Do institutions matter for economic fluctuations?
Weak property rights in a business cycle model for Mexico

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ABSTRACT

In this paper we introduce weak property rights in the standard real business cycle (RBC) model in order to examine the role of institutions as a source of economic fluctuations in emerging markets. In particular, in Mexico, the movements in productivity in the data are associated with changes in institutions, so that we can explain productivity shocks to a large extent as shocks to the quality of institutions. We find that the model with shocks to the degree of protection of property rights can match the second moments in the data for Mexico very well. Moreover, the fit is better than that of the standard neoclassical model with full protection of property rights regarding the auto-correlations and cross-correlations in the data. Viewing productivity shocks as shocks to institutions is also consistent with the stylized fact of falling productivity and non-decreasing labor hours in Mexico over 1980–1994, which is a feature that the neoclassical model cannot match.

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1. Introduction

In the real business cycle (RBC) model, technology shocks are central to the interpretation of cycles (see e.g. King and Rebelo, 1999; Rebelo, 2005, for reviews of this literature). However, with the exception of some big oil shocks, it is hard to find macro-events such as the ones suggested by the Solow residual. Adopting a broader definition of technology shocks (so as to include disturbances like policy reforms, financial and political crises, weather conditions, wars, etc.) could help in this direction. Such disturbances, however, work through different economic channels. It is hence arbitrary to put all of them in the same basket and assume that they all work in the same way, as implied by treating them as technology shocks in the baseline RBC model.

The literature has therefore searched for extra shocks that can potentially reduce the dependence on unobservable technology shocks, as well as for mechanisms to amplify and propagate these shocks (see e.g. Rebelo, 2005, pp. 224–227). Simply adding shocks does not necessarily improve the fit of a model; what is also important is the channel through which these shocks affect the macro-economy (see e.g. Cooley and Hansen, 1995).

In the present paper, we study a new shock that works via a new channel and is potentially relevant for a number of countries, especially emerging markets. In particular, we emphasize the role of institutions for the macro-economy. This is because it is widely recognized that the incentives to work, produce, invest, innovate, etc., depend crucially on the quality of

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institutions in general, and the degree of protection of property rights in particular. The less secure are the property rights, the weaker these incentives, and this is bad for the macro-economy.

Although the importance of institutions for economic outcomes has been emphasized by many researchers at both a theoretical[3] and empirical[4] level, the literature has not paid as much attention on whether accounting for institutional characteristics, like the degree of property rights, can contribute to explaining the cyclical properties of the data within a dynamic stochastic general equilibrium framework.[5]

We focus on the Mexican economy, motivated by Bergoeing et al. (2002a, 2002b), who have suggested that in Chile and Mexico institutional changes (such as privatization, regulation of the banking system and bankruptcy laws) can help to explain the total factor productivity movements, which in turn shape economic fluctuations. Indeed, we also find that in Mexico the movements in productivity are associated with changes in institutions that took place in Mexico. Hence, here we allow for changes in institutions to complement changes in total factor productivity, and find that shocks to institutions matter for economic fluctuations. This works through productivity as well as through direct effects on resource allocation.

Using data on the evolution of the quality of institutions from the ICRG dataset (this dataset is widely used in the literature on institutions; see e.g. the papers in footnote 4), we construct a measure of the quality of institutions that protect property rights. We find that this has a higher standard deviation in emerging markets relative to more developed economies, indicating that changes in institutions are bigger in the former. We then incorporate weak property rights into an otherwise standard RBC model, by assuming that individuals can use a share of their non-leisure (or work) time to extract from other individuals' output to increase their own personal wealth. This hurts the macro-economy because the possibility of weak property rights pushes rational individuals away from productive activities and thus leads to a misallocation of talent and resources (see also e.g. Murphy et al., 1991).

In our model, a shock to the degree of property rights affects the efficiency with which factor inputs are used. As a result, the effects of a property rights' shock resemble to those of a technology shock. This is a useful characteristic, because economic fluctuations are related to total factor productivity (TFP). However, a negative shock to property rights, by creating incentives for extraction, has additional direct effects on factor inputs, which, in the case of the labor input, result in increases in labor hours three periods after a negative property rights shock. Given that in this framework negative shocks to property rights show up as negative TFP shocks, this model is then consistent with falling productivity and non-decreasing labor supply in the data in the medium run. Hence, it is consistent with the stylized fact of falling productivity and non-decreasing labor hours in Mexico over 1980–1994, which is a feature that the basic RBC model driven by technology shocks cannot match.

We calibrate this model to Mexican annual data over the period 1980–2005. We find that the model with weak property rights performs generally better than the model with full protection of property rights (which is the baseline RBC model) in matching the auto-correlations and cross correlations in the data. Moreover, when we use the measure of property rights constructed from the ICRG dataset to obtain a proxy for the driving process in the model with weak property rights, we find that the model with such a shock only (i.e., without an additional technology shock) can generate series that follow the actual data until the early 90s and then again after 2000. When compared to the basic RBC model with full protection of property rights that is driven by TFP shocks (as measured by the actual Solow residual from the data) the model that has only shocks to property rights still does a better job in matching the actual data for the period 1984–1994. The model with weak property rights that is driven by both TFP and property rights shocks gives a better fit for the whole period.

Obviously, shocks to the quality of institutions are not the only shocks that matter for economic fluctuations. This is evident in the case of Mexico, as the model, when driven by property right shocks only, cannot fit the data in the mid and late nineties as well as a model with both TFP and property rights shocks. In the period during and after the debt crisis of 1995, movements in current accounts, capital flows and exchange rates are also a very important part of the story (see e.g. Chari et al., 2005; Kehoe and Ruhl, 2009; Meza and Quintin, 2007), that we do not model. Here, we consider a simple extension to the benchmark closed economy neoclassical model and we find that this simple extension contributes to accounting for economic fluctuations in Mexico and can be useful both in characterizing the nature of (some) shocks and in providing a potential explanation for (some) stylized facts.

The rest of the paper is organized as follows. Section 2 motivates the paper by briefly discussing the literature on institutions and presenting some empirical evidence. Section 3 presents and solves the theoretical model and discusses the role of weak property rights. Section 4 calibrates the model. Section 5 discusses the model's predictions. Section 6 compares the model with weak property rights to the model with full protection of property rights, by evaluating their ability to reproduce some key second moments in the actual data. Section 7 uses a proxy for the protection of property rights, obtained using data from the ICRG dataset, to compare the predictions of the model with weak property rights to those of the benchmark model that is driven by the actual Solow residual. Finally, Section 8 closes the paper.

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[3] See e.g. North (1990) and Parente and Prescott (2000) for the importance of institutions. For a survey on institutions, property rights and economic outcomes, see e.g. Drazen (2000) and Mueller (2003). Prescott (1998) suggests that changes in institutions are behind the differences in total factor productivity.

[4] See e.g. Knack and Keefer (1995), Mauro (1995), Hall and Jones (1999), Rodrik (1999), Acemoglu et al. (2001, 2002, 2003).

[5] For instance, Acemoglu et al. (2003) have shown that weaker institutions are related to higher volatility in a world sample. See also Bergoeing et al. (2002a, 2002b) and the next section for more details.