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Unbundled institutions, human capital and growth

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ABSTRACT

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We investigate the partial effects of institutions and human capital on growth. We find that cross-country regressions of the log-level of per capita GDP on instrumented measures of institutions and schooling are uninformative about the relative importance of institutions and human capital in the long run because of multicollinearity problems. Using dynamic panel regressions we show that both institutions and human capital have significant effects on growth. Using Rodrik's [Rodrik, D., 2005. Growth strategies. Handbook of Economic Growth 1 (1), 967–1014] four-way partition of institutions, we also unbundle institutions. We show that strong market creating institutions and market stabilising institutions are growth enhancing. Market regulating institutions matter up to a certain extent and market legitimising institutions does not seem to matter. *Journal of Comparative Economics* 37 (1) (2009) 106–120. Research School of Pacific and Asian Studies (RSPAS), The Australian National University, Australia.

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1. Introduction

Institutions are one of the major causes of long-run economic growth. This is documented by a growing literature on long-run economic growth (see Hall and Jones, 1999; Acemoglu et al., 2001; Rodrik et al., 2004; Easterly and Levine, 2003; and many others).¹ Hall and Jones (1999) identify the effects of institutions by tracing back their origins to colonisation itself. Acemoglu et al. (2001) and Rodrik et al. (2004), on the other hand, focus on the incentives of colonial powers to build good institutions proxied by the settler mortality instrument.² They argue that the Europeans resorted to different style of colonisation in different parts of the world depending on the feasibility of settlement. In tropical climate the mortality rate among European colonisers were extremely high which prevented them from settling there and they erected extractive institutions. Whereas, in temperate climate the mortality rate among the colonisers were low which made them ideal for settlement and they erected strong institutions in these settlements. These institutions persisted over time and they continue to influence the economic performance of these countries even long after independence. Easterly and Levine (2003), on the other hand, identify the effects of institutions by using natural resource endowments as an instrument.

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¹ Knack and Keefer (1995) also estimate the contribution of institutions to growth. Their focus however is on growth over the period 1974 to 1989.

² We are aware of the controversy regarding the settler mortality instrument. Albouy (2008) identify several problems with the original variable in Acemoglu et al. (2001) and the revised dataset published as MIT mimeo by the same authors in March 2005 and September 2006. We use this variable to facilitate comparison as all the papers that we analyse in Section 2 use this variable.

In a recent study [Acemoglu and Johnson \(2005\)](#) evaluate the relative importance of ‘property rights institutions’ and ‘contracting institutions’ in the long run using a cross-sectional framework similar to the papers noted above. They show that ‘property rights institutions’ have a first-order effect on long-run growth and ‘contracting institutions’ does not seem to matter.

The literature on long-run growth noted above however is criticised by [Dollar and Kraay \(2003\)](#) and [Glaeser et al. \(2004\)](#). [Dollar and Kraay \(2003\)](#) document that the cross-sectional evidence is not very informative about the relative importance of trade and institutions in the long run. They show that the instruments for trade and institutions suggested by the literature have strong explanatory power for both endogenous variables (trade and institutions). As a result, they encounter problems of multicollinearity in their second stage regressions. [Glaeser et al. \(2004\)](#)³ observe that the settler mortality instrument used by [Acemoglu et al. \(2001\)](#), [Rodrik et al. \(2004\)](#), and many others to identify the contributions of institutions to long-run growth have strong explanatory power for both institutions and schooling. This leads them to argue that perhaps the European migrants brought with them their stock of ideas and human capital when they migrated and not just institutions.⁴

Given the doubts that these studies have created about the relative importance of institutions and human capital, further research is certainly called for. Our objectives in this paper are twofold. First, is to shed some light on the issue of relative importance of institutions and human capital. Second, is to unbundle institutions beyond property rights and contracts by estimating the contributions of market creating, market regulating, market stabilising, and market legitimising institutions.

We start by bringing together the two strands of literature discussed above and making an attempt to isolate the partial effects of schooling and institutions in the very long run using the cross-sectional framework. We utilise specifications already used in the literature to achieve this goal. In doing so, we face severe problems of multicollinearity in our second stage regressions. We observe that the standard instruments used in the literature have strong predictive power over both the endogenous variables (institutions and schooling) at the first stage. This makes the fitted values of institutions and schooling highly correlated with each other and this precludes the possibility of obtaining meaningful estimates of either variables.⁵ This indeed is a disappointing result. As a natural reaction, we then turn to dynamic panel regressions with average growth rate over five year periods as a dependent variable. Here we do not encounter the multicollinearity problems of our cross-section analysis and we are able to isolate the partial effects of institutions and human capital. This may be because lagged levels and lagged differences of institutions are weakly correlated with current levels of schooling and vice versa. Further, the use of panel data allows us to bypass the controversy regarding the settler mortality variable in the cross-section literature.

To achieve our second objective, we utilise [Rodrik’s \(2005\)](#) four-way classification of institutions (market creating, market regulating, market stabilising, and market legitimising institutions)⁶ and identify a proxy for each of them and also estimate their contributions to growth.⁷ We find that strong market creating institutions characterised by the adequate protection of private property and contract enforcement are growth enhancing. Market stabilising institutions that ensure macroeconomic stability and do not undertake distortionary policies boost investor confidence and are also good for growth. We notice that there is nonlinearity in the relationship between growth and market regulating institutions. There exists a growth maximising level of market regulation beyond which it increases red tape and kills the incentive for investment. The effect of market legitimising institutions is statistically insignificant. Overall, the result holds in different sub-samples and is reasonably robust to the inclusion of additional covariates.

To summarise, we make the following contributions in this paper. First, using the [Blundell and Bond \(1998\)](#) dynamic panel regression we are able to isolate the partial effects of institutions and human capital on growth. Second, we adopt the [Rodrik \(2005\)](#) four-way classification of institutions and identify proxy for each of them and estimate their contribution to growth. This is an improvement over [Acemoglu and Johnson \(2005\)](#) and [Knack and Keefer \(1995\)](#) who only focus on ‘property rights institutions’ and ‘contracting institutions’ in a cross-section of countries.

The remainder of the paper is organised as follows. In Section 2, we present our cross-section analysis which aims to isolate the partial effects of institutions and human capital in the long run. Section 3 motivates the use of dynamic panel regression model as an alternative. In Section 4, we make an attempt to unbundle institutions. We discuss the definition of each of these institutions and identify proxy measures of each of them. In Section 5, we discuss the data. Section 6 presents the results and performs several robustness tests. Section 7 concludes.

³ In a related research [Papaioannou and Siourounis \(2008\)](#) show that democratisation is most likely to occur in educated and affluent societies. They also show that education is one of the key factors determining the intensity of democratic reforms and the speed of democratic transitions.

⁴ [Acemoglu et al. \(2005\)](#) challenge [Glaeser et al.’s \(2004\)](#) argument that the variations in schooling are a major causal factor explaining the differences in political institutions. They show that the effect of schooling on democracy disappears when country fixed effects are included in the regression. This is perhaps indicative of the presence of omitted factors influencing both schooling and democracy in the long run. They however do not deal with economic institutions in their study.

⁵ [Dollar and Kraay \(2003\)](#) also confront similar problems in their cross-section analysis when they try to isolate the partial effects of institutions and trade in the long run.

⁶ Similar ideas are also discussed in [Rodrik \(2000\)](#) and [Rodrik and Subramanian \(2003\)](#).

⁷ In a related paper [Acemoglu and Johnson \(2005\)](#) estimate the contributions of ‘property rights institutions’ and ‘contracting institutions’ in the very long run. Their study uses the cross-sectional method noted above. [Knack and Keefer \(1995\)](#) also estimate the contribution of property rights and contracting institutions to growth over the period 1974 to 1989. They use OLS to estimate their model.

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