Education, Demographic Transition, Gender and the Business Cycle: New Developments and Future Prospects in Mexico's Labour Force Participation Rate

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Abstract

This paper studies labor force participation (LFP) in Mexico from 2005 to 2016. We explore the effects of two factors on the Mexican labor market: i) the business cycle and ii) the informality. For the former, we find evidence of a negative relationship between the LFP rate and the unemployment gap. On the other hand, the prevalence of informality in the Mexican labor market, seems to distort the classical relationship between education and LFP, especially for males (see charts 1 and 2). However, this apparent puzzle is solved when we take into account factors like access to social security. Specially, the indirect access to health insurance may boosts LFP effects of education.
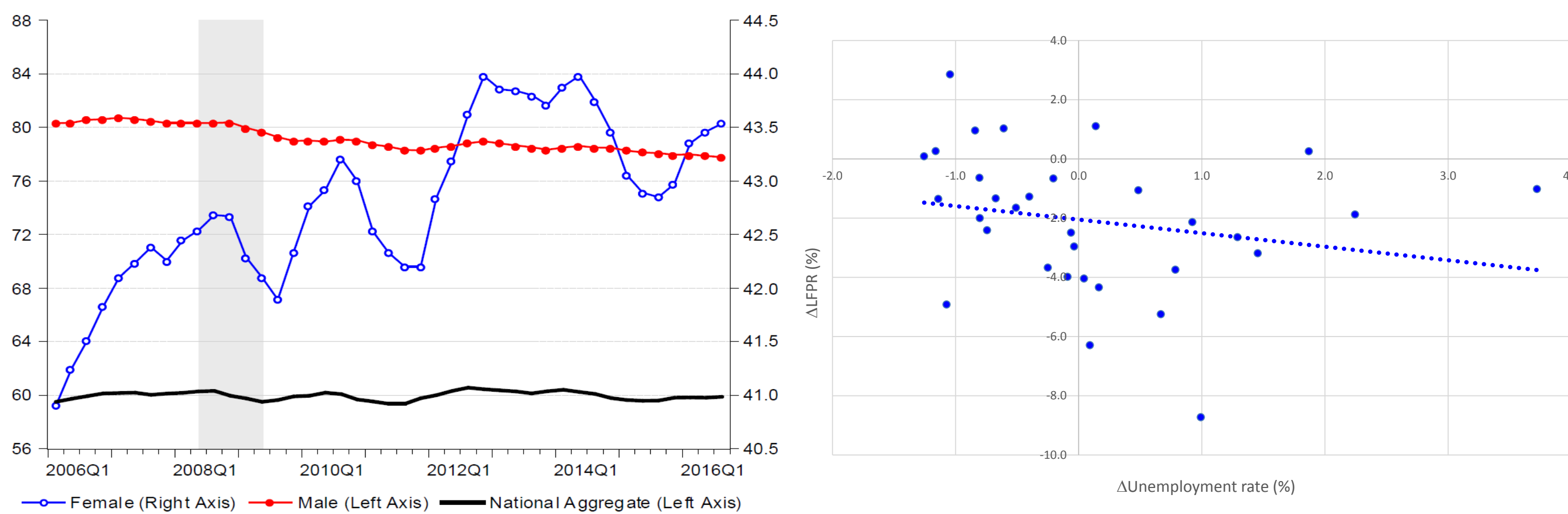
Chart 1. LFP Rate, Total and by Sex (Annual Moving Average in Percentage Points)

Chart 2. Changes in the LFP and Unemployment Rates at the State Level (2005Q1 - 2016Q4, Percentaje Points)

Introduction

Many countries experienced large declines in their LFP rate after the 2008 financial crisis, while in Mexico this variable remained stable during the prolonged cyclical downturn. We explore the relationship of the LFP rate and the business cycle (using the unemployment gap as proxy) from 2005 to 2016. In contrast to previous estimations for Mexico, we find evidence of a negative relationship.

On the other hand, an interesting stylized fact is that for males the classical relationship between education and LFP does not seem to hold: at higher levels of unemployment, more educated individuals present a similar, or even lower, LFP than their less educated peers (see charts 3 and 4). Furthermore, we investigate the role of the informal market in this apparent puzzle.
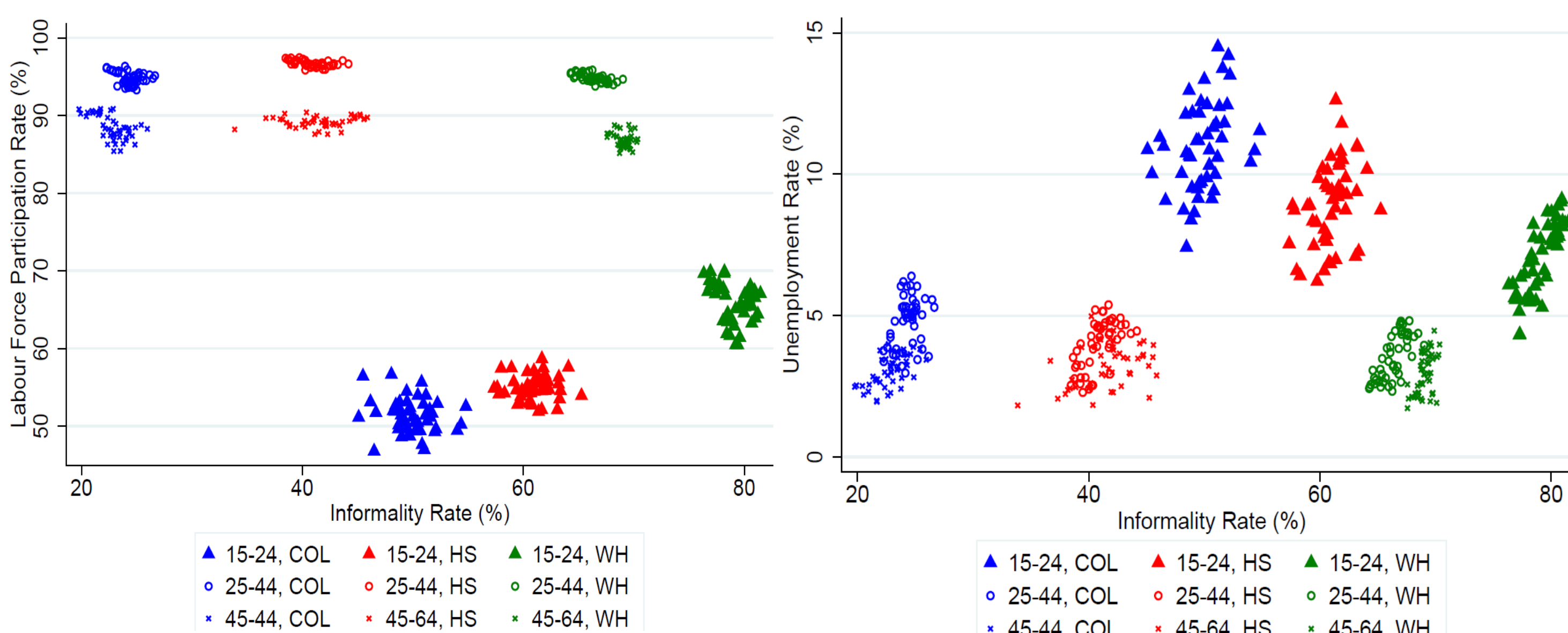

Chart 3. LFP rate vs. Informality rate of Employed Males by Age and Education groups (Percentage points, pp.).

Chart 4. LFP rate and Informality rate of Employed Males by Age and Education Groups (p.p.).

Methods and Materials

We used the Mexican National Survey on Occupation and Employment (ENOE) issued by the National Institute of Geography and Statistics (INEGI) from 2005 to 2016. This survey is a moving quarterly panel of households that every period replaces one fifth of the sample after five rounds of continuous interviews.

- First, we study the changes in the LFP rate associated to variations in demographics, gender and education using a shift-share decomposition approach suggested by Aaronson et al. (2014) and Lazear et al. (2012).
- Second, we explore the relationship between the LFP and the business cycle at the state level using the model proposed by Aaronson et al. (2014). We also estimate this relationship at the national level using a semi-parametric model (Stock, 2014).
- Third, we estimate the probability of participating in labor market for males using a Probit model, and controlling for indirect access to healthcare services (which are attached to formal jobs in Mexico), among others.

Results

- The empirical evidence from the decomposition analysis suggests:
  - ✓ The ongoing ageing of the labor force show modest effects on the LFP.
  - ✓ The large increase in the LFP rate of females, derived from the greater level of education attained by this group, compensated the slight decline in the LFP of males. This fact helped the aggregate LFP to remain stable during the period.
- The results of our state level regressions of the semi-parametric model suggest that the total cyclical factor accounts for a range of **0.1 and 0.43 percentage points decrease** in the LFP rate.
- Results of the Probit model of individual participation in the labor market suggest that the attachment of healthcare benefits to formal jobs may reduce the LFP of more educated males.
  - ✓ The positive marginal effect of education in males sharply reduces in absence of healthcare services independent from their job condition. In particular, the marginal effect of a college degree respect to no high school condition **reduces from 0.1 to only 0.04 percentage points** when they lack health services independent supplied of their job condition.

Table 1. Marginal Effects of Education in the LFP Rate of Males (P.p., 2016Q4)

Level	Unconditional	Conditional on Indirect access to health services	
	Total	Without	With
Highschool	0.0255***	0.0226***	0.0475***
	(0.0062)	(0.0056)	(0.0114)
College or more	0.0484***	0.0428***	0.1004***
	(0.0075)	(0.0066)	(0.0192)

Own Authors' estimations using data from ENOE. Standard errors cluster at the state level are in parenthesis. *, **, *** indicate statistical significance at the 10, 5, 1 percent level.
Note: We include several characteristics pf the individuals as controls: age, relationship status (living with a couple or not), indirect access to health care services, school attendance, the educational level (WS, HS and college), and if the individual is still living with her parents.

Discussion

Consistent with the empirical evidence of other countries, the LFP rate in Mexico negatively responds to the business cycle. These findings advocate that LFP does not present the "added worker effect" suggested by previous research (Duval and Orraca, 2009).

The unusual patterns in the LFP of males is also reflected on unemployment rates: more educated males have equal or higher levels of unemployment rates than their less educated peers. At the same time, higher levels of education are also linked with increasing participation in the formal economy, which is characterized by health services attached to this kind of jobs. Because of higher barriers to entry to the formal market individuals that gravitate to this sector will present higher levels of unemployment (Alcaraz et al., 2015). However, as shown in the Probit regression, individuals that have indirect access to health care services do have increasing marginal effects of education to work than those without such services (see Table 1). This fact points out that more educated males may prefer to remain unemployed and, maybe eventually, not to participate in the labor force than to land a job without these benefits.

Conclusions

The findings in this paper suggest that, in the short run, falls in economic activity are associated with reductions in the LFP rate, similar to other countries.

We also find that the attachment of health services to jobs with higher entry barriers (formal sector) can reduce the positive effects of education in LFP. This fact suggests that more educated individuals may prefer to not participate in the labor market instead of having a job without these benefits. Furthermore, the existence of labor markets with highly differentiated benefits can reduce incentives for LFP.

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