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The rise in female participation in Colombia: Fertility, marital status or education?

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ABSTRACT

Colombia has experienced a secular increase in the labor participation of urban women, going from nearly 47% in 1984 to 65% in 2006. We decompose the evolution of participation into changes in the composition of the population and changes in the participation rates by groups (defined according to the variables that appear most relevant: educational attainment, fertility and marital status). The increase in participation is driven by the increase in the participation rate of married or cohabiting women and women with low educational attainment. Fertility status appears to be less important. Changes in the population composition by educational attainment are also relevant in explaining the increase in participation. However, changes in composition by marital status or fertility are second order effects.

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Aumento de la participación femenina en Colombia: ¿fecundidad, estado civil o educación?

RESUMEN

La participación laboral femenina en las zonas urbanas ha aumentado de manera sustancial en Colombia, y ha pasado de cerca del 47% en 1984 al 65% en 2006. Descomponemos el aumento en la participación en lo que corresponde a aumentos en la tasa de participación de los diferentes subgrupos (que se definen según las variables más relevantes, que son en este caso logro educativo, estado civil y fecundidad) y cambios en la composición de la población. El aumento en la participación está jalonado por el aumento en las tasas de participación de las mujeres que están casadas o en unión libre, y de mujeres de bajo nivel educativo. La fecundidad contribuye menos a explicar el fenómeno. Los cambios en la composición de la población por niveles educativos también explican una porción sustancial, mientras que el efecto de los cambios en la composición de la población en términos de estado civil o fecundidad es muy pequeño.

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1. Introduction

Colombia has experienced a secular increase in female labor participation, which is one of the most profound changes observed in the labor market. Participation rates for women between 18 and 65 years of age in the 10 largest cities have increased from nearly 47% in 1984 to 65% in 2006. Many countries have experienced increases in female labor participation (see for example Elías and Ñopo, 2010, for an analysis of the Latin American experience, and Costa, 2000, for a description of the evolution of female participation over the

20th century in the US and other industrialized countries). However, the increase in Colombia's female participation rate has been particularly steep. According to Elías and Ñopo (2010), Colombia displayed the steepest increase in female participation in Latin America. While in 1980 the labor participation rate of Colombian females was the second lowest in the region, only above that of Costa Rica, by 2004 it was the highest in the region, equaled only by Uruguay.

This paper aims at better understanding the specific circumstances of this dramatic change in female participation. We first study the evolution of participation, taking into account the heterogeneity generated by socio-economic characteristics. In particular, we find that education, fertility and marital status are crucial in understanding the observed trends. The increase in the aggregate participation rate may be driven by both, increases in the participation rate of specific groups, and changes in the

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composition of women by observed characteristics. Therefore, we study both the evolution of female participation by the aforementioned characteristics, as well as changes in population composition. The groups that exhibited the highest increases in participation married women and women with cohabiting partners, women with low educational attainment and women with children younger than 18. However, there were also big changes in the composition of the population by these groups, the most important being a significant increase in educational attainment.

We perform two exercises to determine to what extent changes in the participation rate of particular groups, and changes in population composition, contribute to the increase in the labor participation of urban women. We estimate how the described covariates affect the probability of participation and then perform a decomposition exercise, following the methodology proposed by Elías and Ñopo (2010). Both exercises generate similar results: marital status appears to be the strongest driving force in the participation decision, followed by education. Fertility appears less relevant. Thus, the aggregate increase in female participation is mainly driven by a significant increase in the participation rate of population groups that traditionally had low labor market attachment: women who were married or cohabiting and women who had low educational attainment, regardless of their fertility status. Changes in population composition help explain the increase in participation, but to a lesser extent than changes in the participation rates of particular groups. In particular, the increase in the proportion of women with high educational attainment is also relevant in explaining the increase in participation. The changes in composition by marital status or fertility are second order effects.

2. Literature Review

The economic literature has focused on explaining what generated the increase in female participation in the US by associating it with fertility decisions of married women and how fast married women return to work after childbirth; with changes in the opportunity cost of home production¹; and changes in the wage structure, either in terms of the gender wage gap or the elasticity of the female labor supply to changes in their or their husband's wages. Other papers explore the transition process in itself.

Due to potential reverse causality between fertility and female labor participation, people have slow process of learning about the effects of female work on family and children (Fogli and Veldkamp, 2007). When instrumenting fertility with children's sex composition, fertility was found to have a negative effect on female labor supply (see for example Angrist and Evans, 1998, and Carrasco, 2001). Angrist and Evans (1998) find, however, that this channel explains a small fraction of the observed change in female participation between 1980 and 1990 in the US Francesconi (2002) jointly estimates the fertility and labor participation decisions and finds a negative relationship between labor earnings potential and fertility since high-earners have the lowest marginal utility of children.

Regarding the effect of changes in the opportunity cost of home production, Greenwood et al. (2005) suggest that the increase in female participation during the 20th Century in the US can broadly be explained by the decrease in the adoption cost of home production technology, mainly appliances. In addition to technological improvements in the production of nonmarket goods, Jones et al. (2003) test two hypotheses to explain the increase in the participation rate of married women in the US: the decrease in the gender wage gap and the potential inferiority of non-market goods in understanding

this change. According to their model, only the decrease in the gender wage gap has high explanatory power.

Blau and Kahn (2005) explore whether the increase in participation can be explained by changes in the wage structure. They find that a substantial fraction of the observed increase in female labor participation is due to rapid changes in supply during the 80's and 90's. They also find a 50% decrease in the own wage elasticity, as well as a decrease in the elasticity to the husband's wage.

More recently, Attanasio et al. (2008) propose a life-cycle model to explain the differences in labor participation of women born in the 30's, 40's and 50's in the US. Labor participation depends on child costs relative to earnings, returns to experience and the depreciation rate of human capital when out of the labor market. The calibration suggests that the increase in female labor participation is most likely driven by changes in the cost of children relative to lifetime earnings. Fogli and Veldkamp (2011) propose a model to explain the actual transition in the participation rates of mothers with children under 5 years of age in the U.S. between 1940 and 2000: both the 'S' shape (sharp increase, followed by deceleration and a slight decrease) and geographical variation. In their model, women learn about the effects of maternal employment on children and marriage by observing nearby employed women. As information accumulates, the effects of maternal employment become less uncertain, and more women participate. When the participation rate approaches the optimum (the real benefit of working), the increase in participation slows down.

In Latin America, Elías and Ñopo (2010) characterize the increase in the labor participation of married women in 14 countries and then decompose the evolution into components associated with changes in the composition of the population and with changes in the participation rates by groups. They find that for the sample of countries² the composition effects are relatively unimportant while the bulk of the increase in participation can be explained by the increase in the participation rate of specific groups of the population. Our analysis differs from that of Elías and Ñopo (2010) because they focus on the increase in female participation of married women in the region, whereas go a step back and consider the relative importance of marital status along with other variables such as education and fertility for the Colombian case in particular, which we find especially interesting. In addition to the decomposition exercise, we estimate how the described covariates affect the probability of participation.

For the Colombian case, there is little literature in the topic. Arango and Posada (2007) estimate the determinants of labor participation for married women in Colombia in a life-cycle model, and find using a pseudo-panel that the main determinants are past participation decisions, the education level, labor income taxes, having children between 1 and 2 years of age, and the presence of an unemployed individual in the household. The closest paper to ours is Robbins et al. (2009) who study, in a life-cycle model, the potential effect of increases in female wages on the observed increase in female labor participation in the country. Also using a pseudo-panel, they find that both the intertemporal and the uncompensated elasticities are positive but small in magnitude, so the evolution of female wages does not seem to be the main driver of female participation rates.

This paper contributes to the literature in several ways. First, we study the increase in female participation and identify education level, marital status and fertility as crucial covariates in characterizing the increase in participation in Colombia, while previous papers focused mainly on married women. Second, we decompose the aggregate increase in participation into changes in the participation rates of particular subgroups and changes in the

1. Jones et al. (2003) state that this hypothesis is only valid if we assume complementarity between home and market production.

2. Colombia is one of the countries included in the sample.

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