Cross Countries Determinants of Vertical Integration
- Extended Abstract -
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Most of the existing theories of the firm argue that imperfections in inputs markets lead to higher vertical integration. According to this line of reasoning, we should observe more vertical integration in developing countries. This paper starts by unveiling a few patterns about cross countries differences in vertical integration. Proxying vertical integration with a ratio of value added over output we find evidence of higher vertical integration in more developed countries.
Second, we find that industries which are more dependent on external finance and that are more skill intensive in the United States tend to be relatively more vertically integrated in richer countries.

For instance, richer countries tend to be relatively more vertically integrated in industries such as production of professional goods, chemicals production, rubber or plastic production. Developing countries are relatively more integrated instead in industries such as beverages, food or wood manufacturing.

To explain these facts I provide two simple industry equilibrium models of vertical integration analyzing the effects of credit markets imperfections and managerial quality.

With respect to credit markets, starting from the premise that vertical integration reduces, ceteris paribus, the pledgeable income of an economic organization, the model explores the sorting of firms with heterogeneous productivity into organizational forms. Because of industry equilibrium effects running through increased competition, better credit markets are associated with higher degrees of vertical integration in industries which are, for technological reasons, more concentrated.

With respect to managerial skills we shows that vertical integration becomes relatively more costly when the pool of available talent and tasks are highly complementary. In a vertically integrated firm it is more difficult for the downstream division to commit to "fire" the upstream division: trade is more likely to take place within the two divisions than between the downstream division and the external market. This is also true when the upstream unit produces
a low quality component. In contrast, under subcontracting, the firm will be more likely to employ a non specific component. However, should the quality of the component be low, the firm incurs lower costs of switching to alternative suppliers. Vertical integration thus by committing the firm to internal procurement, results in higher losses whenever tasks are highly complementary or when suppliers are likely to fail to provide a high quality component.

We emphasize two key aspects of the two models. The two models emphasize quite different determinants of firm boundaries from the existing literature. In particular, with respect to the Grossman - Hart - Moore framework we de-emphasize the role of non contractible investments and hold up. Both models rely on simple theories of firm boundaries emphasizing ex-post governance implications of organizational form, in contrast to ex-ante incentives to invest. Secondly, in both models we emphasize the importance of an industry - equilibrium analysis with heterogeneous firms. We show in both cases that key comparative statics may have opposite sign when industry equilibrium effects are and are not taken into account.

In the empirical session we first provide correlations between country level characteristics and degrees of vertical integration. While we find that richer countries have more vertically integrated firms, we also find that more open countries, countries with better contract enforcement institutions and higher levels of social capital have lower levels of vertical integration. Countries with high skills have higher levels of vertical integration. The effect of financial development crucially depends on whether proxies for competition are controlled for.

We then test the main predictions of the model with respects to skills and credit markets imperfections. We do this looking for specific channels through which country level variables affect industry level degrees of vertical integration. The identifying assumption is that measures of external dependency, concentration and skill intensity in the United States reflect technological features of industries. These technological features do not need to be equal in other countries, but the ranking does. For example, we do not require the technological need of the textile industry in India to be the same than in the United States, but we require that if the textile industry is less dependent on external finance than the glass industry in the United States, than it will also be less dependent on external finance in India.

The empirical evidence is consistent with the theoretical predictions. We find evidence that countries with higher human capital are relatively more integrated in industries that rely more extensively on skilled labor. Countries with better financial markets are more vertically integrated in industries that are more concentrated for technological reasons. These stories are robust to the inclusion of alternative explanations, notably the effect of variables related to the enforcement of contracts, the level of social capital, the extent of regulations of the labor markets and measures of competition policies.

Keywords: Vertical Integration, Skills, Credit Constraints, Contracts Enforcement, Developing Countries, Industry Equilibrium.

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