

is interpreted to mean that the "discouraged worker" effect is dominant.^{14/} Two comments may be raised at this point. First, hardly any study has estimated and compared the labor supply effects on families with subsistence income or less vis-a-vis those with more. Second, most studies on the effect of unemployment, especially those on LDCs, do not control for household migration, which, as we shall discuss later, could have a negative influence on wife's employment. It seems, for instance, that, cross-sectionally, there is a positive correlation between regional unemployment rates and migration in the Philippines and there are reasons to believe why this might also be true in other developing countries. The question, therefore, is, might it not be that the unemployment variable is capturing not only the "discouraged worker" effect but also the "migration effect"? Furthermore, for cross-section studies that do not control for household residence, might it not be also that regional unemployment rate is picking up the effects of urban location, to the extent that a higher rate of unemployment is associated with urbanization, which might in turn be

^{14/} See Mincer (1966) for a review of evidence. For recent reports of a negative unemployment effect, see King (1978), Finegan (1975), Wachter (1972), Nerlove and Schultz (1970), Encarnacion (1975), Farooq (1975), and Mangahas and Jayme-Ho (1976). In contrast to the last two studies being cited, Harman (1970), who also used data from the 1968 National Demographic Survey of the Philippines, concludes that the "additional worker" effect appears to be predominant. The fact that Harman controlled for migration, while the others did not might be the reason for the difference. Furthermore, Fleisher and Rhodes (1976), using a 2SLS estimated model, in which labor force participation and unemployment rates are simultaneously determined, found no evidence that the coefficients of unemployment rate in the structural labor force equations are negative and statistically significant.

negatively correlated with wife's participation?^{15/}

Formal models of labor supply usually assume that the type of job opportunities available in the labor market allows for a continuous range of choices of the quantity of labor to be supplied. Noting that this simplifying assumption is contrary to facts, King (1978) has advanced the hypothesis "that a frequently ignored cause of the increased participation rates of women may have been the greater variability in working hours accompanying the transformation of the United States into a service economy" (p. 104). His cross-section estimates strongly support the idea that the structure of labor demand has an important influence on women's labor supply decisions. Specifically, it supports the hypothesis that greater flexibility in the hours of work allows more women to participate in the labor market because it enables them to balance more easily the demand of market work against the duties that familial division of labor usually assign to women, especially mothers.]

In LDCs labor demand appears to be more structured in the urban than in the rural areas. Working hours in the urban sector are less flexible and work is done usually outside the home, making it difficult for urban

^{15/}.

The data we are using in this study reveal the following simple correlations (for the meaning of the notations, see Table 1 p. 23):

	LOC	MIGRR	MIGRU	MIGUR	MIGUU	NONMIGU
RUN	.458	-.078	.156	-.046	.284	-.030

For a discussion of the relationship between urban unemployment and migration in developing countries, see Todaro (1969).

wives to combine market and nonmarket activities. Therefore, ceteris paribus, the urban wives' probability of working in the labor market is likely to be lower than their rural counterparts. (Another way of looking at it is that the search cost of women who want to work only part-time and, perhaps, in a place closer to home is higher in the urban area.) In addition to this, their entry wage might be higher to the extent that, domestic helpers being more expensive in the urban market, households tend to substitute housewife's time for helper's services, wives' wage rates being equal. But female wage rate is higher in the urban labor market. In the context of Gronau's model, this would imply more participation. Consequently, two conflicting effects are associated with urban-rural location, and which one is stronger is a matter for empirical verification. In contrast, if the subsistence hypothesis is correct, we should definitely expect the effect of urban location to be negative on subsistence households inasmuch as a high female wage rate tends to have a negative influence on wives' labor force participation. Therefore, we conjecture on the basis of the subsistence hypothesis that, while urban location might have a negative, positive or insignificant net effect on households with incomes above subsistence level, its impact on families with lower incomes is expected to be negative.

Reports on the correlation between urban location and women's labor force participation are mixed.^{16/} Unfortunately, they did not examine the effect of location on wives' employment among households with incomes below subsistence vis-a-vis those above. In addition, some of these studies are simple comparisons of urban versus rural labor force participation rates; and, while many of them employ multivariate regression analysis, they generally fail to account for the possible confounding effect of household migration status.

To have a clearer idea of the impact of urbanization and the rate of unemployment, as well as a better understanding of the factors that impinge on wife's labor supply decision, it is useful to examine the influence of migration on her market work.

Macisco, Bouvier, and Weller (1970) have noted that "traditionally it has been assumed that, because people move for economic reasons, mig-

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Noting the argument that urban women are less likely to participate in the labor force than rural women because the former are confronted with job opportunities that are less flexible, Durand (1975) reports that:

there is no such general rule of lower activity rates in urban than in rural populations. Among the forty-one countries for which rural and urban data were obtained, female standardized activity rates are higher in the urban population in twenty-one countries and higher in the rural in sixteen countries (p.33).

Furthermore, he finds urban and rural differences to be insubstantial. The regression estimates of Encarnacion (1975) and Mangahas and Jayme-Ho (1976) show urban residence to have a significant negative effect, while those of Canlas (1978) reveal that it is insignificant. Farooq (1975) also reports the effect of urbanization to be negative.

rants should be more likely than nonmigrants to be in the labor force" (p. 56). Reinforcing this expectation is the hypothesis that since migration appears to be selective of persons who have higher levels of aspirations and are more enterprising and productive, they are therefore more likely to be in the labor force than nonmigrants.^{17/} In a study of San Juan, Puerto Rico, they found a positive correlation between migration and female labor force participation, a finding which supports earlier studies in Santiago, Chile, and Bombay, India.

Another view is that any geographical movement appears to be unfavorable to the wife's continued participation in the labor market. And the greater the distance moved (at least up to a point), the greater is the likelihood of her dropping out of market work (Long 1978; Miller 1966). The explanation for this, which has been usually advanced, is that family migration decision is generally made by the husband with little consideration of the wife's job. Since the man's job is deemed more important, it is traditionally expected that the wife must follow the

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That migration is a selective process is generally agreed upon. It would appear that those who migrate are relatively younger and more educated and, hence, more productive. Li (1976) for example, found that most migrants in Taiwan are in demographic brackets associated with high productivity compared to nonmigrants. Schultz (1976) supports the idea that migration is selective of the better educated. Hendershot (1971) suggests that rural-urban migration in the Philippines is especially selective of persons with high mobility aspirations and potential. [In a recent study of the 1973 Philippine National Demographic Survey data, Pernia (1978) finds the probability of migration to be negatively and positively correlated with age and educational attainment, respectively.]

husband even if it means quitting her job. In this regard, it is argued that husband's migration interferes substantially with the formulation and achievement of clear occupation goals among women. As Keller (1972) has repeatedly emphasized, women confront problems in employment which affect job continuity and the most common of these is the tradition of having the wife follow the husband's job transfers.

[In a model of family migration, Sandell (1977) has argued that wife's job is taken into account in the household's decision to migrate as evidenced by the fact that the probability of family migration is less when the wife is working.) Still, since the foremost consideration of the couple is the welfare of the family as a whole, household migration may still occur even if it means that the wife will have to stop working (at least temporarily).] The only condition is that the household gains more than it loses (including incomes foregone by the wife) from migration.) As a consequence of migration, the family is confronted with a new set of conditions. Because a new household has to be set up, the value of the wife's nonmarket time would initially increase. Her entry wage would rise and, hence, induce her to quit the labor market, at least temporarily. A related point is that there are costs to job switching and flexible hours are usually needed for optimal job search. Consequently, newly arrived migrant wives might not immediately accept job offers, many of which may be low paying, in order to be able to search the labor market more extensively.

Empirical Analysis

Let $P(LPW_i = 1)$ be the probability that a married woman i is employed and assume that

$$\text{eq.1} \quad P(LPW_i = 1) = \frac{1}{1 + e^{-\sum_j \gamma_j X_{ij} + \epsilon_i}}$$

where X_{ij} ($j = 1, 2, \dots, n$) is an explanatory variable, γ_j its coefficient, and ϵ_i an error term. This logistic probability function may be transformed into

$$\text{eq.2} \quad Z_i = \sum_j \gamma_j X_{ij} + \epsilon_i$$

where $Z_i = \log \left[\frac{P(LPW_i = 1)}{1 - P(LPW_i = 1)} \right]$ is the log of the odds that a particular wife is working.

Following Nerlove and Press (1973), we estimate specifically eq.3 to test the hypotheses discussed in the previous section.

$$\begin{aligned}
 \text{eq.3} \quad Z_i = & \alpha_0 + \sum_{k=2}^5 \alpha_k \text{AGE}_{ki} + \alpha_6 \text{FYHN} + \alpha_7 \text{FYHX} + \alpha_8 \text{EWN} \\
 & + \alpha_9 \text{EWX} + \alpha_{10} \text{DM}_i + \alpha_{11} \text{RUN}_i + \alpha_{12} \text{MIGRR}_i + \alpha_{13} \text{MIGRU}_i \\
 & + \alpha_{14} \text{MIGUR}_i + \alpha_{15} \text{MGUU}_i + \alpha_{16} \text{NONMIGU}_i + \epsilon_i
 \end{aligned}$$

For the meaning of the notations, see Table 1. The threshold value of income (FY*) and education (EW*) are taken to be 2.5 and 1.5, respectively. The threshold income, which is based on Encarnacion's study of the 1968 National Demographic Survey (NDS) data adjusted for price changes between 1968 and 1973, is approximately the annual wage income of a worker earning a daily minimum wage and working 250 days. To test for differential effects of unemployment, duration of marriage, location of residence and migration on wife's labor supply behavior below and above the threshold income, we divide the households into two groups. One group consists of families with $\text{FYH} < \text{FY}^*$ while the other is composed of those with $\text{FYH} \geq \text{FY}^*$. Dropping the third and fourth terms of eq.3 and substituting with FYH we estimate for each group

$$\begin{aligned}
 \text{eq.4} \quad Z_i = & \beta_0 + \sum_{k=2}^5 \beta_k \text{AGE}_{ki} + \beta_6 \text{FYH}_i + \beta_7 \text{EWN} + \beta_8 \text{EWX} + \beta_9 \text{DM}_i \\
 & + \beta_{10} \text{RUN}_i + \beta_{11} \text{MIGRR}_i + \beta_{12} \text{MIGRU}_i + \beta_{13} \text{MIGUR}_i \\
 & + \beta_{14} \text{MIGUU}_i + \beta_{15} \text{NONMIGU}_i + \epsilon_i
 \end{aligned}$$

TABLE 1. LIST OF VARIABLES AND NOTATIONS

AGE_k	= 1 if the wife belongs to cohort k (zero, otherwise). k is coded as 4 = age 15-19; 5 = 20-24; 6 = 25-29; 7 = age 30-34; 8 = age 35-39; and 9 = age 40-44
EW	= the educational level of the wife coded as : 0 = no schooling; 1 = 1 to 4 years and 2 = 5 to 7 years of grade school; 3 = 1 to 3 years of high school; 4 = high school graduate; 5 = 1 to 3 years of college; 6 = college graduate
EW*	= threshold level of education (taken to be 1.5)
EWN	= $\min(0, EW - EW^*)$
EWX	= $\max(0, EW - EW^*)$
DM	= duration of marriage (in years)
FY*	= threshold level of family income (taken to be 2.5)
FYH	= annual income of the husband (in thousand pesos)
FYHN	= $\min(0, FYH - FY^*)$
FYHX	= $\max(0, FYH - FY^*)$
LOC	= 1 if current residence is urban; zero, otherwise
LFW	= 1 if the wife is employed; zero, otherwise

Table 1 (cont'd)

MIGpc	= 1 if the household's current residence is another area c and its previous location is another area p (zero, otherwise). c and p are coded as U = urban and R = rural
NONMIGU	= 1 if the household is urban and nonmigrant (zero, otherwise)
NONMIGR	= 1 if the household is rural and nonmigrant (zero, otherwise)
P(LPW = 1)	= the probability that the wife is employed
RUN	= regional unemployment rate
Z	= $\log \left[\frac{P(LPW = 1)}{1 - P(LPW = 1)} \right]$

In the above equation, note that, of the six dummy variables indicating present and previous residence of the household, NONMIGR does not appear. Therefore, β_j ($j = 11, 12, \dots, 15$) measures the difference in Z between a rural nonmigrant and a wife belonging to any of the five other types of households. β_{15} , for instance, is the difference between rural and urban nonmigrants while β_{14} is the difference between a rural nonmigrant and an urban-to-urban migrant. $\beta_{11}, \beta_{13} < 0$ would suggest a negative rural-to-rural and urban-to-rural migration status effect, while $\beta_{12}, \beta_{14} > \beta_{15}$ would indicate a negative rural-to-urban and urban-to-urban migration status effect, respectively. The marginal effect of education is captured by β_7 and β_8 for women with EW below and above EW*, respectively. The coefficients in eq. 3 have similar interpretations.

Table 2 presents logit equations estimated from a sample of 2,313 households drawn from the 1973 National Demographic Survey (NDS).^{18/} Our sample is limited to single family households consisting of a couple and any unmarried children living with them, possibly including unmarried relatives but excluding parents or grandparents of either

^{18/}

The 1973 National Demographic Survey (NDS) was conducted in May 1973 by the University of the Philippines Population Institute (UPPI) in collaboration with the National Census and Statistics Office (NCSO). It involved a nationwide representative sample of 8,434 households.

TABLE 2. LOGIT EQUATIONS OF THE LIKELIHOOD OF
WIFE'S EMPLOYMENT: 1973 NDS*

Dependent Variable: Z

SAMPLE	ALL (N = 2313)	FYH < FY* (N = 1818)	FYH > FY* (N = 495)
REGRESSION No.	2.1	2.2	2.3
CONSTANT	-1.5780 (12.96)	-1.3412 (9.72)	-1.9392 (5.64)
MIGRR	-0.1594 (1.62)	-0.1579 (1.44)	-0.2134 (0.90)
MIGRU	-0.2845 ^a (3.09)	-0.1871 ^c (1.82)	-0.5868 ^a (2.75)
MIGUR	-0.3118 ^b (2.41)	-0.3729 ^b (2.38)	-0.1805 (0.69)
MIGUU	-0.4357 ^a (3.44)	-0.4651 ^a (2.75)	-0.5197 ^b (2.27)
NONMIGU	-0.2649 ^a (3.01)	-0.2496 ^b (2.53)	-0.3605 ^c (1.72)
DM	0.0130 ^c (1.79)	0.0219 ^b (2.40)	0.0017 (0.11)
RUN	0.1228 (0.95)	0.3132 ^b (1.96)	-0.0912 (0.37)
FYHN	-0.1017 ^a (2.57)	-0.1107 ^b (2.48)	
FYHX	0.0004 (0.02)		0.0039 (0.15)
EWN	-0.3470 ^a (4.68)	-0.3365 ^a (4.11)	-0.3648 ^b (1.94)
EWX	0.2786 ^a (10.50)	0.2179 ^a (6.39)	0.3819 ^a (7.56)
CW6	0.3274 ^a (3.32)	0.2439 ^b (2.27)	0.7279 ^b (2.41)
CW7	0.3120 ^a (2.88)	0.1651 (1.35)	0.8516 ^a (2.75)
CW8	0.3834 ^a (3.14)	0.2703 ^c (1.91)	0.7709 ^b (2.34)
CW9	0.4054 ^a (2.59)	0.1808 (0.97)	1.0576 ^a (2.71)
Iterations	14	12	13

*These are Maximum Likelihood estimates. "Iterations" refer to the number of iterations required to reach convergence. The figures in parentheses are the asymptotic t-ratios of the regression coefficients. Superscripts a, b and c denote asymptotic significance at 1%, 5% and 10% level, respectively. Due to budget constraint, the authors were unable to compute for the likelihood ratio test.

spouse. The wife was married only once with husband present and was 45 years old at the time of the survey. These are also households whose records are complete with regards to the variables used in this study.

(An examination of the equation for all households shows that regional unemployment rate has no effect and that duration of marriage has a positive but barely significant influence.) The two other equations, however, clearly reveal that the influence of these variables is positive and highly significant for families with $FYH < FY^*$, and, interestingly, their effects are insignificant on others. These results are consistent with the implications of the subsistence hypothesis regarding the effects of duration of marriage and level of unemployment.

We also find the coefficient of husband's income to be significantly negative below FY^* but not above it. The aggregate regression equation confirms the existence of an education threshold below (above) which the marginal effect of EW is negative (positive). It is interesting to note that this threshold is found for both income groups. In the case of families with $FYH > FY^*$, the existence of an education threshold is consistent with our earlier discussion regarding its effects on the wives' entry wage and potential earnings. A reason for the apparent existence of a similar threshold education among households with

FYH < FY* is that the income data of the National Demographic Surveys, particularly the 1973 NDS, are underestimated.^{19/} Hence, families which in reality have FYH > FY* are erroneously included in the group of households with FYH < FY* and they are likely to be those with educational attainment above elementary level. Another possible interpretation is that a strong subsistence-orientation holds among families with FYH < FY* only when their educational level is also quite low.

The estimated logit equation for all households shows α_{13} , α_{15} and α_{16} to be negative suggesting that urban location tends to reduce wife's labor force participation. Since α_{13} , $\alpha_{15} < \alpha_{16}$ and $\alpha_{14} > 0$, it would appear that rural-to-urban, urban-to-urban and urban-to-rural migrations lower the wife's employment probability. Interestingly, rural-to-rural migration does not appear to have any influence. The equations estimated for the two groups of households show somewhat different results. For families with FYH > FY*, urban-to-rural migration does not appear to have a significant effect and the coefficient of NONMIGU is barely significant at 10% level. In contrast, their negative effects are highly significant on lower income families. Furthermore, it would appear that for these families rural-to-urban migrants have a slightly

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The underestimation of income in-kind as well as cash earnings is due to problems of recall. The 1973 NDS does not have detailed questions on income by source.

higher employment probability than urban nonmigrants. Among higher income families, however, rural-to-urban migration has a substantial negative impact on wives' employment. In both groups, the effect of rural-to-rural migration is negligible, while that of urban-to-urban migration is negative and substantial.

Finally, an examination of the coefficients of the age cohort dummy variables suggests that wives' labor force participation has two peaks. We will not attempt to explain this phenomenon here. We would only like to note that this pattern has been observed in many other countries as well (Durand 1975).

Tables 3.1 - 3.3 show wife's employment probability functions estimated by OLS. The dependent variable is a dummy (1 if the wife is employed, zero otherwise). The independent variables of equations 3.1.1, 3.2.1 and 3.3.1 are the same as those of the logit equations 2.1, 2.2, and 2.3, respectively. We note that as far as the sign and significance of the coefficients are concerned the results obtained by OLS and logit analysis are similar except in the aggregate equation where the OLS estimated coefficient of MIGRR appears significant at 10% level. Consequently, given our research budget and the cost of logit analysis, we make use of OLS estimates to examine what happens to the coefficient of regional unemployment rate (RUN) if the dummy variables indicating current and previous residence are not included. We note that the coefficient of

TABLE 3.1. WIFE'S EMPLOYMENT PROBABILITY
FUNCTIONS: OLS ESTIMATES*

(ALL: N = 2313)

Dependent Variable: LFW

REGRESSION No.	3.1.1	3.1.2	3.1.3
CONSTANT	-0.0211	-0.0486	-0.0498
MIGRR	-0.0417 ^c (1.68)		
MIGRU	-0.0717 ^a (3.11)		
MIGUR	-0.0758 ^b (2.52)		
MIGUU	-0.1163 ^a (3.62)		
NONMIGU	-0.0650 ^a (2.98)		
DM	0.0036 ^c (1.79)	0.0039 ^c (1.92)	0.0037 ^c (1.85)
RJN	0.0299 (0.89)	-0.0007 (0.02)	0.0115 (0.33)
FYHN	-0.0272 ^a (2.61)	-0.0329 ^a (3.18)	-0.0323 ^a (3.12)
FYHX	0.0009 (0.17)	0.0015 (0.26)	0.0016 (0.28)
EWN	-0.1071 ^a (5.09)	-0.1106 ^a (5.26)	-0.1101 ^a (5.24)
EWX	0.0891 ^a (11.59)	0.0824 ^a (10.93)	0.0840 ^a (10.83)
CW6	0.0660 ^a (2.95)	0.0616 ^a (2.75)	0.0622 ^a (2.78)
CW7	0.0609 ^b (2.39)	0.0558 ^b (2.19)	0.0573 ^b (2.24)
CW8	0.0833 ^a (2.70)	0.0786 ^b (2.54)	0.0801 ^a (2.59)
CW9	0.0965 ^b (2.29)	0.0901 ^b (2.13)	0.0918 ^b (2.17)
LOC			-0.0172 (0.87)
R ²	0.0748	0.0680	0.0679
F	13.4523	17.8593	16.3036

*The numbers in parentheses are the t-ratios of the regression coefficients; Superscripts a, b and c denote significance at 1%, 5% and 10% level, respectively.