

Labour force participation of married women in China and Congo

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Abstract: The goal of this investigation was to find the major determinants of married women participation in the urban area labour force in Zhejiang (China) and Brazzaville (Congo). The methodology used in this study is correct and the resulting conclusion is that the participation of married women basically depends on her personal and family characteristics. Age, education, presence of additional adult in the family are important factors in Brazzaville and Zhejiang. However, the number of children significantly affects only Brazzaville urban married women.

Key words: Married women, Labour force participation, Zhejiang, Brazzaville

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INTRODUCTION

In both China and the Congo, perhaps the most striking change in the labour market over the past 50 years has been the growth of female labour force participation and the subsequent consolidation of their position at work. Of course, women have always worked. Only, throughout the twentieth century women's work has increasingly meant participation in the paid labor force in addition to housework production.

Women in large numbers have joined the paid labour force. In China and the Congo for example, the period since 1980 has witnessed increasing participation of women in general and married women in particular in respectable paid employment. The labour force participation rate of women increased from 42% in 1980 to 44% in 2000 in the Congo and 43% in 1980 to 45% in 2000 in China (World Bank Group, 2002).

According to labour economists, the future growth in total labour supply to the market place will come from an increase in labour force participation of married women (Ribar, 1995). Literature reported

that the participation rate of women (especially married women) is currently increasing, and that increasing education and falling birth rates could be two of the causes of this trend (Fallon and Verry, 1988).

We use the examples of two urban areas (Brazzaville and Zhejiang) of two countries (the Congo and China) to consider potential disparities in the labour market behaviour of married women in these two developing countries.

China is, in the developing world, one of the countries with highest participation rates for married women and also has one of the lowest fertility rates (due in large part to government policy and a strong family planning program).

From 1970 fertility declined rapidly in China to an average of about 2.5 children per woman in 1980 and, after a period of significant fluctuations in the 1980's, went below the replacement level in 1990 with 1.84 children per woman (Peng and Guo, 2000).

The Chinese government initiated the one-child policy. However, the Congo is a country with high fertility rate of 3.65 children per woman in 1990, 6 in 2003 (World Development Indicators database).

In the Congo the conflict between work and family life is more severe because the labour market does not offer much flexibility.

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The relative proportion of women to men participating in the paid labour force is consistently smaller in the Congo than it is in China. With the opening of China in 1978, the paid labor force participation rates of Chinese women increased. Women's participation in the paid labour force in China is high by international standards, and has increased during the reforms from 42.9% to 45.2% in 2002.

The goal of this study was to find the major determinants of married women's participation in the urban area in Zhejiang and Brazzaville.

We test the logit model by asking whether women's decisions to seek paid employment depend on the standard variables affecting the employment decision.

METHODOLOGY

Data and variables

This paper draws on data from the personal survey of 1000 married women (500 women in Zhejiang Province urban area and 500 women in Brazzaville), conducted between August and October 2003. In the survey, data on personal characteristics (age, training, education), wages, labour situation, family income from sources other than the woman, number of children was extracted. Information on her husband or tutor was also extracted (wages, level of studies, whether the husband participates in the labour market or not) and analyzed.

The data sample used in the empirical analysis was restricted to married women aged 18 to 61 years in Brazzaville (the Congo) and Zhejiang (China), doing paid work, temporarily unable to work or looking for job during the period studied.

Variables

A number of potential variables for inclusion in the logistic regression are identified on the basis of results of the chi-squared tests and also on the basis of theoretical models, which explain women's participation in the labour force.

1. Dependent variables

The dependent variables for the analysis are PARTW (a dichotomous variable which takes the value 1 when the married woman is working and 0

otherwise) and women earning (a continuous variable).

2. Independent variables

(1) Respondents' characteristics

The individual characteristics of the married woman are measured by way of three variables: age (a continuous variable), training (a dichotomous variable which takes the value 1 if the married woman received training and 0 otherwise) and education (a dichotomous variable which takes the value 1 for 10+ years of education and 0 otherwise). Since education in Zhejiang and Brazzaville is widespread and a considerable proportion of women have secondary schooling, we preferred such a dichotomous measure for education instead of number of years of education.

(2) Family characteristics

The family characteristics include four variables: husband income (a continuous variable), children (set to equal 1 if the woman has children and 0 otherwise), husband work pattern (dummy variable which takes the value 1 if a man participates in the labour market and 0 otherwise), presence of other adult in the household PAF (a dummy variable which takes 1 if there is additional adult in the household and 0 otherwise).

(3) Model of logistic regression

Logistic model was used to estimate the labour participation equations for married women.

For the logistic model with more than one independent variable, the model can be written as

Prob. [a married woman is in the workforce]:

$$P[y=1] = \frac{e^Z}{1+e^Z}$$

An equivalent form is: $\frac{e^Z}{1+e^Z} = \frac{1}{1+e^{-Z}}$.

where Z is a linear function of the explanatory variables. If X_1, X_2, \dots, X_k are the respondent characteristics and their family characteristics, then "Z" equation is as follows:

$$Z = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_k X_k$$

X_i is i th explanatory variable ($i=1, 2, \dots, k$); β_i are parameters of the model ($i=0, 1, 2, \dots, k$).

Under this model, the probability that a female with a given set of characteristics is not in the work-

force is given by

$$P[y=0]=1-P[y=1]=\frac{e^{-z}}{1+e^{-z}}=\frac{1}{1+e^{-z}}$$

Heckman (1976)'s estimation method was used to obtain unbiased and consistent estimates of the coefficients of the explanatory variables in the wage function as follows.

In the first stage, the probability that an individual will participate in the labour market determined according to logistic regression in which personal and family characteristics serve as the regressors, is estimated. From the logistic regression results, a selection variable, the inverse Mills ratio term, is created. In the second stage, the wage equation is re-estimated including the Mills ratio as a regressor by the OLS to produce unbiased and consistent estimates of the coefficients. The estimated coefficients from the wage

equation are used to generate an imputed wage for each individual. The imputed wage is then entered into the structural participation function (as potential income), which is estimated by maximum likelihood techniques.

The SPSS statistical package was used to analyze the data.

Descriptive statistics

The descriptive statistics are given in Table 1.

In general, Zhejiang married women are slightly older; more likely to be formally married with fewer children; more likely to have other adults living in their home; have substantially high wages; their husband are more likely to participate in the labour market and have higher income than their Brazzaville counterparts.

The output of logistic regression from SPSS package is shown in Tables 2 and 3.

Table 1 Descriptive statistics

Variable	Zhejiang		Brazzaville	
	Mean	Std	Mean	Std
Age	37.00	9.827	36.98	9.854
Education	3.58	1.316	3.77	1.258
Training	1.42	0.495	1.44	0.508
Children	2.75	2.064	3.90	2.155
Husband work pattern	1.42	0.493	1.40	0.491
Presence of other adult in the household	1.44	0.497	1.41	0.492
Husband income	2.44	1.292	2.02	0.946
Women earning	2.07	1.035	1.93	1.110
PARTW	0.50	0.500	0.50	0.500
Number of observation	500		500	

Std means standard deviations

Table 2 Reduced model of participation

Variable	Zhejiang		Brazzaville	
	Estimate	Wald	Estimate	Wald
Constant	-4.719	43.899*	-5.092	48.951*
Age	0.049	23.151*	0.046	18.700*
Education	0.209	7.103*	0.246	8.869*
Training	0.633	11.015*	0.102	0.125
Children	0.078	2.712	0.333	45.746*
Husband work pattern	-0.175	0.764	-0.106	0.259
Presence of other adult in the household	0.857	19.198*	0.833	7.910*
Husband income	-0.004	0.001	-0.009	0.007
-2log likelihood	620.315		879.438	

Table 3 Structural model of participation

Variable	Zhejiang				Brazzaville			
	Wage		Participation		Wage		Participation	
	Estimate	t-value	Estimate	Wald	Estimate	t-value	Estimate	Wald
Constant	1.630	4.883*			2.089	7.780*		
Education	0.126	3.161*			0.237	3.337*		
Training	0.167	1.678**			0.094	0.096		
Lambda	-0.333	-1.939**			-0.478	-6.522*		
Age			0.038	12.765*			0.045	11.836*
Children			0.058	1.462			0.328	17.128*
Husband work pattern			-0.338	2.520			-0.105	0.250
Presence of other Adult in the household			0.709	11.452*			0.820	6.144*
Husband income			0.005	0.002			-0.009	0.006
Imputed wage			0.701	15.421*			0.064	20.008*
-2log likelihood			622.445				879.431	
Number of observation			500				500	

*: at the 5% level of significance; **: at the 10% level of significance

From the above structural model, in the case of the Congo, four independent variables in decreasing order of importance are obviously significant at 5% level of significance, namely: number of children, education, age and presence of additional adult in the family.

In the case of China, three are obviously significant at 5% level of significance, namely: age, education and presence of additional adult in the family. Training is significant at 10% level of significance.

The sign of the B-values (β) shows whether a variable has a positive or negative effect on employment. And B-values (β) show positive or a negative association between female employment status and each variable.

All of the coefficients are positive. It implies that for an increase in one unit of years of schooling, the log odds value will increase by 0.23 in Brazzaville case and 0.12 in Zhejiang. Similarly, the coefficients of number of children, training and presence of additional adult in the family can be interpreted in the same way.

Labour supply is an increasing function of age; ceteris paribus, an increase in age of one year involves a rise in the probability of taking part in the labour market of 0.038 in Zhejiang and 0.045 in Brazzaville.

There is a positive relationship between education of females and their probability of labour force participation. As many empirical studies have revealed,

better educational attainment of women not only leads to greater labour force participation but also increases their productivity.

The number of children seems to act differently in Zhejiang and in Brazzaville as a determinant of women's entry into the workforce. While in Brazzaville this variable is significant, in Zhejiang is not.

Contrary to what many studies found, that low fertility leads to increases in the female labour force participation (LFP) rate. In Zhejiang, with the policy of one-child initiated by the government, the presence of a child does not push women to participate in paid work. The insignificance of the presence of children can be explained by childcare.

In Brazzaville, having children does not constitute a limitation on women's working. On the contrary, a greater number of children may even serve to facilitate women's working, in that it is the children themselves who take charge of caring for the home and their younger siblings.

Besides, many couples would like to have a large family. This preference for having many children has been attributed mostly to traditional pro-natalist belief systems that stress the importance of the lineage and the economic advantages of children in terms of labor supply and support in old-age (Cameron and Cobb-Clark, 2001).

This difference in the result on the relation between women's employment and fertility can, how-

ever, be explained predominantly by the childcare strategy used in each developing country.

In Brazzaville, although the existence of the lack of state support for childcare, married women with children do not face a series of interrelated obstacles to entering the workforce thanks to family solidarity.

A positive coefficient of "PAF" indicates that presence of an additional adult in the family increases the chance of women being in the paid workforce. He or she can serve as alternative caregivers and can reduce the burden of domestic work, allowing a woman to work outside the home. The presence of an additional adult in this case means someone not in the paid labour force.

The Mills ratio (Λ) in the wage function is significant with a negative coefficient.

This means that certain unobserved factors of the decision to participate or the probability of participation such as attitude and commitment do affect the market wage of a married woman negatively.

CONCLUSION

In this research we analyzed labour participation equations for married women using the logistic regression model.

The results of the estimations carried out allow it to be concluded that: In the case of the Congo, four variables are in order of importance, obviously significant at 5% level of significance, namely: number

of children, education, age and presence of additional adult in the family.

In the case of China, three are obviously significant at 5% level of significance: age, education and presence of additional adult in the family while training is significant at 10%.

Age, education, presence of additional adult are important factors in Brazzaville and Zhejiang, however, number of children, only significantly affect Brazzaville urban married women entering into the labour force, and training has an impact in Zhejiang women.

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