選擇之分析

(中文摘要)

王于漸著

本文研究兩項相互影響的行為。婦女對子女的需求可分量與質，質方面包括不同的特徵，這裏著重子女的教育水平。在某一個程度上量與質是可以有交替性；因此，質與量間的比例是選擇的對象。由於撫育兒女極是耗費母親的時間，與外出工作很容易引起矛盾。市場生產力愈強的婦女爲了撫育子女所須作出的犧牲愈大，對子女的需求就愈少。在就業形式方面婦女有兩種不同的選擇：「到班工作」及「外發工作」。後者容許婦女在家中工作，無須上班，是參與勞動市場的折衷辦法，適合市場生產能力不高，但又要照顧幼齡兒童的母親來選擇。

研究資料採用香港1976年人口普查百分之一的抽樣本，包括所有20至59歲與丈夫同住的華人婦女，而丈夫必須是有工作的戶主，全部婦女4156人。

第一部分分析，求出各種不同解釋變數如何影響婦女選擇「到班工」與「外發工」的概率。計算時假設多項對數比率模型，估計方法採用極大似然準則。下表簡列主要結果：

	對選擇 到班工概率	對選擇 外發工概率
妻子受教育程度	?	+
妻子每月收入估計	+	-
0至3歲子女數目	-	-
4至6歲子女數目	-	?
7至12歲子女數目	?	+
12歲以上子女數目	?	?
丈夫每月收入估計	-	-

比較重要的發現有四點：(1)不同年齡的子女對母親選擇那一種工作有不同的影響，(2)母親的市場生產力(即收入)高，則多選擇到班工，而少選擇外發工，(3)母親家中生產力(即受教育程度)高，則多選擇外發工，及(4)父親收入高，則母親多退出勞動市場，即在家工作。

第二部分析，求取不同解釋變數，如何影響婦女對子女的需求數量與質素。採用二段最小平方估計法來計算聯立方程模型。下表簡列主要結果：

	<u>對子女數量</u>	<u>對子女教育</u>
妻子教育程度		+
妻子每月收入估計		-
選擇到班工概率估計	-	
選擇外發工概率估計	+	
丈夫每月收入估計	+	+
子女數量估計		-
子女教育程度估計	-	

值得重視的四點：(1)子女數量愈多，平均教育水平愈少，(2)母親市場生產力(即收入)高，則子女教育程度低，若選擇到班工概率高，則子女數目少，(3)母親家中生產力(即教育程度)高，則子女平均教育程度高，若選擇外發工概率高，則子女數目多，及(4)父親收入高對子女質與量的需求均有增加。