



Why do so few women work in New York (and so many in Minneapolis)? Labor supply of married women across US cities [☆]



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ABSTRACT

This paper documents a little-noticed feature of US labor markets—very large variation in the labor supply of married women across cities. We focus on cross-city differences in commuting times as a potential explanation for this variation. We start with a model in which commuting times introduce non-convexities into the budget set. Empirical evidence is consistent with the model's predictions: Labor force participation rates of married women are negatively correlated with the metropolitan area commuting time. Also, metropolitan areas with larger increases in average commuting time in 1980–2000 had slower growth in the labor force participation of married women.

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1. Introduction

Women's labor supply has, for good reason, been the object of extensive empirical study. After all, the dramatic rise in female labor force participation that occurred over the past 60 years in the US (and in many other countries) has been the most visible and important shift in the labor market. Also, women's labor supply is often the margin of adjustment in households' responses to policy shifts, e.g., changes in the taxation of household income or welfare entitlement programs, and thus holds the key to proper policy evaluation.

Although many empirical studies of female labor supply have been conducted, it appears that an interesting, potentially important feature of the US markets has gone largely unnoticed: There

is wide variation in female labor supply across metropolitan areas in the United States. Consider, for example, one large group of women: married non-Hispanic white women aged 25–55 with a high school level education (found in the 2000 US Census). In Minneapolis 79 percent of such women were employed, while in New York the proportion is only 52 percent.

The cross-city variation in female labor supply within the US that we document in this paper is as large as the well-known and widely studied variation across OECD countries in female employment rates. For instance, by way of rough comparison, one might look at employment rates among women with “upper secondary education” from selected OECD countries: United Kingdom, 80 percent; Sweden, 78 percent; Netherlands, 74 percent; France, 71 percent; Canada, 69 percent; US, 66 percent; Italy, 64 percent; Japan, 59 percent; and Germany, 52 percent. (These statistics, for women aged 25–64, are from OECD, 2007.) In an effort to make sense of international comparisons, analysts typically focus on policy differences across countries (in paid parental leave, marginal taxes, employment protection, welfare benefits, etc.).¹ Such

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¹ Ruhm (1998), for example, focuses on the impact of paid parental leave policy on female labor supply in nine European countries. More generally, a large literature compares labor policy differences in the US, Canada, and Europe to explain differences in labor market outcomes. Nickell (1997), Card et al. (1999), Freeman and Schettkat (2001), and Alesina et al. (2005) are just a few examples.

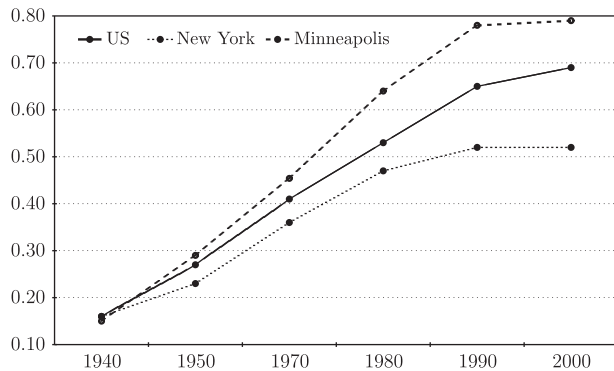


Fig. 1. Labor force participation trends of non-Hispanic white married women with a high school degree.

policy differences, of course, are much smaller across locations in the US than OECD countries. The cross-city variation in female labor supply in the US is apparently generated by characteristics of the local markets themselves.

Furthermore, while the labor supply of women has increased substantially in all cities in the US over the past 60 years, there have been big differences in these cities in the timing and magnitude of the increase. Fig. 1 illustrates, for 1940 through 2000, the well-known large increases in the labor supply of married non-Hispanic white women generally, and shows also how different the paths are for two particular urban locations, New York and Minneapolis. In 1940 the labor supply among women was lower in Minneapolis than in New York, but the subsequent growth in female labor supply was much more rapid in Minneapolis than in New York, leading to the large disparities observed in 2000. These results are especially interesting in light of the ongoing discussion about the possibility that the US labor market has now achieved a “natural rate” of female labor force participation.²

The goals of this paper are to carefully document the cross-city variation in married women’s labor supply across US labor markets, to explore potential economic explanations for observed cross-city variation in married women’s labor supply, and to examine the implications for the study of female labor supply generally. We believe that many factors are at play in producing the large observed local variation in female labor supply across the US, but, we argue, one explanation stands out: Married women, particularly married women with young children, are very sensitive to commuting times when making labor force participation decisions.

In building our argument about the importance of commuting cost, we start with the theory of labor supply when there is a fixed cost of participation (i.e., commuting time). The introduction of a fixed cost of participation introduces non-convexities into the budget constraint. This complication is easily handled in a one-period case for a one-person household: Assuming leisure and consumption are normal, and assuming also that initially the individual is at an “interior solution,” an increase in the fixed cost reduces both leisure and labor supplied, up to a threshold at which the individual moves to a “corner solution” of supplying zero labor. Matters

² Many authors have documented the fact that female labor force participation slowed considerably in the mid-1990s, and leveled off in the 2000s, e.g., Blau et al. (2002), Blau and Kahn (2000), and Juhn and Potter (2006). Goldin (2006) points to the importance of considering different age groups separately (rather than simply looking at aggregate measures of female labor supply), noting that for some groups of women “a plateau . . . was reached a decade and a half ago”. Looking at variation across local labor markets brings an additional dimension of complexity. Should we expect that cities with low rates of labor force participation will continue to experience an increase in female labor supply until they reach the national average, or are there reasons to expect that some markets have a lower “equilibrium” participation rate than others?

are more interesting in a model in which a two-person household takes a “collective” approach to labor supply. In this case, increases in the commute time can induce one partner (traditionally the wife) to move out of the labor force while inducing the other partner (the husband) to work longer hours.

As mentioned above, there are many studies of women’s labor supply. Blundell et al. (2007) and Blundell and MaCurdy (1999) provide valuable discussions of key issues in this literature, and Killingsworth and Heckman (1986) overview earlier results. Most studies use national data, with results aggregated at the national level, and no attention is given to the possibility of meaningful local variation. A small body of work in economic geography does provide some evidence about cross-location variation in labor supply (e.g., Odland and Ellis (1998) and Ward and Dale (1992)), but this work does not seek to provide an explanation for the observed variation. Specifically, we know of no work that posits the importance of fixed commuting costs for explaining cross-city variation in labor supply and then evaluates predictions empirically.³

There are a number of papers in urban economics relevant to the arguments that we develop below. Most prominently, many papers examine commuting generally,⁴ and the possibility that commuting plays a significant role for women specifically. For example, Rosenthal and Strange (2012) give evidence from 2000 US Census data that women commute shorter distances than do men—arguing that women with children might be particularly likely to want to work closer to home. They suggest that the preference for relatively shorter commutes by women in turn drives gender differences in business locations of male and female entrepreneurs; specifically, this provides an economic rationale for an observed pattern in which women entrepreneurs locate businesses in less agglomerated locations than do their male counterparts. As Rosenthal and Strange (2012) note, their work draws on earlier work on gender differences in commute times, e.g., Madden (1981) and White (1986).

Against this backdrop, we carry out our analysis in five additional sections:

Section 1 provides the basic facts about the city-specific employment rates of non-Hispanic white married women in 50 large US metropolitan areas from 1940 through 2000 using Public Use Samples of the US Census. We document significant variation across cities in current levels of women’s employment, and also substantial variation across cities in the magnitude and timing of the increase in female labor supplied over the past 60 years.

Section 2 is a discussion of economic forces that might serve as potential explanations for the observed cross-cities variation in women’s labor supply. We argue that the variation in observed employment rates are unlikely to be due primarily to differences across cities in labor demand.

Section 3 contains the primary economic contribution of this study. We develop an argument about the effect of cross-city differences in commuting times (owing, for example, to differences in congestion across cities) for labor force participation. Our model allows us to examine the effect of commuting time on individuals’ and households’ labor supply.

Section 4 presents empirical evidence concerning the predictions of the model. The cross-sectional evidence indicates that in cities with longer average commuting times, female labor force participation rates are lower. Women with young children are par-

³ Below we discuss a paper by Abe (2011) that is perhaps closest in spirit to ours. Like us, she emphasizes the important role of commuting costs in shaping female labor force participation (providing evidence from labor markets in the Tokyo metropolitan area).

⁴ See, for instance, Couture et al. (2012), who examine the determinants of the speed of commuting across cities, or the work of Duranton and Turner (2011), who study the road congestion in cities. These papers provide links to the earlier literature.

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