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THE "INVISIBLE ROLE" OF BUSINESS GROUPS IS MADE EVIDENT

By **Armando Rungi***

Business Groups collect and coordinate legally autonomous firms spanning both within and across national borders. They represent a lion's share of value added generation on a world scale, and yet they received little attention in economics literature, probably due to a lack of detailed data. In Altomonte and Rungi (2013) we exploited a unique own-built dataset of proprietary linkages to find that: a) Business Groups are present in both developing and developed countries, adapting their organization according to the peculiarities of the hosting environment; b) within Business Groups, choices of integration of production activities are not independent from choices of management coordination; c) eventually, choices of management coordination reveal to be important drivers of productivity and dominate on choices of vertical integration. More in general, here we argue, data are telling us that the adoption of different organizational structures at the firm level can in part explain the endurance of productivity gaps across industries and countries and the phenomenon of Business Groups becomes even more important after the emergence of Global Value Chains.

Keywords: Production Chains, Hierarchies, Business Groups, Financial Development, Property Rights, Vertical Integration, Corporate Ownership, Organization of Production, Productivity

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Introduction

Business Groups (BGs) are nothing new in the history of modern economies. Across geography and time we can find *Konzernein*

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Germany, *chaebol* in South Korea, *keiretsu* in Japan and *trade associations* in Israel. In very different economic environments there is an intuitive notion of clusters of firms put under common control. Yet, the phenomenon has been usually considered in economics literature as peculiar of emerging economies, where imperfections on the markets for inputs and financial resources lead firms to coalesce in network-like organizations in order to source among them what they need for their productive scope ([Khanna and Yafeh, 2007](#)).

Business and sociological studies lamented however that, due to a lack of systematic data, BGs were poorly investigated by scholars and that they played an important but 'invisible role' ([Granovetter, 1995](#)).

Relying on classical and recent advancements of the property rights theory, we conducted our empirical analysis on an own-built unique dataset of proprietary linkages collecting more than 1 million and a half subsidiaries controlled by 270,474 parent companies operating in 207 countries. In [Altomonte and Rungi \(2013\)](#) we found that they represent a large share of value added generation (about 27.9 US\$ trillion in 2010) on a world scale. In particular, their organization shows to be peculiar since it allows to combine together different strategies of vertical integration and management design, in order to adapt to the constraints they encounter in the host country. The management structure, in this context, reveals to be an additional competitive advantage in explaining superior firm performance.

More in general, the comprehension of the phenomenon of BGs becomes more important after considering two features of the ongoing process of international economic integration. First, thanks to decreasing transportation costs and the adoption of information technologies, the last decades have seen the emergence of Global Value Chains, with networks of firms engaged across national borders in separate productive tasks before reaching the final consumer. Multinational Business Groups

are leading actors in creating such complex supply chains. On the other hand, despite the disappearance of many barriers to trade, productivity gaps across countries are still enduring and firms in similar industries are still heterogeneous across national borders in terms of performance. Following many recent studies, organization of production can in part explain such heterogeneity in performance.

The nature of Business Groups

The classical theory of the firm identifies two simple organization modes of production activities. Intermediate inputs can be directly exchanged on the market, with a price agreed on between independent firms. However, in case the parties have problems in enforcing contracts, one party can choose to internalize the production of inputs and the result is the creation of a hierarchy where transactions occur within the firm. The previous supplier-customer relation becomes an employer-employee relation and a salary is given for the provision of the input that was once bought on the market.

Under many aspects the organization through the market is usually considered a superior choice, since the possibility of the parties to retain property rights on their assets provides higher economic incentives for production. However, a firm's internal coordination also has a cost and it has to be weighed against the risk that a contract with an independent party is not enforceable. At the end the firm has to find an equilibrium to this trade-off, choosing which activities to perform in-house and which ones to contract out to independent firms. In this classical framework the firm choice is a simple and dichotomous one: to 'make' or 'buy' what needed for production. But the case of Business Groups shows that intermediate solutions are always possible.

As we define Business Groups as a set of at least two legally autonomous firms whose economic activity is coordinated through some form of hierarchical control via equity stakes, they show a more flexible form of

assets ownership. They provide at the same time incentives to self-enforce promises of cooperation among affiliates, given the control exerted by a common parent, without giving up the advantage (if and when necessary) of organizing activities within a market-like environment, since each affiliate maintains formal property rights on its production assets.

Accordingly, Business Groups are thus able to exchange intermediate inputs on the market, but possibly through a transfer price; they can relocate financial resources across affiliates, but at more favorable conditions if confronted with external financing, via the development of internal capital markets; they coordinate management decisions through majority stakes in controlled assets, but have to consider as well minority shareholders' protection.

Business Groups and Global Value Chains

Eventually the same trade-off, to 'make' or 'buy' inputs, is brought on a world scale. In the last three decades fragmentation of production across national borders has accelerated thanks to an elimination of trade barriers: distances have shortened after the adoption of information technologies and the decreasing transportation costs. Hence, firms within and across national borders can focus on some core activities, where the creation of value is higher, leaving secondary activities to other firms located wherever they can enjoy a competitive or a comparative advantage in a particular stage of production, be it a cost advantage or a technological advantage.

On a world scale this process has led to the emergence of production networks among firms often referred to as Global Value Chains. Production is organized in sequences: from the product design to the distribution to the final consumer, all intermediate stages of production can involve many firms dispersed in several industries and countries. The anecdotal evidence is full of examples: among others, consider the example of the aircraft industry,

where the Development Team of Boeing comprises 50 suppliers located in 9 different countries ([Grossman and Rossi-Hansberg, 2012](#)).

These networks of firms can either organize themselves through a web of supply contracts or there can be a parent that coordinates affiliates. In other words, across national borders a firm has to face the same dilemma that can finally lead to the formation of a (multinational) Business Group.

A previous study we made after merging our dataset with firm-level trade provided by Banque de France ([Altomonte et al., 2012](#)) revealed that Business Groups in France were responsible for two thirds of import and export flows. Similarly, official US data reveal that 75 percent of US trade could be attributed to firms organized as multinational Business Groups. The availability of information on BGs' proprietary networks allowed us to identify a measure of 'related-party' trade, of goods and services exchanged among co-affiliates, as opposed to arm's length transactions between independent firms.

The analysis showed that following the financial crisis of 2007-2008, Global Value Chains originated by BGs reacted faster to demand shocks thanks most probably to a better management of inventories. A result that needs further investigation, but that already demonstrates the importance of considering firms as included in network-like forms of production rather than lonely knights on the international scene.

Ownership structures and firm productivity

In general, the process of dispersion of production activities on a world scale should lead to a convergence in terms of firms' performance across countries, possibly after controlling for industrial composition and factor endowments. Instead, both within industries and within countries, stark differences are enduring for firms that engage in similar stages of production. To

partially explain those differences one classical argument has been made that choices of firm boundaries can be themselves a driver for performance, especially when market imperfections are important. In other words, since the decision made by the firm of integrating some activities in-house rather than contracting them out is dependent on the possibility to enforce contracts, the latter is an institutional constraint already present at the country-level that is responsible for the heterogeneity of productivities (for a review, [Syverson, 2011](#)).

On the other hand, recent advancements in organizational economics have introduced the management design as a further determinant of performance. Management is based on knowledge and this peculiar intangible asset is exploited as a further input which is complementary to physical inputs in production (among others, [Garicano and Rossi-Hansberg, 2012](#)). However, the way it is accumulated and transmitted along a firm's organization is dependent again on the institutional constraints of the economic environment. Hence, as in the case for vertical integration, market imperfections can lead to inefficient exploitation of knowledge and in turn to different firm performances.

The results we show in [Altomonte and Rungi \(2013\)](#) demonstrate that both vertical integration choices and management design are interdependent in the case of a Business Group, and that the latter seems to dominate in a positive (albeit non-linear) correlation with a firm's productivity.

Metrics for Business Groups and our results

In an effort to catch the multidimensional nature of Business Groups, in [Altomonte and Rungi \(2013\)](#) we first improved on existing empirical literature on vertical integration, introducing two different proxies for the propensity of the whole group to exchange intermediate inputs and for the propensity of the single affiliate to exchange with other coaffiliates in the same

network. Then, as a novel metric, we introduced an index for the organizational complexity of control chains linking affiliates with headquarters borrowing from graph theory. The latter we called Group Index of Complexity (GIC) and was built with reference to emerging literature on knowledge-based hierarchies, where management decisions are allocated taking into account costs of accumulation and transmission of knowledge over the hierarchy of employers and managers ([Caliendo and Rossi-Hansberg, 2012](#)).

Preliminarily we found that affiliates of BGs are systematically larger, more productive and more capital intensive than firms that do not operate within these structures. Hence, focusing on BGs only, we studied vertical integration as dependent on country-level institutional frictions, such as the possibility to enforce contracts on the inputs markets and on the credit market, further controlling for the group's organizational complexity.

As expected, a group level of vertical integration was positively correlated with the quality of the institutions. But looking within BGs, strategies could be very different for groups that showed similar aggregate integration. A single affiliate and its group are at the margin less similar in terms of vertical integration in 'good' institutional environments, as a higher contract enforcement and/or a better financial development allow the single affiliate to specialize more, exchanging fewer inputs with coaffiliates and the parent. In other words BGs have a certain degree of freedom in choosing how to allocate integration about constituent affiliates. Conditional on the hosting environment, the coordinated management can choose to either concentrate activities in few affiliates or disperse the same activities in many specialized affiliates, with a variety of intermediate solutions.

Further, our analysis showed that these different organizational strategies are not neutral in terms of affiliates' performance. In particular, we found that a positive

correlation exists between organizational complexity and productivity, which is more important than the well-known correlation of the latter with vertical integration.

In the framework we borrowed from literature as in [Caliendo and Rossi-Hansberg \(2012\)](#), the complexity of the management structure represents the way knowledge is accumulated and transmitted among different agents with different tasks. Knowledge is essentially a further input complementary to physical inputs in production. Better managers and better managerial procedures convey such an input. Hence, our results implied that bigger production networks are able to sustain the higher fixed costs of better managers and better managerial procedures, since also the scale of production is bigger and fixed costs can be smoothed on more production units.

On the other hand, the cost of communicating knowledge over the hierarchy increases with the addition of several layers of management and these costs put a natural limit to the growth of the management structure. As a consequence, after a certain threshold internal management costs become too high for knowledge resources to be efficiently exploited and, indeed, we found that about 1% of groups in our sample exceeded the average 'optimal' organizational threshold.

On average, we found that the farther the affiliate is from the decision-making center the less its productivity prize from belonging to a Business Group, because knowledge resources are filtered and dispersed over the hierarchy.

Conclusions

There is an increasing attention devoted to the role played by organization of production within and across national borders in shaping a country's growth opportunities. In this context Business Groups, while usually considered as an exception of non-mature economies, show

instead to be the rule in both developing and developed countries. Their heterogeneous organization strategies are the result of a process of adaptation to the hosting environment after taking into account several institutional frictions. However, organization is multidimensional in nature and, among the different variables involved, an essential role is played by the management structure. The latter, in particular, is the one that conveys knowledge to the different agents involved with different tasks in production processes. Hence, in order to exploit efficiently such a competitive intangible asset, our results say that the way the management structure is organized is at least as important as (if not more than) the more tangible production network a Business Group establishes.

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