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The effect of housing wealth on labor force participation: Evidence from China

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ABSTRACT

This paper uses the 2011 China Household Finance Survey data to estimate the effect of changes in housing value on homeowners' labor force participation. Using the average housing capital gains of other homes in the same community as an instrument for the housing capital gains of a given household, we find that a 100,000 yuan increase in housing value leads to a 1.37 percentage point decrease in female homeowners' probability of participating in the labor force and a 1.49 percentage point increase in their probability of becoming housewives. We find little effect on men's labor force participation.

1. Introduction

Along with rapid economic growth, China's urban housing and labor markets experienced substantial structural changes during the past two decades. Chinese housing markets expanded in the 1990s when the central government started to implement comprehensive reforms to privatize housing properties in cities; by 2011 nearly 90% of urban families were homeowners (Gan et al., 2013). Meanwhile, there has been an enormous housing price appreciation. According to the National Bureau of Statistics, during 2000–2013, average nominal housing price increased from 1948 to 5850 yuan per square meter (Fig. 1). Real housing prices have been growing 10.5% annually in the 31 second-tier cities during 2003–2013, and 13.1% annually in the four first-tier cities: Beijing, Shanghai, Guangzhou, and Shenzhen (Fang et al., 2015).

In the meantime, Chinese urban labor markets also experienced a radical transition. The central planning system once guaranteed job opportunities to urban residents; however, massive layoffs occurred during the market-oriented reforms of the 1990s. Simultaneously, an increasing number of rural migrants entered the urban labor market. As a result, labor force participation rate declined and the unemployment rate rose (Feng et al., 2015). Since the early 2000s, labor force participation for men rebounded from the historically low levels of the 1990s, but has been stagnant for women (Fig. 1).

This paper examines the link between housing and labor markets in urban China. Specifically, we test whether changes in housing wealth affect labor force participation. The large variations in housing price appreciation across

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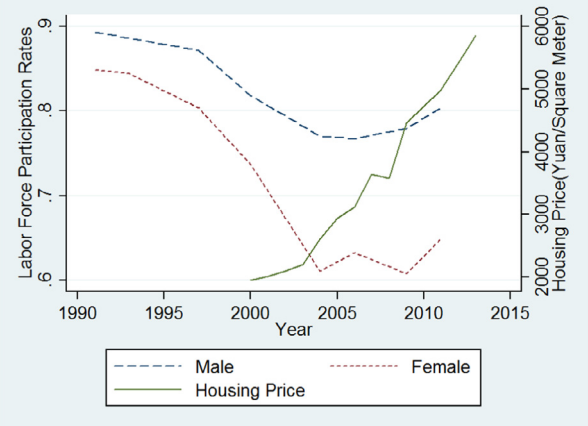

Fig. 1. Labor force participation rates and housing price in urban China. Labor force participation rate is defined as the percentage of employed and unemployed people among working age population. It is calculated using multi-wave data from the China Health and Nutrition Survey (CHNS), a national representative household survey jointly conducted by the University of North Carolina at Chapel Hill and the Chinese Center for Disease Control and Prevention. The web site of CHNS data is http://www.cpc.unc.edu/projects/china. Average residential housing price data are provided by the National Bureau of Statistics (http://data.stats.gov.cn/easyquery.htm?cn=C01). It is calculated by dividing the total sales of residential housing by total floor area of residential housing sold each year.

Chinese cities provide an ideal context for us to explore these effects.

The wealth effect on leisure consumption and labor supply is a fundamental economic question that has attracted much attention from scholars. A few studies explore these dynamics using inheritance, lottery gains, housing voucher or rental subsidies as a positive income or wealth shock. Holtz-Eakin et al. (1993) find that large inheritances depress labor force participation in the U.S. Using data from the Panel Study of Income Dynamics and Federal Estate Tax returns in the U.S., Joulfaian and Wilhelm (1994) find that inheritance income reduces working hours, but this effect is small. Brown et al. (2010) find that inheritance income increases older workers' probability of retiring, and this effect is larger if the inheritance is unexpected. Using survey data of lottery players, Imbens et al. (2001) find that large lottery winnings reduce winners' working hours and labor force participation. Jacob and Ludwig (2012) and Fischer (2000) find that receiving housing vouchers or rental subsidies reduces labor force participation of recipients. These findings suggest that an increase in wealth is likely to reduce labor supply.

Changes in housing wealth demonstrate similar dynamics; several studies document a negative association between housing price appreciation and labor supply.[2] Henley (2004) finds that housing price appreciation significantly reduces women's working hours in Britain. Farnham and Sevak (2007) find that a 10% increase in housing wealth reduces the expected retirement age by 3.5–5 months in the U.S. Disney and Gathergood (2014) show that, in Britain, housing price appreciation reduces young homeowners' labor force participation and working hours. Milosch (2014) finds that a positive housing price shock decreases married female homeowners' working hours and this effect is larger for highly educated, high income married women with children. However, housing price appreciation can also signal high costs of living and lead to more labor supply (Johnson, 2014); He (2015) provides such evidence based on 1997–2008 British Household Panel Survey data. Therefore, the net effect of housing wealth change on labor supply remains an empirical question.

The effects of housing capital gains on labor supply may be heterogeneous due to demographic characteristics. In cities with growing housing prices, renters may need to work more and save more (Sheiner, 1995). In Britain, housing capital gains have little effect on middle-aged homeowners' employment or working hours (Disney and Gathergood, 2014). In the U.S., the effect of housing price shocks on labor supply is particularly strong for high income, high education women with young children at home (Milosch, 2014).

Most of these studies analyze individual-level outcomes but use change in housing prices at a broad geographic area (county, city, or metropolitan area) level as a proxy for individual households' housing wealth change. Without housing wealth information at the household level, these estimates may be biased because many unobserved location-specific attributes likely confound housing price change. Endogeneity issues may also arise because workers tend to sort into different locations with specific housing price dynamics based on unobserved personal attributes and income expectations (Starkey and Port, 1993; Moretti, 2013). Using instrumental variables for local housing prices cannot solve the sorting bias issue since the instruments need to be at the local level and unobserved individual preferences may correlate with even exogenous location attributes due to sorting. For example, using natural amenities or geographic features as instruments for housing prices is still problematic if workers with unobserved high ability strongly prefer natural amenities and disproportionally sort into such locations.

Our study differs from the existing literature in two major aspects. First, we use a new micro dataset—the 2011 China Household Finance Survey data—to estimate the effect of a change in housing value on homeowners' labor force participation in urban China. This dataset contains detailed information on housing and other assets for each household, including the purchasing price and current value of each housing unit (up to three housing units for each household), as well as detailed demographic information. This enables us to compute each household's housing capital gain and estimate its effect on labor supply. Second, to address possible measurement error in self-reported housing value and potential omitted variables, such as individual workers' income expectation and preferences for urban amenities, we use the average housing capital gain of households (excluding the household in question) in the same community as an instrumental variable for change in housing value. This instrumental-variable (IV) approach

[2] Other studies estimate the effect of housing wealth change on goods consumption (Carroll and Zhou, 2010; Campbell and Cocco, 2007; Case et al., 2005, 2013), college enrollment (Lovenheim, 2011 Cooper and Luengo-Prado, 2015), female fertility rate (Dettling and Kearney, 2014; Lovenheim and Mumford, 2013), and entrepreneurship (Adelino et al., 2015; Harding and Rosenthal, 2013).