Economic Modelling 37 (2014) 485–491

Contents lists available at ScienceDirect

Economic Modelling

journal homepage: www.elsevier.com/locate/ecmod

Factors that influence female labor force supply in China

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ARTICLE INFO

Article history:
Accepted 28 November 2013

Keywords:
Female labor force participation
Urban female
Rural female
Individual factors
Family factors

ABSTRACT

Using the China Health and Nutrition Survey (CHNS) database of the employment of married women in 2006, this paper analyzed the factors that influenced the labor force participation of female workers in urban and rural areas, from the perspectives of individuals and families. The Probit Regression suggested that factors associated with families were of more importance than individual factors and there existed large differences between urban and rural areas. For women from urban areas, individual factors played a more important role than those from rural areas, while family factors were more significant for those who came from rural areas. Thus labor market policies should consider the structural difference between urban and rural women.

1. Introduction

The rate of labor force participation of women is defined as the percentage of employed female workers of all the females who were above the eligible age for employment. Such rate is an important indicator of labor market. In most countries, the opportunity cost of female labor participation depends critically on housework: childcare or home production, so the female labor supply was responsive to the change of family factors, e.g. numbers of family members, husband income or childcare. Since many women did not participate into the labor force, employment policies could be adjusted so that in certain cases, women should be encouraged to participate into work to increase the national output.

Table 1 suggests that the rate of labor force participation of women in China has been relatively high in the world, even higher compared with both developed and developing countries. However, such rate has declined in recent years, from 69.9 in 2003 to 67.9 in 2010. In most cases, the participation rate of females would be "U" typed during economic development. In self-sufficient and agricultural dominated societies, where women seldom participate in economic activities outside families and get no payments, the labor participation rates are high and gender differences are low. Accordingly, in high income countries, participation rates of adult women surmount 2/3 and the average distance is less than 15%.

Now China is experiencing a stylized dual economic structure between urban and rural areas, in which there existed a huge increasing gap between urban and rural regions since the 1980s. By 2010, the ratio of individual average income between urban and the rural areas reached 3.23:1, which made China become one of most inequity countries in the world.[1] In addition, in spite of fast urbanization, the institutional arrangements which favored separated labor market between urban and rural areas inhibit the mobility and migration of labor forces. The most striking phenomenon could be revealed by the significant difference of welfare treatments with respect to registered permanent residence. Therefore, the income gap between migration workers and urban workers has been increasing (Chen and Lu, 2008).

Based on the huge gap between urban and rural areas, this paper investigated the factors that attribute to the variation of participation rate of females and how these factors function in both areas. The meaning of our research is that not only did the paper analyze the influential factors and mechanism of female labor participation, but also introduced the difference and comparison of such factors between urban and rural females due to the dual economic structure and inequity in China. Therefore, labor market policies should be made differently from those in developed countries.

The rest of the paper is organized as follows. Literature review was followed in the second section; the third section described the methodology used for empirical strategies, and introduced theoretical foundation of how influential individual factors (e.g. education and age) and family factors (e.g. childcare, husband employment and family-size) would affect the probability of female labor participation in rural and urban areas; and descriptive statistics, regression results and corresponding explanations were provided in the fourth section; and the final section concluded and proposed policy implications and perspectives of future research.

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[1] Sources: "China city development report-Livelihood", Vol(4), Institute for Urban and Environmental Studies Chinese Academy of Social Science, 2011.

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http://dx.doi.org/10.1016/j.econmod.2013.11.043

Table 1
Labor force participation rates of females in selected regions.

Year Regions	2003	2004	2005	2006	2007	2008	2009	2010
World	52.2	52.3	52.4	52.2	52	51.7	51.4	51.2
China	69.9	69.5	69.1	68.9	68.8	68.3	68.1	67.9
U.S.	58.8	58.2	58.3	58.4	58.3	58.4	58.1	57.5
Japan	48.4	48.3	48.4	48.4	48.6	48.5	48.7	49.5
EU	46.6	47.2	47.7	48.2	48.7	49.1	49.4	49.5
South Sahara	62.4	62.5	62.7	62.8	62.8	63	63	63

Sources: World Bank Database.

2. Literature review

There are typically two types of labor supply: along the intensive margin and extensive margin, in which the former refers to hours of work in response to net benefits (after tax wage and subsidies) while the latter concerns whether to participate into labor force in response to net benefits. Due to the limitation of Chinese micro-data, the following will focus on the extensive margin of labor supply, or participation decisions. The fundamental microeconomics indicates that hours of work decision would be derived from the maximization of individual utility when facing labor and leisure trade-offs, subject to certain constraints. However, certain groups of people may also drop out of labor force due to similar reasons, which often can be attributed to opportunity costs of job participation. Both labor supply along intensive margin and extensive margin is largely a result of substitution effects, rather than income effects, since a variety of empirical studies showed that income effects were comparatively small and concentrated primarily on people in top of income distribution as well as those who were self-employed.[2]

Women, especially single mothers were among the most people who had the strong inclination to drop out of labor forces (e.g. largely along extensive margin), together with low educated or skilled male workers. As mentioned by Costas and Phillips (2010), for women with high participation elasticities, education, childcare, age, husband income and taxation or transfer programs would contribute to the explanations of such high participation elasticity. Therefore, the importance of studying women's labor participation lie on the assumption that if they participate, there would be substantial economic growth since the corresponding participation rate was far less than that of men, and empirical results suggested that women were more responsive to extensive margin than intensive margin. Compared with men, although heterogeneous, the participation elasticities was 0.04 on average, and almost 0 and 0.23 for well-educated and low-educated, and 0.43 for married (Table 2).

Aaberge et al. (1999) found participation elasticities of women to be 0.65 using cross-section data from Italy. The results in UK were larger, 1.41, as suggested by Arrufat and Zabalza (1986). Pencavel (1998) conducted more comprehensive researches including different education levels of females and participation elasticities varied from 0.7 to 1.8. In more median income families, the response to participation of women was smaller, which equaled to 0.17 according to Devereux (2004), and low-income women tended to be more responsive along extensive margins.

Since many single mothers are eligible for certain welfare programs such as NIT (Negative Income Taxation) or EITC (Earned Income Tax Credit), a number of studies about female participation elasticity using taxation policies as explanatory variables in a difference-in-difference approach. From 1990 to 1996, in order to encourage more single mothers to enter the labor market, the U.S. ETIC program raised tax rates for their participation, but reduced hours of work at the same time. However, the latter did not happen since most single mothers were more responsive to extensive margin (Meyer, 2002). The participation of single mothers with only middle school diplomas raised by 22% due to the increase in work benefits, while hours or work changed a little from 1986 to 2000, for women whether with children or not. Such results coincided with Eissa (1995) and Eissa and Hoynes (2004), in which the former found a significant increase of women labor participation after tax reductions in 1986 while for the latter low educated women significantly dropped out of the labor force after an increase in tax rate in the EITC program. Similarly, Eissa and Liebman (1996) found a 1.16 of participation elasticity of single mothers after a reform of EITC. Such analysis stimulated theoretical models predicting optimal taxation or subsidy rates for low-income people, such as Saez (2002), who contributed a model for optimal transfer of the poor based on the Mirrlees Approach, which is the benchmark model of optimal taxation but ignored the extensive labor supply in assumptions.

Table 2
Education for rural females.

Education	None	Primary school	Junior middle school	Senor middle school(vocational school included)	University
Observations	109	433	595	137	4
Frequency	0.0853	0.3388	0.4656	0.1072	0.0031

Focusing on the relationship between labor participation rate and economic development, a number of researches introduced Kuznets Curve to labor forces of women (Goldin and Schultz, 1995; Schultz, 1990, etc.). In the early stage of development, the female participation rate was downward due to income effects as well as frequent discrimination towards women in industries besides agriculture. Some scholars tried to explain the reason why the rates in China used to be higher but continued to be declining. From macro-perspectives, the economic reformation and liberalization policies toward a market-oriented economy made labor participation decisions of women more rational. First, women were used to be forced by policies and then granted the rights to free choice and on the other, the labor demand still discriminated female workers (Ding, 2008; Pan, 2002). In addition, the structural factors stressed the coexistence of the declining participation rates and the increasing proportion of female university students (Yao and Tan, 2005). From the development economics point of view, the participation rates were lowered by increasing family income.

The employment of female should be seriously considered and because of the specific role women played in families, many researchers highlighted the family factors. Mincer (1962) was the first to conduct an empirical study about female participation in the U.S., concluding that the participation decision of married women was significantly affected not only by potential wage rates, but also by husband income, family structure and fertility. From cross-section evidence, Mincer (1962) found the negative correlation between female participation rates and husband income. By investigating the labor time allocation of U.S. females, Gronau (1977) pointed out that female participation would be influenced by her education background, non-labor income and husband income based on OLS regression. Khandker (1988) used the Tobit estimation and found the impact of husband education to female participation and housework to be significant and positive. Time allocation in Indian Metropolitan areas studied by Malathy (1994) suggested that the increasing income of husband made women tend to devote more time to housework.

Thus, family background should be considered into women labor supply decisions. There exists theoretical literature about collective labor supply models concerning factors within families. Chiappori (1992) stressed the importance of resource distribution among family members. And since transfer and subsidies affect women labor supply, Blundell et al. (2005) pointed out that mothers' marginal expenditure for children were larger than fathers', thus it was important to decide who should be the nominal acceptors of transfers. Meanwhile, the

[2] Recent related literature review can be seen in Blundell and MaCurdy, 1999; Blundell and Shephard, 2012; Meghir and Phillips, 2010