

**Childcare, Eldercare, and Labor Force Participation of Urban Women  
in China: 1982-2000**

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# **Childcare, Eldercare, and Labor Force Participation of Urban Women in China: 1982-2000**

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## **Abstract:**

We employ data from the three most recent Chinese population censuses to consider urban women's labor force participation decisions in the context of their families and their residential locations. We are particularly interested in how the presence in the household of preschool and school-age children and/or the elderly and disabled affects women's likelihood of engaging in work outside the home. We find that the presence of older women in the household significantly increases prime-age women's likelihood of participating in market work and that presence of pre-school age children significantly decreases it. Never married, divorced, and widowed women are all more likely to participate in the labor force than married women and the effect of marital status has increased quite substantially over time. Each of these effects is much larger in magnitude for migrant women than for non-migrant urban residents.

## **I Introduction**

In urban China's pre-reform labor system where the state guaranteed workers a job and expected all able-bodied individuals to work, women worked. In 1982, the labor force participation rate of prime-age urban women, that is, women living in urban areas between the ages of 25 and 50, was 87.5 percent.<sup>1</sup> (See Figure 1 for the break down by age groups.) The rate was so high that few researchers invested time in considering who was out of the labor force. It seemed likely to be a mix of those with physical disabilities and the luck of the draw, that is, there would be a large stochastic element associated with who was in or out of the labor force. Also, why bother using empirical models of labor force participation decision making when the labor market was centrally planned? New entrants to the labor market were typically assigned to state-run and collective-run enterprises and left there for life. But it turns out that we should have been estimating labor force participation equations all along.

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<sup>1</sup> Authors' calculations based on the 1percent micro sample of the Third National Population Census of China.

By the time of the Fifth National Population Census in 2000, the labor market in China had certainly changed. The state had, for the most part, withdrawn from the business of assigning workers to work units, employment was no longer guaranteed for life, lay-offs had become commonplace and unemployment was rising. Especially hard hit were prime-age women who were encouraged/forced to retire early when younger than the official retirement age of 50.<sup>2</sup> By 2000, the labor force participation rate of prime-age urban women had fallen to 76.2 percent. The decline from the 1982 rates occurred almost entirely in the ten years between 1990 and 2000.<sup>3</sup> Still, few labor economists were modeling women's labor force participation. (See Cai and Wang, 2005; Wang and Cai, 2004; and Yao and Tan, 2005 for notable exceptions.) While the situation had changed, it still did not seem as if the resulting lower labor force participation was a "choice" made by urban prime-age women. Most observers continued to assume that all women who were physically able and who could find a job were working.

But there were a few signs that that was not the whole story. Figure 2 shows the activity status of urban women aged 25 to 50, who were not in the labor force at each census year as a percent of total women in the age category. We observe that housekeeping is increasing across the three censuses with 16 percent of the urban non-migrant women in 2000 reporting housekeeping as the reason they were not in the labor force. The percentage of women reporting themselves as retired or resigned also increased between 1990 and 2000. During this period, income was rising rapidly among some urban households. These households were paying for expensive education for their children and buying new homes (and even second homes). Would they invest in a stay-at-home spouse to direct the educational activities of their child and to look after the growing numbers of aged? Maurer-Fazio, Hughes, and Zhang (2005, 2007) found both a decline in urban women's labor force participation (especially at older ages) and differentials in urban women's labor force participation by marital status with married women exhibiting

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<sup>2</sup> The retirement age of 50 applies to women who are "ordinary" workers. The retirement age for female cadres and those with advanced degrees is 55. The retirement age for men is 60.

<sup>3</sup> A similar steep decline in women's labor force participation occurred over the same period in the Central and East European economies undergoing transition from socialist to market economic systems. (See Pollert 2005.)

lower rates of labor force participation than unmarried women. Yao and Tan (2005) found that women's labor force participation declined with spousal income but concluded that spousal income was insufficient to explain the steep decline of Chinese women's labor force participation.

What are the determinants of Chinese urban women's labor force participation decisions and have these determinants changed over the period made visible by the three Censuses of 1982, 1990 and 2000? These are the main research questions we address in this paper. We consider women's labor force participation decisions primarily in the context of their families. We are particularly interested in how the presence in the household of preschool and school-age children and/or the elderly and disabled affects women's likelihood of engaging in work outside the home and in how China's substantial economic reform, changing demographic environment, and shifting expectations of gendered social roles have affected these determinants. In subsequent papers we will compare urban women's labor force participation with rural women's and compare urban prime-age women's rates to rates for older and younger cohorts as seen in Figure 1. In order to answer these questions we have pushed and pulled and tugged at the census data in order to be able to fully characterize the family circumstance of each prime-age urban woman and to make our categories compatible across census years.

In Section II, we discuss a number of the factors that affect women's participation in market work. We consider these factors in the context of China's changing economic and demographic environment. We then employ probit analysis to regress labor force participation on these factors and present our initial findings in Section III. We focus first on the experience of prime-age urban women in 2000. We next look for change over time by comparing the experience of women in 2000 to that of their counterparts in 1982 and 1990. Finally, we explore differences in the determinants of women's labor force participation for migrant and non-migrant urban residents.

## II. Determinants of Women's Labor Force Participation Rates in Urban China

The predominance of family-based eldercare in China in the context of rapid population aging implies that families will soon face a profoundly increased burden of elder care. In 2000, 20.1 percent of Chinese households had at least one member aged 65 or above and the percentage of elderly in the population is expected to rise from 7 percent (93 million) in 2000 to 15.7 percent (235 million) in 2030 and 22.7 percent (334 million) in 2050 (Zeng and Wang, 2003).

In China, both the tradition of filial piety<sup>4</sup> and the law<sup>5</sup> oblige adult children to care for elderly parents and in fact, the majority of elderly Chinese (those age 65 and above) live with their children.<sup>6</sup> Nationwide, the percentage of the elderly men and women living with their children remained almost constant between 1982 and 1990 at 68 percent and 74 percent, respectively but declined to 60 percent and 69 percent by 2000 (Zeng and Wang, Table 2). The decline between 1990 and 2000 is due to a noticeable decrease in the proportion of the young elderly (aged 65-79) who co-reside with their children (Zeng and Wang, Tables 3 & 4).

There is a great deal of heterogeneity in the experience of aging in contemporary China and the housing reform and subsequent boom in the availability of new residential housing<sup>7</sup> has enabled those with sufficient resources the possibility of independent living. Zhang (2008) documents a decline of family care and an increase in fee-based

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<sup>4</sup> Even though filial piety has been a very important element of Chinese society for thousands of years, it does not mean that care for the elderly comes about smoothly. In their study of the relationship between elderly parent health and the migration of adult children, Giles and Mu (2007) report that conflict among siblings over the care of the elderly was the third most important source of conflict in the 55 villages they surveyed. It was the first or second most important source of conflict in 11 of those villages. (See also Zhang 2005.)

<sup>5</sup> As Michael Palmer (1995) describes, both the Article 49 of the Constitution of 1982 and Article 15 of the 1980 Marriage Law require children who have come of age to support and assist their parents. Palmer also notes that Article 183 of the 1979 Criminal Law makes it an offense punishable for up to 5 years in prison for adult children to refuse to perform their duties to their parents.

<sup>6</sup> This phenomenon is not limited to the rural population; it also holds true for the urban population.

<sup>7</sup> The housing reforms, implemented nationally in the early 1990s, dramatically increased housing availability and ownership. Meng and Luo (2008) report that per capita residential floor space in urban China increased from 13.0 square meters in 1988 to 22.8 in 2002 and that residential housing sales increased over the same period from 255 million square meters to 2.2 billion square meters.

alternatives.<sup>8</sup> She reports that some urban elders perceive separate living as yielding convenience, freedom, and better control over their lives. Pension availability has contributed to an increase in independent living.<sup>9</sup>

Co-residence of parents and/or parents-in-law with adult children does not necessarily imply the need for eldercare. Indeed, co-resident older family members may be net providers of care in the household. Co-resident grandmothers may well be looking after pre-school or school-age children or may be doing the shopping and cooking that could facilitate younger women's employment outside the home.<sup>10</sup> It is the very old who are the most likely to need care and given the short length between generations the care of those over 80 would then fall on adult children in their 50s and 60s.<sup>11</sup> Given China's early retirement age, many of the women in their 50s are already retired.

Many other demographic changes that have coincided with the economic reform period must also be considered. The marked, post-1970, decline in fertility implies that those now entering middle age have fewer siblings than previous generations and fewer siblings implies fewer family members who can help share in the provision of eldercare. If women drop out of the labor force to care for the elderly or disabled parents or parents-in-law and consequently give up pension entitlements, they may find themselves quite disadvantaged as they age. While the burden of eldercare is likely to rise, the amount of time spent in childbearing and childrearing has fallen.

The near universal enforcement of the one-child policy in urban China implies that current mothers and grandmothers are likely to spend fewer years in childcare than

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<sup>8</sup> Among the urban elderly, 9.8 percent of male and 15.1 percent of female octogenarians live in nursing homes (Zeng et al, 2002).

<sup>9</sup> There is a big gender difference in the availability of pension support amongst oldest old in urban areas. 70 percent of male octogenarians reported pension income as their main source of financial support in comparison to 26 percent of the females (Zeng et al, 2002).

<sup>10</sup> Nor, for that matter, does co-residence necessarily imply financial transfers from adult children to elderly parents. Cai, Giles, and Meng (2006) suggest to the contrary, that there is a good chance that net transfers are flowing from parents to children. In their study of how well adult children insure urban parents against low retirement incomes, they find that children living apart from parents are more likely to have four-year college educations and be employed and less likely to be ill or in school than those who live with parents.

<sup>11</sup> The prevalence of disability increases rapidly with age in the elderly Chinese population, especially for those aged 80 and above (Zeng and Wang, 2003).

previous generations. However, mothers and grandmothers may devote substantially more time per child. It is even possible, given the reported quality/quantity tradeoff forced onto Chinese urban households, that the amount of time devoted to active childcare has increased.

Figure 3 shows the decline in the mean number of co-resident children across the three census years. Co-resident children are not a measure of total fertility since for many of the older women in the 25 to 50 age cohort, their children are grown and many will be living in separate households. Figure 4 shows the decline in the probability that there is at least one child living with urban women, particularly from 1990 to 2000. This is a function of the increasing mean age of the age cohort as well as the decline in fertility rates.

Over the course of the reforms, migrants from rural areas have flooded into urban areas. By 2000, rural migrant women constituted 13 percent of the women age 25-50 and 26 percent of the women age 16-24 in urban areas.<sup>12</sup> Migrants and urban residents face very different environments with regard to childcare and differ quite substantially in their patterns of fertility. Both of these factors are likely to affect migrant women's participation in market work.

Figures 2, 3 and 4 noted above separated out the experience of rural migrants to urban areas from the rest of the urban residents for census years 1990 and 2000.<sup>13</sup> From figures 3 and 4 we can see that rural migrants have fewer children in residence with them than both their urban and rural counterparts. However, Figures 5 and 6 show that the main reason for the lower incidence of migrant women's co-residence with children is not that their fertility is lower. Migrant women have more children than urban women and fewer than rural residents. However, about a third of the migrants' children have not accompanied their mothers to the urban areas. Figure 7 focuses on the women and

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<sup>12</sup> Authors' calculations based on the 0.095 percent micro sample of the 2000 Population Census.

<sup>13</sup> One needs to be a bit cautious here as the rules for enumerating migrants changed between the 1990 and 2000 Censuses. In 1990 migrants who had been in residence for one year or more were enumerated in the urban area. In 2000 there was more effort placed on enumerating the migrants in the urban areas and the residency length requirement was reduced to six months.

reveals that about a third of the migrant women in 2000 have at least one child elsewhere and about a quarter of the mothers have no co-resident child.

For each woman in the sample, we have created a set of indicator variables that characterize those with whom she co-resides, the age distribution of children in the household, her marital status as well as the standard demographics of education, age and ethnicity. When we first ran probit regressions on these household and individual variables along with a set of dummies for the province of residence we found very large differences among the provinces in base labor force participation rates. In order to explore the nature of these differences we created a set of contextual variables at the prefecture and provincial levels. These variables are intended to capture differences in labor market opportunities, the general health of the local economy, and differences in expectations about gender roles. The variables for provincial level per capita urban income and the growth rates of annual GDP over the previous five years were obtained from the Statistical Yearbooks and a compendium of GDP statistics released by the State Statistical Bureau. The prefectural variables were calculated from the Census data itself – the unemployment rate by aggregating unemployment information for all prefectural residents, the infant sex ratio for all infants in the prefecture, the difference in sex specific rates of illiteracy for all prefectural residents, and the percent of Muslims in the prefecture’s population. The latter three prefecture variables were created to get at differences in gender roles/ gender power across regions. As will be shown below, these contextual variables are significant predictors of prime-age urban women’s labor force participation. They do not eliminate all the provincial differences but they do reduce them a great deal. More importantly, the demographic effects, discussed below, proved to be extremely robust to the specification of the provincial and/or contextual variables.

In creating the co-residency and childcare variables, we wanted to capture the impact that other family members may have on the time use and income demands of prime-age women. Having an older person co-residing could mean that the prime-age women have additional care-giving responsibilities which would be expected to lower their labor force



participation rates.<sup>14</sup> Alternatively, older household members might help out with household chores and thus facilitate the labor force participation of prime-age women. In addition, older household members might contribute income to the household, reducing the income motivation of prime-age women to participate in market work, or alternatively, require expensive medical care and the increase the incentive for prime-age women to contribute earnings to the household. Thus, we hypothesize that co-residency with elderly household members will affect women's labor force participation but are unable to predict the direction of the net effect.

The presence of children in the household is normally included in labor force participation equations for women in Western economies. In these countries, women's labor force participation rates are much lower than the rates we observe in China and are strongly reduced by the presence of young children. We have characterized the household by the age of the youngest children and have divided children into preschoolers, aged 0 to 5, young school-age children, aged 6 to 12, who still need "watching" and delivering to and from school, older school-age children, aged 13 to 15, who are still in compulsory education, and those aged 16 to 17 whose school fees, if they are in school, are substantially higher. As with co-residency with elders, the presence of children may indicate increased demand for time leading to reduced labor force participation or increased demand for money income to cover school and other children-centric expenditures leading to increased labor force participation.

China's economic reforms and increased openness has widened the range of women's opportunities for paid employment as the economic structure shifted away from capital-intensive heavy industry towards labor-intensive light industry and commercial services. Economic growth and concomitant wage increases raise the opportunity cost of not working. However, the transition also created new obstacles for women's labor force participation. The state's retreat from its commitment to socialist ideology and enforcement of workplace protections for women coincided with a reemergence of

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<sup>14</sup> Liu and Dong (2008) find that caring for parents does not affect the labor force participation or labor supply of married women in urban China but that caring for parents-in-law negatively affects both of these measures.

traditional patriarchal values (Croll, 1995; Entwisle and Henderson, 2000). This retreat combined with growing pressure to reduce the size of the state-owned enterprise work force put pressure on women, especially older women, to leave the labor force and return to more subordinate roles. Increased workplace discipline and effort levels in some cases also made it more difficult for working women to cope with household responsibilities, thereby raising the costs of labor force participation, particularly for married women with young children.

At the household level, rising incomes of spouses and/or other household members can be viewed as an income effect for married women that would allow some individuals to withdraw from the labor force when their spouses' earnings met household income goals. Labor force participation of married women could decline as a result of this phenomenon. Such a trend, however, might be dampened by China's birth planning policies, implemented first as the *wan xi shao* policy (later births, longer intervals, fewer children) in 1971 and followed by the even more stringent "one-child" policy of 1979, which drastically reduced total fertility rates and affected the value of time spent in home production. The vast majority of Chinese women continue to marry and to raise children but they have far fewer children and are finished with childbearing and childrearing at earlier ages than their mothers and grandmothers.

Education is increasingly rewarded in the Chinese workplace (Maurer-Fazio 1999; Zhang et. al. 2005). We, thus, expect to observe a positive relationship between level of education and labor force participation. In addition, the number of slots in higher education has increased, leading to an increased average level of education among prime-age women. Illiteracy may also take on a different meaning over the three censuses as the level of primary school initiation has continued to rise during this period. (Connelly and Zheng, 2007) The current pool of illiterate urban workers may be more self-selected to mentally disabled persons.

The restructuring of the state-owned sector in the latter half of the 1990s led to the lay off of many millions of urban workers. Extended periods of lay off led, in turn, to withdrawal

from the labor force of some of these workers. This effect is commonly known as the discouraged worker effect. The layoffs appeared to fall disproportionately on women and older workers (Giles, Park, and Cai, 2006; Maurer-Fazio, 2006). It is difficult to tease out voluntary versus involuntary withdrawals from the labor market. It is our hope that comparing the determinants of labor force participation in 1982 which predates the majority of urban reforms, 1990 which is early on in the economic reform period when the market was still largely but not completely regulated and when rapid changes were leading to tremendous uncertainty about the future, and 2000 when a market-based labor market was much more firmly ensconced will allow us to argue that not all of the decrease in urban women's labor force participation between the census periods was of an involuntary nature.

Maurer-Fazio, Hughes, and Zhang (2007) explored whether China's reforms differentially affected the labor force participation of China's minority ethnic groups and the Han majority. They found a large difference and significantly lower participation rate between Muslim Hui women and Han women. Given the high degree of assimilation of the Hui into Han society (relative to other ethnic minority groups), they argue that it would be difficult to attribute this finding to discrimination. They believe this effect to be a robust cultural or religious difference that surfaced with the relaxation of state control over individuals' lives. We explore this issue further by controlling for those belonging to China's Muslim ethnic groups along with controlling for the percent of the prefecture of residence that are Muslim.

### **III. Results**

We estimate probit regressions on women's labor force participation, controlling for the factors discussed above. The census data identify individuals as members of households which are classified as either family or collective. The data indicate the individual's relationship to the head of household and we are able to use that information to match up the information of mothers to that of their co-resident children in at least 97.5 percent of all households in each of the three census years. We are unable to match mothers and

children in collective households and in a small number of particular forms of multi-generation extended family households and we have dropped such cases from the analysis. As previously indicated, for each woman in the sample, we have created a set of indicator variables that characterize those with whom she co-resides, the age distribution of children in the household, her marital status as well as the standard demographics of education, age and ethnicity and a number of contextual variables.

### **III.1. Prime-Age Urban Women in 2000**

Table 1 focuses on the results based on the 2000 census data-- the sample of women between the ages of 25 and 50, living in family households in urban areas. The means for each independent variable is presented in the last column of the table. Marginal effects are presented instead of coefficients to help facilitate interpretation. Table 1 reveals that all categories of the household and personal demographic variables included in the regressions are significant predictors of labor force participation.<sup>15</sup> We find that co-residency matters in ways that make sense but not necessarily in ways we expected. One of our main findings is that co-residency with older adults increases prime-age women's labor force participation rates. We had expected that the presence of older adults in the household might be becoming an increasing burden to prime-age women due to increasing life expectancy and also because, by the time of the 2000 Census, the choices of the urban elderly to live or not live with adult children were much less constrained by a shortage of housing than in earlier years. Given the easing of housing constraints, we thought there might be an increasing tendency for the particularly frail elderly to opt to co-reside with adult children. If so, we would expect prime-age women to experience an increased burden of care provision and thus be less likely to participate in market work. However, we find that living with an older woman (65 and above) increases the labor force participation of prime-age women by 4.6 percentage points and living with an older man (65 and above) increases their labor force participation by 2.1 percentage points.<sup>16</sup> It

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<sup>15</sup> Sample sizes are so large that we have chosen a level of significance of 1 percent as for our hypothesis testing.

<sup>16</sup> This positive effect of co-residence with the elderly continues to affect women's labor force participation in a significant, sizable, and positive manner even when we restrict the age of the elderly co-residents to those age 80 and above.

is interesting that the presence of older women increases labor force participation significantly more than the presence of older men. This suggests that the gain in labor force participation comes from the elders providing housekeeping tasks for the family.<sup>17</sup>

Living with relatively young older women, those aged 51-64, also increases prime-age women's labor force participation between 5.3 and 4.2 percentage points when interacted with the presence of pre-school and elementary-school age children in the household. In contrast, co-residing with a disabled person under age 65 reduces prime-age women's labor force participation by 6.9 percentage points and co-residing with children other than one's own children or wards reduces labor force participation by 2.4 percentage points. Here, the need for extra caregiving seems to dominate the labor force participation decision-making. Part of the latter effect, that is, of co-residing with children other than one's own children or wards is likely due to young grandmothers withdrawing from the labor force to care for their very young grandchild.<sup>18</sup>

The presence of young children in the household decreases urban women's labor force participation in China as it does in other economies. It lowers the labor force participation of prime-age women by 7 percentage points. This effect would be more pronounced in the U.S. but that is less interesting than the fact that young children have any negative effect on labor force participation in urban China. The presence of children age 6 to 12 does not appear to significantly affect the labor force participation of prime-age women in urban China, taken as a whole. However, the presence of older school-age children increases women's labor force participation. Women whose youngest child is 16 or 17 have labor force participation rates 3.2 percentage points greater than women with no children under 18 in the household.

Marital status significantly affects labor force participation. Married women are 7.1 percentage points less likely to be in the labor force than women who have never married.

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<sup>17</sup> Of course it also could be the case that because women live longer than men, the older women are older than the older men and more in need of expensive medical care.

<sup>18</sup> 40.8 percent of the prime-age women who lived in households with children other than their own were between the ages of 45 and 50.

They are 4.0 and 5.2 percentage points less likely to be in the labor force than widowed and divorced women, respectively.<sup>19</sup>

Education has a monotonically increasing effect on labor force participation. In comparison to women with junior high school educations, illiterate women are 2.2 percentage points less likely to be in the labor force while those with senior high school educations and post-secondary educations are 9.7 and 21.3 percentage points more likely, respectively.

Within the age range of 25-50, age has no significant effect on labor force participation until age 40. There is a moderate negative effect of 5.5 percentage points of age on labor force participation for women age 40-44 and a very large negative effect, 19.9 percentage points, for women age 45-50. This result, at least at first consideration, seems consistent with the notion that women are being forced into early retirement. It is, however, also consistent with the hypothesis that some women of this age group are “voluntarily” withdrawing from the labor force to provide care for their grandchildren.

The Muslim effect on labor force participation, 4.0 percentage points, is negative and significant but much more muted than the finding for Hui women reported by Maurer-Fazio, Hughes, and Zhang (2007). The prefectural contextual variables of unemployment rate, sex ratio of infants, and sex difference in rates of illiteracy have significant but extremely small effects. Similarly, the provincial-level variables of urban per capita income and the growth rate of GDP over the previous 5 years both affect women’s labor force participation in very muted ways.

Migrants constitute a significant share of the women in our urban sample. Eleven percent of the women in family households were rural migrants and a further 11.8 percent were urban migrants.<sup>20</sup> Women in urban areas who were classified as rural migrants were 11.1

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<sup>19</sup> The proportion of women aged 25-50 who has never married, 2.7 percent, is quite low, as is the proportion of women who are divorced, 1.9 percent.

<sup>20</sup> The migrants in our sample—those registered in domiciles other than the city or town where they were enumerated for the census who had been away from their place of registration for more than 6 months--

percentage points less likely to be in the labor force than urban, non-migrant, residents. Urban migrants were 4.6 percentage points less likely to be in the labor force than urban non-migrant women. We will focus on the differences in the determinants of labor force participation between rural migrants and urban non-migrants in Section III.3 below.

### **III.2. Are These Effects New? Comparing the Household and Personal Demographic Effects on Labor Force Participation over Time**

Table 2 reveals that the household and personal demographic effects discussed above are not new. They have, however, grown over time. The marginal effect of marital status on women's labor force participation has increased quite noticeably. In 1982 and 1990, divorced and widowed women were no more likely to participate in the labor market than married women. As discussed above, by 2000, they were significantly more likely to participate in the labor market. Never married women were 2.9 percentage points more likely to be in the labor market in 1982 than married women. By 2000, they were 7.1 percentage points more likely. These changes may indicate increasing discretion in labor force participation decision making and perhaps positive income effects that reduce labor force participation of married women. Being a member of one of China's Muslim ethnic groups had no significant effect on women's labor force participation in 1982, but in both 1990 and 2000, Muslim women were approximately 4 percentage points less likely to be in the labor force than others. This too may indicate an increase in discretion regarding participation in market work.

Similarly, having preschool children in the household reduced women's labor force participation in all three census years but the effect in 2000 of 7 percentage points lower than women with no children was much larger in comparison to 1982 where the effect was 2.5 percentage points. The positive effect on women's labor force participation rate of 16 and 17 year old children is also greater in 2000 than it was in 1982 and 1990.

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were classified as rural migrants if they held an agricultural hukou and as urban migrants if they held a non-agricultural hukou.

Another big change across the years was the effect of education on labor force participation. In 1982, illiteracy had a large negative effect on prime age women's labor force participation while higher levels of education had a small positive effect. As we discussed above in 2000, there is a small negative effect of illiteracy and a very large positive effect on post secondary education. This could reflect the changing rate of return to education, changes in the type of jobs available by education level and the differential retirement age for women with higher education.

The effect of age has also changed across the years but by less than we anticipated. In the section above we reported that the labor force participation rate of women 45 to 50 years of age in 2000 was almost 20 percentage points lower than women aged 25 to 29. We hypothesized that much of the decline at the oldest age group was due to lay offs and early retirements. But in 1982, women 45 to 50 had labor force participation rates 14 percentage points lower than women 25 to 29 and in 1990 they were 12 percentage points lower. Thus, urban women in all three census years, which represent very different labor market conditions and institutions, were all less likely to be in the labor force at age 45 to 50. Still the difference is larger in 2000 and the negative effect of age spills over to the 40 to 44 year olds in 2000 much more so than in early years. This four to five percentage point difference may be that which is attributable to an increased number of discouraged workers in the most recent years.

### **III.3. To What Extent are the Demographic Effects on Labor Force Participation in 2000 Attributable to the Large Influx of Migrants in the Cities?**

In this section we compare rural women migrants currently living in urban areas (henceforth called rural migrants) to urban women non-migrants. There are approximately 10,000 prime-age rural migrant women living in family households in the 2000 Census sample and only 2000 in the 1990 Census sample. We thus focus here on



the differences between rural migrants and urban non-migrants revealed in our analysis of the data of the 2000 Census.<sup>21</sup>

Table 3 reveals that the employment-facilitating effects of co-residency with older women are appreciably greater for migrants than non-migrants. Migrant women who co-reside with a women age 65 or older are 10.2 percentage points more likely to be in the labor force than those who don't co-reside while non-migrant urban women who co-reside with a women age 65 or older are only 4.3 percentage points more likely to be in the labor force than those who don't co-reside. When migrant women live in households with children other than their own, that is, households where they may be called upon to provide care, or to share in the provision of care, to others' children, they are 5.8 percentage points less likely to be in the labor force than rural migrant women living in households without others' children. Interestingly, this effect for urban non-migrant women is insignificant.

Living with relatively young older women, those aged 51-64 (who are likely to be young grandmothers), increases both prime-age migrant and non-migrant urban women's labor force participation, however there is an interesting difference in how this effect plays out. For migrants, the effect of co-residing with a women age 51-64 shows up in the interaction with the presence of pre-school children and this effect is quite large at 12.3 percentage points. For urban non-migrant women, there is no interaction with the presence of young children in the household but there is a direct effect that is essentially identical to that of living with a woman age 65 or older. We might hypothesize that the role of those older women in the migrant household is child care, that is, they have been brought into the urban household from their rural home to provide childcare. For urban non-migrants, the reasons for co-residency are more diverse. They appear to be facilitating employment in ways beyond child care.

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<sup>21</sup> We have omitted the group of women who are migrants but hold an urban hukou. They appear to be intermediaries between the two groups highlighted here. About 10,000 prime age urban women in 2000 can be categorized as "urban migrants."

There is an extremely large and negative effect of young children on the labor force participation of migrants. Migrant women with preschool children are 23.3 percentage points less likely to be in the labor force than migrant women with no children. Not only so, but the presence of elementary school age children and junior middle school age children also decrease migrant women's labor force participation by 13.8 and 7.6 percentage points, respectively. In contrast, the effect of young children on the labor force participation of urban non-migrants is much lower than for migrants and having school-age children (age 6-12, 13-15 and 16-17) present in the household continues to monotonically increase the labor force participation of non-migrant urban women as we report above in Section III.1. The increase for non-migrant mothers with children 13-15 and 16-17 between 1990 and 2000 is about 3½ percentage points. This is evidence of the effect of increased school costs on urban women's labor force participation decision making.

We know from other sources that many migrant women leave their children in the rural areas. (Connelly, Roberts and Zheng, 2008) We also show this in Figure 7. These very interesting results of the effect of young children's co-residence with rural migrants to the cities illuminates what appears to be a growing pattern among migrant households in which older married couples migrate along with their children. The migrant mother "stays home" to provide child care and general household support for her working husband and for her children. One reason for bringing children with them may be a desire to improve their children's educational opportunities. A stay-at-home mother may be facilitating her children's schooling as well as her husband's employment. The opportunity cost of her staying at home is not as high as it would be for urban non-migrants since migrant wages are much lower. In addition, migrants often lack the support of extended families when located in the city.<sup>22</sup>

Never-married migrants and urban non-migrants are both much more likely to be in the labor force than their married counterparts. For migrants, being divorced or widowed

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<sup>22</sup> Jacka writes about this group of stay-at-home married migrant women in her ethnography, *Rural Women in Urban China*, 2006.

increases labor force participation by 15 percentage points while the effect of being divorced or widowed is quite small, 4.5 and 2.8 percentage points, respectively for the urban non-migrants. Being widowed or divorced is a very small category for the migrants and clearly widowed or divorced migrants who are enumerated in an urban area are there to work. For non-migrants, what we are observing is probably an income effect with widowed and divorced women under more financial pressure than married women.

The negative effect of illiteracy seen in Table 1 (all urban women), is now shown to be mainly a migrant effect. Illiterate migrant women have a 4.7 percentage point lower labor force participation rate than those who graduated from junior middle school while for non-migrants there is little difference between illiterate women and those who graduated from junior middle school. This may be the result of the lower opportunity cost of illiterate migrant women to “keep house” or may be that they have more trouble finding a job, and therefore, are more likely to be discouraged workers. The effect of post-secondary education is large and positive for both groups of women.

The differential in labor force participation rates by age is greater for rural migrants than for urban non-migrants. Rural migrants aged 45-50 are 26 percentage points less likely to be in the labor market compared with 25-29 year-old migrants. However, the effect of the age category of 45-50 remains sizable, even for the non-migrants, at negative 15.1 percentage points. Again we need to question what these older rural migrants are doing in the urban area if they are not working. Given the younger age of marriage of rural women compared to urban women and younger age at first birth, the 45-50 year old rural women are much more likely to be grandmothers than the non-migrant urban women in the same age category. Thus, the older rural migrants who are not in the labor market are likely there to watch children.

The negative effect on labor force participation of belonging to a Muslim minority disappears in the migrant sample (perhaps due to the small number of Muslims in the sub-sample) but remains in evidence for the non-migrants. The prefecture variables are similar across the two groups but the provincial income effects are larger for the migrant

group. This makes sense in that the migrants are selecting a destination while the urban non-migrants are simply affected by the labor market health of their home city.

#### **IV. Conclusions**

This paper has examined evidence of prime age women's labor force participation decisions over an 18 year time period that coincides with the period of rapid structural change in the urban Chinese labor market. We find evidence of increasing discretion in prime aged women's labor force participation in urban China. Co-residency with elder women does not appear to reduce prime-age women's participation in market work, but rather to increase it. This employment-facilitating effect of co-residency with older women is appreciably greater for migrants than non-migrants. Likewise, migrant women's participation in market work appears to be hampered to a much greater extent by childcare concerns than that of urban non-residents. In 2000, migrant women with pre-school age children were 23 percentage points less likely to participate in market work than migrant women with no co-resident children. In contrast, urban women with young children were almost as likely to be in the labor force at their childless counterparts.

A comparison of the three census years shows us that the presence of young children has since 1982 had a negative effect on women's labor force participation as has being married relative to being unmarried. The effect of both variables has grown over time with the marriage effect remaining higher in 2000 even when considering only urban non-migrants. On the other hand, the negative effect of very young children is mainly a rural migrant effect while the positive effect of older children 13-15 and 16-17 is largely a non-migrant urban effect.

Another large change from 1982 to 2000 has been a much expanded differential in labor force participation by education especially at the top of the education distribution. In 1982 women with post secondary education were 3.4 percentage points more likely to be in the labor force than those with middle school education while in 2000 the differential is 21.3 percentage points.

Somewhat surprisingly we do not see large changes between 1982 and 2000 in the differential in labor force participation by age. We had expected to see large declines in the labor force participation at the oldest age category most recently due to differential layoffs and the discouraged worker effect. There does seem to be an increased differential between 1990 and 2000 in the oldest two categories but it is just a few percentage points. This indicates that the old and the new labor market conditions were similarly disposed to targeting older women (remember by older we mean 40 to 50 year old women) when fewer workers were needed. It could be that the reason for labor force withdrawal of the oldest age category (within the prime age women) has changed over time from voluntary withdrawal to care for grandchildren to involuntary withdrawal due to layoffs or offered early retirement. To tease this out we plan in future work to use much richer but smaller data sets based on surveys that elicit more detailed information about individuals' reasons for not participating in the labor market.

Future work is also planned that will compare rural women with urban women. It will be especially interesting to compare rural women to rural migrants enumerated in urban areas. We also plan to look at the labor force participation of older women, that is, those beyond 50 and younger women and compare them to the prime age women featured here. In those comparisons changes in years of school attendance should figure importantly at the younger ages and changing demographics such as age at first birth and age at marriage along with changing economic conditions and labor market institutions will figure importantly at the older ages.

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**Table 1: Labor Force Participation of Chinese Urban Women in 2000**  
**Probit Results (Marginal Effects) Urban Women Aged 25-50 in Family Households**

Explanatory Variables	dF/dx		Std. Err.	z	P> z	x-bar
<b>Co-Residencies</b>						
co-resident with one or more women aged 65 and above	0.046	***	0.005	7.96	0.000	0.073
co-resident with one or more men aged 65 and above	0.021	***	0.007	3.15	0.002	0.055
co-resident with a disabled person aged less than 65	-0.069	***	0.014	-5.19	0.000	0.011
co-resident with children other than own children and wards	-0.024	***	0.008	-3.15	0.002	0.040
co-resident with a woman aged 51-64	0.015		0.010	1.56	0.118	0.096
number of adults in the household	-0.001		0.002	-0.54	0.588	2.517
<b>Childcare</b>						
base case: no children aged 0-17 present in household						
youngest coresident child aged 0 to 5	-0.070	***	0.006	-12.74	0.000	0.211
coresident with woman aged 51-64*child aged 0 to 5	0.053	***	0.011	4.52	0.000	0.035
youngest coresident child aged 6 to 12	-0.005		0.005	-0.99	0.321	0.313
coresident with woman aged 51-64*child aged 6 to 12	0.042	***	0.012	3.24	0.001	0.026
youngest coresident child aged 13 to 15	0.018	***	0.005	3.53	0.000	0.114
youngest coresident child aged 16 to 17	0.032	***	0.006	5.15	0.000	0.058
<b>Marital Status</b>						
base case: married						
never married	0.071	***	0.009	6.90	0.000	0.027
widowed	0.040	***	0.011	3.28	0.001	0.011
divorced	0.052	***	0.009	5.10	0.000	0.019
<b>Education Level</b>						
base case: junior middle						
illiterate	-0.022	***	0.008	-2.96	0.003	0.034
primary	0.006		0.004	1.56	0.120	0.196
senior middle	0.097	***	0.003	29.32	0.000	0.251
post secondary	0.213	***	0.002	45.51	0.000	0.099
<b>Age Categories</b>						
base case: age 25-29						
age 30-34	0.000		0.005	0.06	0.953	0.227
age 35-39	-0.006		0.005	-1.20	0.229	0.210
age 40-44	-0.055	***	0.006	-9.18	0.000	0.166
age 45-50	-0.199	***	0.007	-30.90	0.000	0.184
<b>Muslim Effect</b>						
belongs to Muslim ethnic group (0-1)	-0.040	***	0.014	-3.10	0.002	0.014
% of Muslims in prefectural population	0.000	**	0.000	-2.00	0.045	1.324
<b>Other Prefectural Variables</b>						
prefectural unemployment rate	-0.009	***	0.000	-19.96	0.000	4.780
prefectural infant sex ratio	0.000	***	0.000	-3.46	0.001	122.584
prefectural sex difference in illiteracy rate	0.002	***	0.000	6.51	0.000	10.207
<b>Provincial Income Variables</b>						
provincial urban per capita income (100 yuan)	0.006	***	0.001	8.72	0.000	65.58
provincial urban per capita income squared	0.000	***	0.000	-7.75	0.000	4645
provincial annual GDP growth rate over previous 5 years	0.007	***	0.001	5.78	0.000	9.058
<b>Migrant Status</b>						
base case: urban non-migrants						
rural migrant	-0.111	***	0.005	-23.22	0.000	0.110
urban migrant	-0.046	***	0.005	-9.94	0.000	0.118
obs. P	0.762					
pred. P	0.787		(at x-bar )			
Number of obs	93,388					
LR chi2(33)	8,834					
Prob > chi2	0.000					
Pseudo R2	0.086					
Log likelihood	-46,802					

Data Source: The 0.095% Micro sample of the Population Census of China 2000.

Asterisks indicate the significance of the underlying probit coefficients.  
 \*\*\* significant at 1%; \*\* significant at 5%; \* significant at 10%.

**Table 2: Labor Force Participation of Chinese Urban Women 1982, 1990, 2000**  
**Probit Results (Marginal Effects) Urban Women Aged 25-50 in Family Households**

	1982		1990		2000	
<b>Explanatory Variables</b>	<b>dF/dx</b>		<b>dF/dx</b>		<b>dF/dx</b>	
<b>Co-Residencies</b>						
co-resident with one or more women aged 65 and above	0.029	***	0.029	***	0.046	***
co-resident with one or more men aged 65 and above	0.005		0.019	***	0.021	***
co-resident with a disabled person aged less than 65	-0.120	***	-0.063	***	-0.069	***
co-resident with children other than own children and wards	-0.020	***	-0.019	***	-0.024	***
co-resident with a woman aged 51-64	0.030	***	0.029	***	0.015	
number of adults in the household	-0.005	***	-0.008	***	-0.001	
<b>Childcare</b>						
base case: no children aged 0-17 present in household						
youngest co-resident child aged 0 to 5	-0.025	***	-0.038	***	-0.070	***
(co-resident with woman aged 51-64)*(child aged 0 to 5)	0.011		0.014		0.053	***
youngest co-resident child aged 6 to 12	0.005	*	0.004		-0.005	
(co-resident with woman aged 51-64)*(child aged 6 to 12)	0.005		0.028	**	0.042	***
youngest co-resident child aged 13 to 15	0.021	***	0.007	*	0.018	***
youngest co-resident child aged 16 to 17	0.011	***	0.006		0.032	***
<b>Marital Status</b>						
base case: married						
never married	0.029	***	0.044	***	0.071	***
widowed	0.007		-0.007		0.040	***
divorced	0.000		0.014		0.052	***
<b>Education Level</b>						
illiterate	-0.191	***	-0.140	***	-0.022	***
primary	-0.111	***	-0.086	***	0.006	
base case: junior middle						
senior middle	0.040	***	0.075	***	0.097	***
post secondary	0.034	***	0.092	***	0.213	***
<b>Age Categories</b>						
base case: age 25-29						
age 30-34	0.012	***	0.009	***	0.000	
age 35-39	0.004		0.012	***	-0.006	
age 40-44	-0.014	***	-0.017	***	-0.055	***
age 45-50	-0.141	***	-0.119	***	-0.199	***
<b>Muslim Effect</b>						
belongs to Muslim ethnic group (0-1)	-0.012		-0.042	***	-0.040	***
% of Muslims in prefectural population	-0.001	***	0.000		0.000	**
<b>Other Prefectural Variables</b>						
prefectural unemployment rate	-0.018	***	-0.013	***	-0.009	***
prefectural infant sex ratio	0.000	*	0.001	***	0.000	***
prefectural sex difference in illiteracy rate	0.001	***	0.002	***	0.002	***
<b>Provincial Income Variables</b>						
provincial urban per capita income (100 yuan)	-0.208	***	0.079	***	0.006	***
provincial urban per capita income squared	0.021	***	-0.002	***	0.000	***
provincial annual GDP growth rate over previous 5 years	0.007	***	-0.007	***	0.007	***
<b>Migrant Status</b>						
base case: urban non-migrants						
rural migrant	n.a.		-0.280	***	-0.111	***
urban migrant	n.a.		-0.128	***	-0.046	***
obs. P	0.875		0.865		0.762	
pred. P	0.912		0.900		0.787	
Number of obs	98,746		91,390		93,388	
LR chi2(33)	12,336		11,194		8,834	
Prob > chi2	0.000		0.000		0.000	
Pseudo R2	0.166		0.154		0.086	
Log likelihood	-30,966		-30,643		-46,802	

Data Source: The 0.095% Micro sample of the Population Census of China 2000 and the 1% micro samples of the 1982 and 1990 Population Censuses of China.

Asterisks indicate the significance of the underlying probit coefficients.

\*\*\* significant at 1%; \*\* significant at 5%; \* significant at 10%.

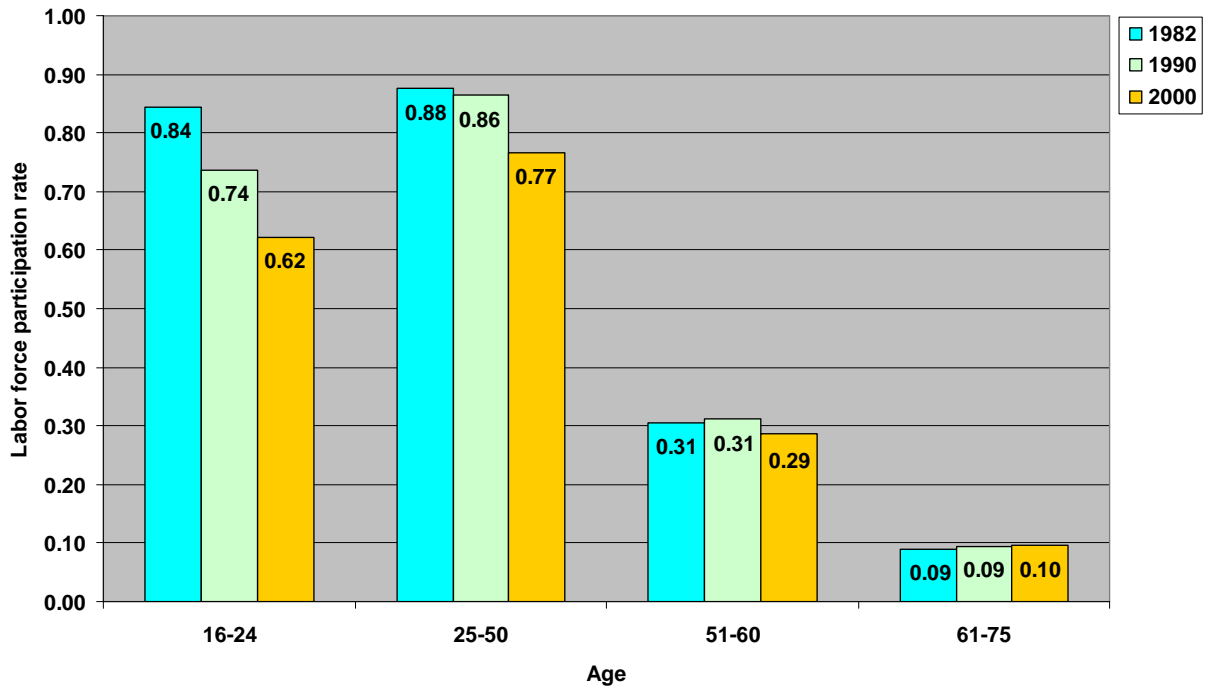
**Table 3: Comparison of the LFP of Rural Migrant and Non-Migrant Women 1990, 2000**  
**Probit Results (Marginal Effects) Women in Urban Areas Aged 25-50 in Family Households**

Explanatory Variables	1990		2000	
	Rural Migrants	Non-Migrants	Rural Migrants	Non-Migrants
<b>Co-Residencies</b>				
co-resident with one or more women aged 65 and above	0.015	0.029 ***	0.102 ***	0.043 ***
co-resident with one or more men aged 65 and above	-0.032	0.019 ***	-0.031	0.028 ***
co-resident with a disabled person aged less than 65	0.165	-0.062 ***	-0.058	-0.066 ***
co-resident with children other than own children and wards	-0.076	-0.016 ***	-0.058 **	-0.015 *
co-resident with a woman aged 51-64	-0.035	0.030 ***	0.031	0.042 ***
number of adults in the household	0.016	-0.008 ***	0.000	0.000
<b>Childcare</b>				
base case: no children aged 0-17 present in household				
youngest coresident child aged 0 to 5	-0.165 ***	-0.034 ***	-0.233 ***	-0.019 ***
(coresident with woman aged 51-64)*(child aged 0 to 5)	0.032	0.013	0.123 **	0.015
youngest coresident child aged 6 to 12	-0.088 **	0.006 *	-0.138 ***	0.029 ***
(coresident with woman aged 51-64)*(child aged 6 to 12)	0.224	0.025 **	0.009	0.014
youngest coresident child aged 13 to 15	-0.119 **	0.009 **	-0.076 ***	0.038 ***
youngest coresident child aged 16 to 17	-0.032	0.007 *	0.003	0.040 ***
<b>Marital Status</b>				
base case: married				
never married	0.330 ***	0.037 ***	0.087 **	0.074 ***
widowed	0.281 **	-0.009	0.154 ***	0.028 **
divorced	0.245 *	0.014	0.150 ***	0.045 ***
<b>Education Level</b>				
illiterate	-0.122 ***	-0.139 ***	-0.047 ***	-0.015 *
primary	0.010	-0.086 ***	-0.039 ***	0.015 ***
base case: junior middle				
senior middle	0.092 **	0.072 ***	0.040 **	0.094 ***
post secondary		0.087 ***	0.293 ***	0.203 ***
<b>Age Categories</b>				
base case: age 25-29				
age 30-34	0.057 *	0.007 **	-0.009	0.006
age 35-39	0.037	0.011 ***	-0.032 **	0.005
age 40-44	0.018	-0.017 ***	-0.125 ***	-0.030 ***
age 45-50	-0.117 **	-0.114 ***	-0.260 ***	-0.151 ***
<b>Muslim Effect</b>				
belongs to Muslim ethnic group (0-1)	0.085	-0.040 ***	-0.020	-0.046 ***
% of Muslims in prefectural population	0.005 ***	0.000 *	0.000	0.000
<b>Other Prefectural Variables</b>				
prefectural unemployment rate	-0.057 ***	-0.012 ***	-0.006 ***	-0.010 ***
prefectural infant sex ratio	0.001	0.001 ***	0.000 ***	0.000 **
prefectural sex difference in illiteracy rate	0.003	0.002 ***	0.002 **	0.002 ***
<b>Provincial Income Variables</b>				
provincial urban per capita income (100 yuan)	0.182 ***	0.078 ***	0.018 ***	0.004 ***
provincial urban per capita income squared	-0.005 ***	-0.002 ***	0.000 ***	0.000 ***
provincial annual GDP growth rate over previous 5 years	-0.004	-0.006 ***	0.011 ***	0.006 ***
observed P	0.529	0.873	0.639	0.779
predicted P	0.532	0.906	0.649	0.803
Number of obs	2,128	88,498	10,256	71,824
LR chi2(22)	248	9,468	808	6,194
Prob > chi2	0.000	0.000	0.000	0.000
Pseudo R2	0.084	0.141	0.060	0.082
Log likelihood	-1,348	-28,869	-6,303	-34,807

Data Source: The 0.095% Micro sample of the Population Census of China 2000 and the 1% Micro sample of the Population Census of China 1990.

Asterisks indicate the significance of the underlying probit coefficients.  
 \*\*\* significant at 1%; \*\* significant at 5%; \* significant at 10%.

**Figure 1**  
**Labor Force Participation Rates of Urban Women in China by Age Cohort**  
**1982, 1990, 2000 (excluding those "unable to work" from the base)**



Data Sources: 1% Micro Samples of the 1982 and 1990 Populations Censuses of China and the 0.095% Micro Sample of the 2000 Populations Census of China

Figure 2

**Activity Status of Urban Women Not in the Labor Force, aged 25-50  
(as percentage of all urban women aged 25-50)**

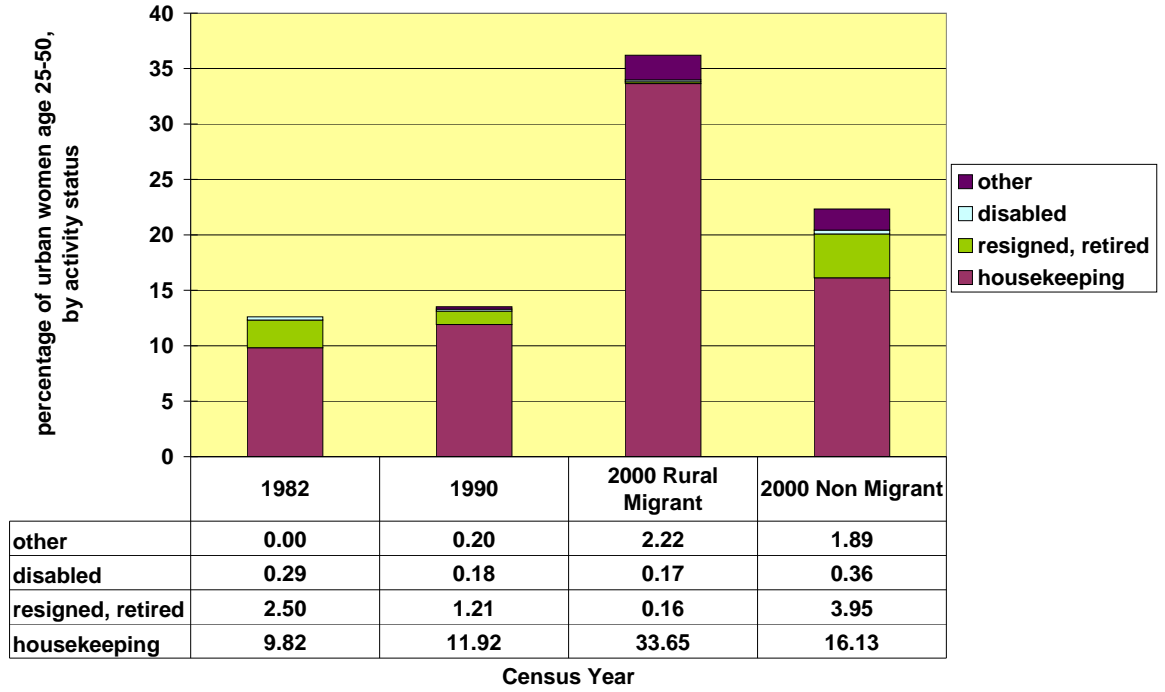
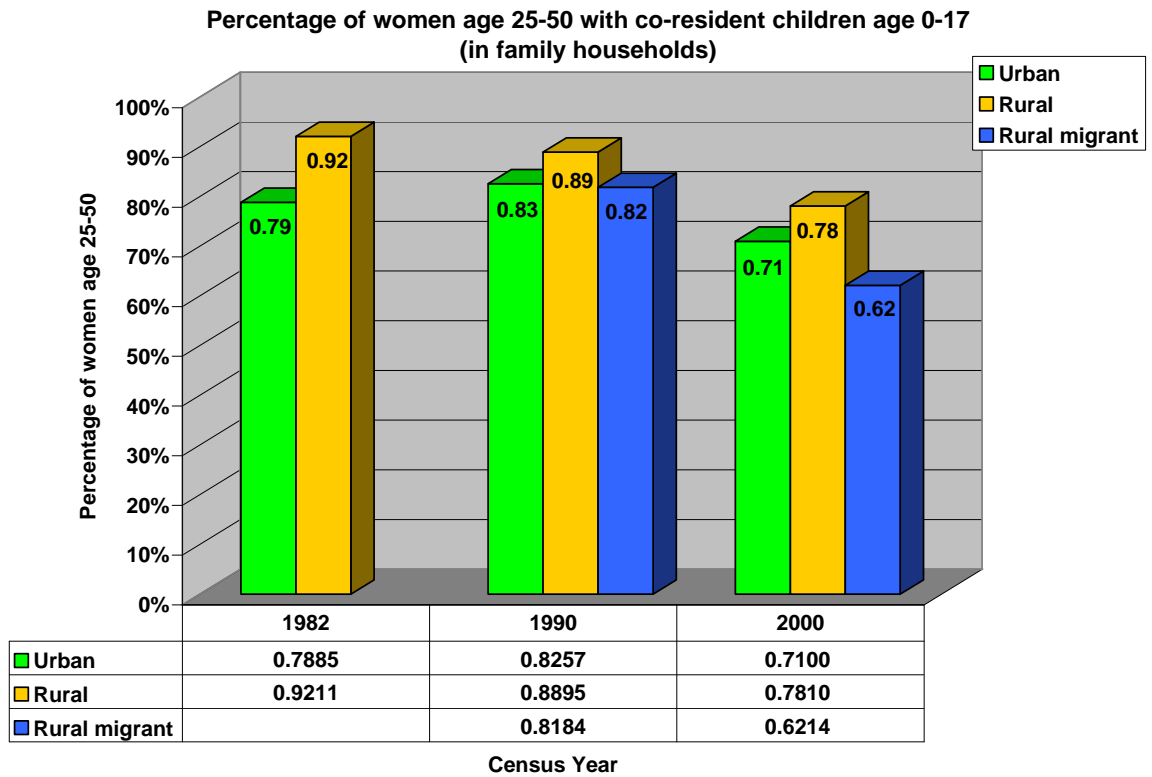


Figure 3



Data Sources: 1% Micro Samples of the 1982 and 1990 Populations Censuses of China and the 0.095% Micro Sample of the 2000 Populations Census of China

Figure 4

Mean number of co-resident children of urban non-migrant, rural, and migrant women aged 25-50 in family households

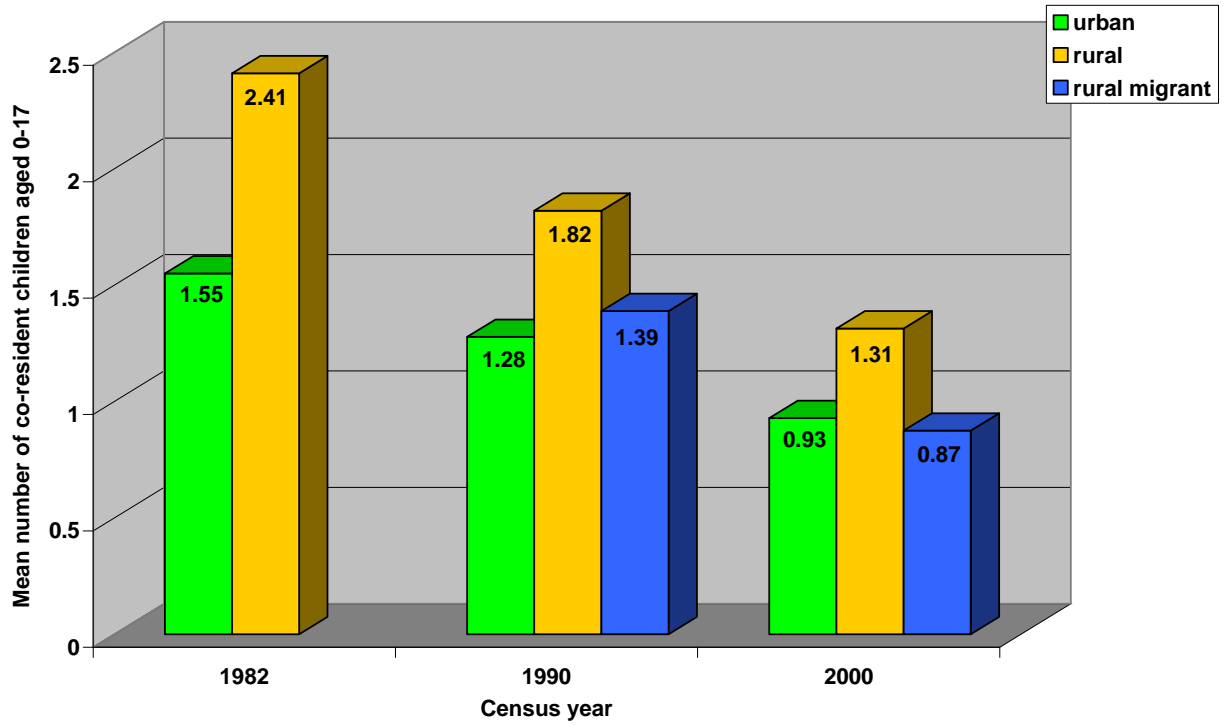


Figure 5

**Comparison of Mean Number of Surviving Children of Rural, Migrant and Urban Non-Migrant Mothers in 2000**

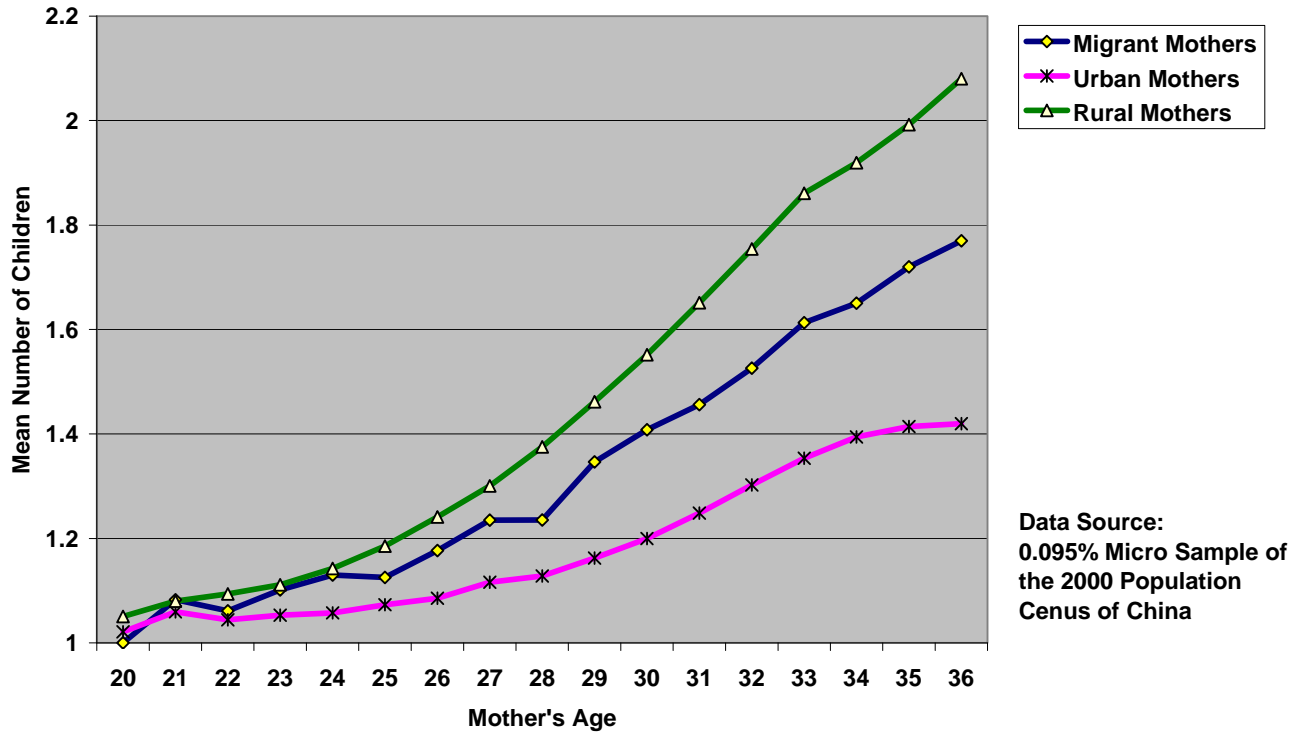




Figure 6

**Co-Residency of Migrant Mothers and their Children in 2000  
(of mothers in family households)**

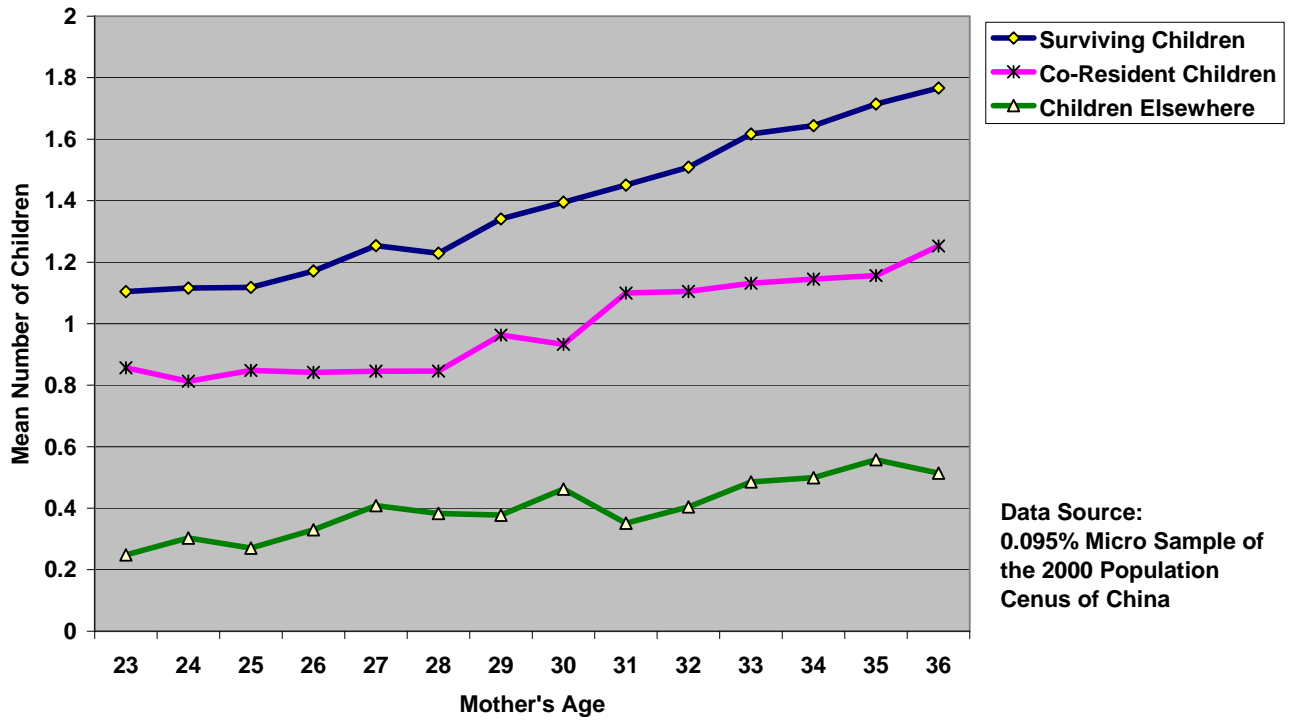


Figure 7

**% of Migrant Mothers with Non-Resident Children in 2000  
(of migrant mothers in family households)**

