Journal of Development Economics 86 (2008) 414 – 433

JOURNAL OF Development ECONOMICS

www.elsevier.com/locate/econbase

Are financial development and corruption control substitutes in promoting growth?☆

Christian Ahlin [a,*], Jiaren Pang [b]

[a] *Department of Economics, Michigan State University, United States*
[b] *Department of Economics, State University of New York at Buffalo, United States*

Received 9 December 2005; received in revised form 12 July 2007; accepted 26 July 2007

Abstract

While financial development and corruption control have been studied extensively, their interaction has not. We develop a simple model in which low corruption and financial development both facilitate the undertaking of productive projects, but act as substitutes in doing so. The substitutability arises because corruption raises the need for liquidity and thus makes financial improvements more potent; conversely, financial underdevelopment makes corruption more onerous and thus raises the gains from reducing it. We test this substitutability by predicting growth, of countries and industries, using measures of financial development, lack of corruption, and a key interaction term. Both approaches point to positive effects from improving either factor, as well as to a substitutability between them. The growth gain associated with moving from the 25th to the 75th percentile in one factor is 0.63–1.68 percentage points higher if the second factor is at the 25th percentile rather than the 75th. The results show robustness to different measures of corruption and financial development and do not appear to be driven by outliers, omitted variables, or other theories of growth and convergence.

JEL classification: G21; O16; O17; O40; O43
Keywords: Financial development; Growth; Complementarity; Corruption

1. Introduction

The importance, or unimportance, of complementarities has been a recurrent theme in economic development. This issue has been debated in various forms for decades, including by critics and proponents of "Big Push" *theory*.[1] Complementarities are important to understand from a positive and normative point of view. Their existence can lead to multiple equilibria and poverty traps, ideas which may be useful in understanding underdevelopment. They also tend to argue for policies characterized by multi-pronged, simultaneous investments rather than piecemeal efforts. For example, if health clinics and clean water are complementary in producing health, it may not be rational to invest in either unless both can be provided; conversely, if they are substitutes,

☆ We are grateful to Stijn Claessens and Luc Laeven for sharing their data and to three anonymous referees, Pinaki Bose, Hyeok Jeong, Joe Kaboski, Lant Pritchett (the editor), Moto Shintani, Kenichi Ueda, and seminar participants at University of Memphis, University of Southern California, Vanderbilt, and at 75 years of Development Conference 2004 for helpful comments.

* Corresponding author.
E-mail addresses: ahlinc@msu.edu (C. Ahlin), jpang3@buffalo.edu (J. Pang).

[1] Participants in this debate include Rosenstein-Rodan (1943), Nurkse (1953), Hirschman (1958), Murphy et al. (1989), Kremer (1993), and, more recently, Sachs (2005) and Easterly (2006).

0304-3878/$ - see front matter © 2007 Elsevier B.V. All rights reserved.
doi:10.1016/j.jdeveco.2007.07.002

investing in only one of them (at least initially) may well be justified.

The goal of this paper is to focus this interaction question on two key ingredients of development: corruption control and financial development. Recent research (cited below) suggests both factors are important determinants of economic growth. The question we ask is, do they serve as complements or substitutes in promoting growth?

The question of interaction has important implications in this context. Consider a proposal to condition aid on a low level of corruption. One justification could be that low corruption and other development ingredients are complementary — e.g., improving the financial system will affect growth only if corruption is under control. This is similar to the point that Johnson et al. (2002) make in the context of several transition economies. But, if corruption control and financial development are substitutes rather than complements, then financial system improvements of the *more* corrupt countries pay the highest growth dividends. Aid targeted toward financial systems could then best be spent on corrupt countries.[2] Optimal conditionality depends in part on the sign of the interaction between different instrumental dimensions of development.

Consider further the question of where and how to invest development funds. Under substitutability, it is in the countries at the lowest starting points that a given (moderate) improvement will pay the greatest growth dividend; under complementarity, by contrast, minimal growth dividends result from a given (moderate) improvement in the most backward countries (the thrust of the "Big Push" theory). This is because under substitutability, the greatest gains come from investments early on the development path, while under complementarity, the greatest gains come toward the end of the development path.

Substitutability would also tend to lead to more specialization, i.e. focused improvements along one dimension or another depending on relative costs, while complementarity would argue for comparatively balanced investments. Finally, complementarity would tend to rationalize an all-or-nothing approach – substantially fix both corruption and financial frictions, or do little, depending on relevant costs – while substitutability would tend to rationalize moderate levels of investment that do not vary as widely with costs of interventions. In short, as has long been argued, understanding interactions between different ingredients of development is critical to rational investment in development.

We begin with simple theory to provide a basis for our empirical tests. An economy is endowed with a heterogeneous set of investment projects. Each project requires an upfront capital investment that must be borrowed within a potentially inefficient financial system. The inefficiency, i.e. financial underdevelopment, is parameterized as a resource cost of intermediation. Undertaking an investment project also requires a corrupt payment or bribe. Corruption is parameterized as the size of the bribe due, as a fraction of the investment. Thus the focus is on corruption that is *costly* to the firm, e.g. extortion or payment for services that should be provided for free, rather than on grand corruption or on corruption that is *beneficial* to the firm but costly to society, e.g. collusion with the official to circumvent rational regulation. While all kinds of corruption exist, ample evidence supports this focus.[3]

The model predicts that lower corruption and higher financial development raise investment. Thus the two factors have positive effects taken separately. Under a plausible condition, the two factors act as substitutes in facilitating investment. Substitutability arises because higher corruption raises the need for liquidity and thus makes financial improvements more productive. Conversely, a financially developed country is hurt less by a given increase in corruption, since funds can be borrowed more readily.

There is a bit of corroborative evidence for the mechanism highlighted here in Safavian (2001), who reports on survey data from small businesses in Russia. He finds that enterprises that report being more harried by corruption also apply more often for external finance and rank lack of finance as a greater obstacle to business —

[2] Of course, if low corruption is not only substitutable with financial development in producing growth, but also complementary to aid in producing financial development, it might still be optimal to condition aid on low corruption.

[3] In the survey of 3600 entrepreneurs worldwide summarized by Brunetti et al. (1997), respondents ranked corruption as the second most significant impediment to doing business, ahead of lack of financing. Other similar surveys rank it as a significant obstacle, though not always ahead of financing (see e.g. Beck et al., 2005). Fisman and Svensson (2002), Johnson et al. (2002), Hellman et al. (2003), and Beck et al. (2005) all find evidence that corruption hinders firm growth and/or investment; quantitatively, Johnson et al. find that firms facing pervasive corruption (no corruption) are predicted to have a 33.5% reinvestment rate (55.1% reinvestment rate). On a cross-country level, Mauro (1995) finds that corruption hinders investment; quantitatively, a one standard deviation reduction in corruption would raise the investment rate by about five percentage points. Other evidence for corruption that acts as a hindrance, rather than "grease", to entrepreneurs can be found in de Soto (1989), Frye and Shleifer (1997), Berkowitz and Li (2000), Safavian (2001), and Svensson (2003).