Mexican real wages and the U.S. economy

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ABSTRACT

This article examines real wage determinants from 1996 to 2014 across Mexican states. Real wages are determined in equilibrium by combining labor supply (years of education and population growth) and labor demand (mostly external factors) forces. Panel data models provide two main results. First, years of education and U.S. real GDP appear to be reliable predictors of wages in fixed effects models, with very marked changes after the U.S. 2008–2009 financial crisis and stronger effects on northern Mexican states. Second, dynamic panels confirm the role of foreign forces: positive from the U.S. economy and negative from the real exchange rate.

1. Introduction

The U.S. economy plays a very significant role in the Mexican economy. This influence has expanded following the economic liberalization of Mexico that started in the mid-1980s and accelerated with the enactment of the North America Free Trade Agreement (NAFTA) in 1994. The literature addressing the effects of U.S. economic activity on the Mexican economy has studied this relation from different angles including, for instance, trade and welfare effects from tariff reductions (Caliendo and Parro, 2014), FDI (Cuevas et al., 2005), labor immigration and remittances (Mandelman and Zlate, 2012), and productivity (Cabral and Mollick, 2011). On the labor market, in particular, Robertson (2000), Gambrill (2005), Mishra (2007), and Chiquiar (2008) have examined the effects of factors such as NAFTA, migration, and regional differences.

A body of literature links financial or currency crises to the labor market. There are a good number of papers on the Mexican economy, particularly following the currency crisis of 1995 as a natural experiment. Kehoe and Ruhl (2009) construct a multisector growth model calibrated to the Mexican economy in order to analyze its 1994–95 crisis. Their model rationalizes the fact that the sudden stop of capital flows into a developing country tends to be followed by a rapid switch from trade deficits to surpluses, real exchange rate depreciation, and decreases in output and total factor productivity. Labor market effects include the reallocation taking place from the nontraded to the traded sector. Pratap and Quintin (2011) use household survey data during the 1994–1995 Mexican crisis to show that workers who switched industry or occupation during the crisis lost on average about 10% of their hourly earnings relative to workers who did not move. Other studies conduct panel evidence for emerging market economies.

Gallego and Tessada (2012) examine job flows from a sectoral panel dataset for four Latin American countries and find that sudden stops are characterized as periods of lower job creation and increased job destruction with heterogeneous effects across sectors. For a panel of 20 countries, Maarek and Orgiazzi (2013) find that the currency crisis dummy has a negative effect on the labor share (the ratio of wages and salaries to value added, calculated from industrial surveys), controlling for education, investment/value added and openness measures. For other specific country evidence, Mehta and Sun (2013) calculate Indonesian inter-industry wage differentials during the Asian Financial Crisis, while Rodgers and Menon (2012) show for the Philippine labor market that real wages fall more dramatically (than
A common point in these studies is how an exogenous shock, such as the currency crisis of 1995 in Mexico or the Asian crisis of 1997–98, is transmitted into the labor market (wages or employment). In equilibrium models of the labor market, real wages should reflect the marginal product of labor. In empirical studies, however, labor productivity is often used due to the complexities in measuring the capital stock needed to calculate total factor productivity. Recent studies have explored the links between real wages and labor productivity. Using a panel of 86 countries having at least 10 years of consecutive data on real wages during 1970–2010, Teimouri (2015) reports that real wages (and labor productivity, to a lesser extent) fall after a large depreciation of the nominal exchange rate. Mollick and Cabral (2015) consider human capital (years of education) or labor productivity as the fundamentals of earnings for panels of Mexican states and find that overall migration flows have greater effects on wages than FDI inflows. In an application of this model to the effects of the rising violence in Mexico, Cabral et al. (2016) study labor productivity across Mexican states as a function of real wages and several shift factors, including measures of drug-related crimes. For (endogenous) wages and labor productivity using dynamic panel methods, total crime displays a negative and statistically significant effect on labor productivity after President Calderón started the war against drug cartels from 2007 onwards.

While previous studies have addressed real wage dynamics, the impact of the recent financial crisis on Mexican wages may have amplified some effects and mitigated others. This paper attempts to fill this gap given the more recent financial crisis of 2008–2009 and its effects on the Mexican economy. Dealing with this research topic is important because, due to its size and relevance to the Mexican economy, some fluctuations - particularly those affecting the tradable sector - in the U.S. economy could possibly be absorbed into the Mexican labor market. U.S. economic fluctuations have an effect on Mexico’s net exports in at least two ways: the direct effect associated with the U.S. economy as a major trading partner and an indirect effect through the weaker peso bringing up higher prices, which reduces real wages. In the latter case, the price of labor requires an analytical framework grounded on economic fundamentals (and exogenous shocks) that will have an effect on the real economy of the neighboring economy. Employing a very simple equilibrium model of the labor market, we identify both channels in this paper using static and dynamic panel data models. The question becomes not only the degree of response of Mexican wages to the U.S. economy but how the financial crisis alters these responses. This paper therefore provides a different angle from the identification of effects of the financial crisis on financial markets. For the most recent financial crisis, in particular, several contributions exist on emerging financial markets, such as the stock volatility of Latin American countries (especially Mexico) documented by Dufrenot et al. (2011); stock markets of BRICs responding to NYSE and DAX indices examined by Bekiros (2014); or estimates of contagion and dynamic linkages from U.S. stock markets to developed and emerging markets reported by Hemche et al. (2016).

For evidence of global financial effects on the labor market using state-level data, in this paper Mexican real wage dynamics is examined from 1996 to 2014, a period right after the Mexican crisis of 1995 and including the 2007–2009 financial crisis in the U.S. In Mexico, the relevance of the U.S. economy as its major trade partner and source of foreign capital is clear. Also, the period contains more than 20 years of NAFTA, which undoubtedly increased the trade interdependence between the two economies. Figs. 1 and 2 show, respectively, the total exports and the trade share of Mexican exports to the U.S. relative to the total of Mexican exports, as well as the total FDI inflows and the share from the U.S. compared to total FDI inflows into Mexico. The integration and dependence of Mexico on the U.S. economy are clear, with 84% and 48% on average of total trade and FDI inflows, respectively, for periods observed. We pay particular attention to the influence of the U.S. economy on Mexico’s regional wages, allowing for years of education and a variety of controls used before in the literature. Fixed effects models suggest that years of education and U.S. real GDP appear to be reliable predictors of wages, with very marked changes after the U.S. 2008–2009 financial crisis and stronger effects on Mexican states geographically closer to the U.S. Dynamic panels indicate no effects from human capital but very robust positive demand effects due to U.S. real GDP and negative effects due to the real exchange rate on wages.

2 Another indirect channel through which Mexican wages might be affected is migration. Whenever economic activity in the U.S. is booming, wages in Mexico tend to move up because of a higher demand for Mexican products, but also because migration to the U.S. increases. As labor demand rises in the U.S., labor supply in Mexico declines and this puts pressure on to move salaries higher in Mexico. In the empirical models below, we allow for migration forces to the extent that population growth changes across states.

In the model by Mishra and Spillimbergo (2011) with nominal exchange rates affecting foreign wages, as long as the parameter of labor market integration is different from zero for a given level of foreign wages an increase in the real exchange rate reduces the domestic labor supply due to emigration.
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