



CORPORATE NETWORKS AND BUSINESS GROUPS IN ARGENTINA IN THE EARLY 1970S

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This article examines the interlocking directorates' structure of prominent Argentine business groups at the end of the import substitution period (1970–72), identifying corporate relations among and between business groups and the largest companies, during a period characterised by high institutional and macroeconomic instability. Applying social network analysis, it seeks to clarify how business groups can contribute to the cohesion of a corporate network structure, through their ability to create links among firms not only within their boundaries but also external to them. The article contributes to both corporate network and business groups' literature, highlighting a role of business groups that extant literature has failed to identify as relevant.

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INTRODUCTION

Interlocking directorates (IDs) occur when two or more companies share common directors. Investigating such ties can provide insights into how cross-organisational relationships emerge and how a country's economy gets organised. Researchers have applied sophisticated network analysis methods to examine board social capital and map IDs' structures in multiple countries,¹ though most

1 Stokman, Ziegler and Scott, *Networks of Corporate Power*; Windolf, *Corporate Networks*; David and Westerhuis, *The Power*.

studies take place in nations with relatively stable institutional environments (e.g. United States, European nations), based primarily on public companies.²

This article examines the ID structure of prominent Argentine business groups at the end of the so-called import substitution period (1970–72). It seeks to identify corporate relations among and between business groups and some of the largest companies in Argentina, during a period characterised by high institutional and macroeconomic instability.

The article follows a previous study of Andrea Lluch and Erica Salvaj that identified a significant fragmentation of IDs during this same period across Argentina's largest companies.³ This finding was intriguing as the literature has proposed that cohesive social networks result from family, friendship, and long-standing personal connections affecting business relationships. Cohesiveness would facilitate the pursuit of collective goals, engender trust, reduce opportunistic behaviour, and enable the flow of critical information and the construction of a common identity.⁴ In the case of Argentina, this research has found that ownership structure and political and economic instability may have undermined the social capital typically provided by interlocks in more stable settings. In this sense, the Argentine case could support comparative studies focused on more unstable environments.

The sample used in that previous research featured only a few business group firms. Accordingly, this new study seeks to answer the following questions: Did the firms in Argentine business groups adopt relational strategies at the board level that were similar to those of the stand-alone companies? Were the business groups' firms more active creating relationships with firms both within and outside those groups? Our main goal then is to clarify how business groups impact on a dispersed and fragmented corporate network structure, in an effort to continue exploring aspects of Argentina's corporate elite structure and capitalism at the beginning of the 1970s.

This study applies social network analysis (SNA), using a sample that includes firms owned by the largest and most prominent business groups of Argentina by this time (i.e. 16) and three Italian multinational enterprises (MNEs).⁵ This discussion of the intergroup IDs and relationships across business groups and between those groups and individual companies contributes to both corporate network literature and the debate about the importance of business groups in emerging countries. Whereas Granovetter emphasises the role of ties between

2 Davis, Yoo and Baker, Strategic organization; Salvaj and Ferraro, Las redes; Corrado and Zollo, Small worlds.

3 Lluch and Salvaj, Fragmentación.

4 Adler and Kwon, Social capital.

5 We included three Italian MNEs because of their ties with Argentine business groups of Italian origin, linked by relations of interpersonal trust and their similar personal, ethnic, or communal background. For more information about the criteria for the selection, see the Appendices I and III. For a detailed synthesis of the main Argentine business groups and their long-term evolution, see Barbero, Los grupos.

firms as a cohesion mechanism,⁶ and other authors note the function of links as strong delineators of group boundaries,⁷ we focus on the ability of business groups to build external ties, using relational capital to connect disparate actors in a corporate network.

Our main finding is that group firms are more dynamic than stand-alone companies when it comes to building ties at the board level; they serve as linkers in a dispersed corporate network. This supports other recent studies that reveal, through a comparative approach, the diverse roles of business groups in varied macroeconomic and institutional settings.⁸ In Argentina, business groups contribute to the cohesion of the corporate network through their ability to create links among firms not only within their boundaries but also external to them. We identify several vectors that groups use as cohesion mechanisms. Our proposed approach and findings are innovative, not only due to the data and methodology used but also because we highlight a role of business groups that extant literature has failed to identify as relevant.

In the next section, we provide a brief account of current literature on business groups, linking it to debates about IDs. The subsequent section describes the main features of the largest firms' ownership structure and the role of business groups for the Argentine business elite. Next we discuss our findings and describe how business groups function as corporate network connectors, as well as their linking strategies; we also identify the central groups, firms, and directors. Finally, we summarise our findings and conclusions.

THEORETICAL LITERATURE

IDs among companies have been studied extensively in diverse contexts. Granovetter emphasises the different reasons and the plurality of modalities in which the ID phenomenon manifests.⁹ Other studies on the dynamics underlying firms' corporate governance identify different dimensions of corporate power and highlight their inherently relational character.¹⁰ Shared common directors provide social capital to companies¹¹ and have been associated with several types of organisational outcomes. Relations at the board level (IDs) could enable information transfer¹², build board differentiation affecting companies' legitimacy and

6 Granovetter, Coase revisited.

7 Khanna and Rivkin, Interorganizational ties; Khanna and Rivkin, Estimating; Colli and Vasta, Large business groups.

8 Zang, Sögren and Kishida, The economic rationale.

9 Granovetter, The nature.

10 Scott, Theoretical framework; Mizruchi, What do interlocks do?

11 Windolf, Coordination and control.

12 Mizruchi, What do interlocks do?

reputation,¹³ and affect firm performance.¹⁴ Additionally, IDs have also been used as control mechanisms across companies and as ties to influence governments.¹⁵

The analysis of IDs cannot verify any theory *ex ante* but can be useful for understanding the social nature of business groups. What distinguishes business groups from collections of firms united by, for example, common financial origins (e.g. US conglomerates), is the existence of social solidarity and social structure among component firms.¹⁶ This social structure is based on different types of relationships, including IDs.

Relational analysis combines, more or less explicitly, several approaches to studying business groups, because ‘potential reliance on social relations, in addition to economic connection, is one of the characteristics that differentiate a business group from other organizational forms’.¹⁷ Scott points to the crucial role of social networks and informal agreements for business groups, such that they become differentiating factors, compared with other patterns of corporate organisation.¹⁸

Despite a plethora of definitions of business groups,¹⁹ most literature concurs that they consist of legally independent firms, bound together by persistent formal and informal ties.²⁰ Leff argues that members of a business group are generally linked by relations of interpersonal trust, on the basis of similar personal, communal, or ethnic backgrounds.²¹ Other authors stress that ties in business groups reduce uncertainty, mitigate opportunistic behaviour, and drive information and resource flows across companies,²² as well as improve the financial performance and productivity of member firms.²³ Most analyses of external relations focus on

13 Bucheli and Salvaj, Reputation and political legitimacy.

14 Silva, Majluf and Paredes, Family ties, interlocking directorates and performance.

15 Pfeffer and Salancik, *The external control of organizations*; Bucheli and Salvaj, Embrace your enemy.

16 Granovetter, Coase revisited.

17 Yiu *et al.*, Business groups, p. 1553.

18 Scott, Networks of Corporate Power.

19 Research on business groups recognises different approaches, which consist of three main groups. The first emphasises economic and institutional environments in which business groups emerge (Leff, Industrial organization; Ghemawat and Khanna, The nature; Khanna and Palepu, Why focused strategies; Guillén, *The Limits*; Morck, *A History*; Schneider, Business groups). The second addresses business groups’ advantages, such as organisational patterns, which enable them to successfully position themselves in both internal and external markets (Amsden and Hikino, Project; Guillén, Business groups; Kock and Guillén, Strategy). The third centres on the economic and social effects of business groups in countries in which they enjoy a dominant position (Morck, *A History*; Fisman and Khanna, Facilitating development; Khanna and Yafeh, Business groups). In the past decade, studies increasingly have focused on corporate governance (Morck and Steier, The global history; Boyd and Hoskisson, Corporate governance), with considerable progress made in conceptualising business groups as an organisational form (Yiu *et al.*, Business groups; Fruin, Business groups; Colpan and Hikino, Foundations).

20 Granovetter, Business groups, p. 429; Khanna and Yafeh, Business groups, p. 331; Colpan and Hikino, Foundations, p. 17.

21 Leff, Industrial organization, p. 663.

22 Khanna and Rivkin, Interorganizational ties; Yiu *et al.*, Business groups.

23 Keister, Engineering growth.

ties with the state and political power,²⁴ such that groups might seek to build links with multinational corporations to gain access to technology.²⁵

The corporate relations between business groups' firms and with other firms non affiliated to business groups have been rarely studied.²⁶ Boyd and Hoskisson propose that 'a social capital perspective could help explain how groups acquire strategic resources that lay beyond the group's borders',²⁷ because boards of business groups have potentially important roles to play in managing uncertainty by creating connections to other members of the same group, entirely different business groups, and third-party organisations. They also call for research into groups' external ties. To fill this research void, we explore the relational strategies of Argentinean business groups at the end of the 1970s.

OWNERSHIP AND ID STRUCTURES IN ARGENTINA, AND THE ROLE OF BUSINESS GROUPS

The analysis period for this study corresponds to the highest point of the second stage of the Import Substitution Industrialisation (ISI) policy – or so-called vertical ISI – implemented from the late 1950s until the mid-1970s. The distinguishing element of vertical ISI was to deepen the industrialisation process through the development of an integrated industrial complex. The emphasis was on internalising all manufacturing of consumer goods, together with backward integration in the direction of intermediate products and capital goods.²⁸ Policy makers broadened the range of local production to solve Argentina's endemic deficit in the balance of payments.

This new phase in the development strategy transformed Argentina's business ownership structure. The required investments were more technologically sophisticated and capital intensive than those required by the first phase, or horizontal ISI.²⁹ Therefore, MNEs became central to Argentina's industrial development. Political shifts and new foreign direct investment regulations at the end of the 1950s also opened the way for new kinds of participation by foreign capital. New foreign players and the growth of MNEs already established in Argentina changed the ownership structure of the largest corporations. By 1970, in terms of the top 100 Argentine firms by sales, MNEs took the lead with 52.6 per cent of overall sales; state-owned companies and domestic private firms held similar and smaller shares (23.4 per cent and 24 per cent, respectively).³⁰ The latter group included approximately equal numbers of firms belonging to business groups and

24 Guillén, Business groups; Granovetter, Business groups; Schneider, Business groups.

25 Evans, *Embedded*; Amsden and Hikino, Project execution.

26 Khanna and Yafeh, Business groups.

27 Boyd and Hoskisson, Corporate governance, p. 687.

28 Gereffi and Evans, Transnational corporations, p. 39.

29 Katz and Kosacoff, *El proceso de industrialización*.

30 *Revista Competencia Económica*, n°43.

stand-alone private companies. Thus, at the beginning of the 1970s, firms owned by major business groups did not rank predominantly among the top-100 companies in the country. The reason is likely that from the end of the 1950s to that time, public policies largely favoured foreign companies over domestic groups. Bunge & Born group was the main exception, as four of its companies (Alba, Centenera, Molinos Río de la Plata, and Grafa) were ranked among the largest ones.

Business groups operating in Argentina in the late 1960s and early 1970s belonged to two generations. The ‘traditional’ groups, born before 1914 during the primary export-led growth process, further expanded during the import substitution policy period and featured a high level of diversification into unrelated activities. Groups identified as new, created during the import substitution period after the Second World War, instead displayed a lower degree of diversification or diversified into related activities.³¹ In terms of structure, most were family-owned businesses, managed by one or several families, with a predominantly hierarchical organisational nature and a holding structure.³²

An unexplored feature of Argentine business groups in this period involves their relations with other groups and their corporate networks/IDs. Previous research shows that ID structures were influenced by the institutional context and ownership structure.³³ In Argentina, the changing configuration of IDs reflects these dramatic developments in the economy as a whole. Board interlocks among the largest firms of the country were reshaped, largely as a result of the massive arrival of multinationals, but no relevant changes were introduced into Argentina’s legal system. By 1970, Argentine corporate networks became less agglomerated and centralised, experimenting with an almost complete replacement of IDs and central actors.³⁴

In this context, ownership structures among the largest companies were being reshaped and the largest companies’ networks were disintegrating, but the relational dynamics between local business groups and the largest companies remain unknown. Lazzarini and Stark and Vedres argue that for Brazil and Hungary, respectively, the local elite incorporated foreign firms into corporate networks and served as an intermediary or broker, in response to the massive arrival of MNEs, due to privatisation in the 1990s.³⁵ We suggest that in a context of strong economic and institutional instability, Argentine business groups played a similar role and connected the 1970–71, dispersed, local board network. Previous studies have shown that companies owned by Argentine business groups built significant ties at board level,³⁶ although this behaviour has not yet been confirmed for the period

31 Barbero, *Los grupos económicos*. For more information on Argentine business groups, see Table A1 in Appendix III.

32 Barbero, *Los grupos económicos*.

33 Rinaldi and Vasta, *The structure*; Khanna and Rivkin, *Business groups*; Corrado and Zollo, *Small worlds*.

34 Lluch and Salvaj, *Fragmentación*; Lluch and Salvaj, *Longitudinal study*.

35 Lazzarini, *Capitalismo de laços*; Stark and Vedres, *Social times of network spaces*.

36 Fracchia *et al.* *Business groups in Argentina*.

we study, nor has the SNA methodology been implemented previously to explicate the impact of groups' relational activities on corporate network structure.

THE ARGENTINE CORPORATE NETWORK AND THE ROLE OF BUSINESS GROUPS AS LINKERS

SNA results

To address our research questions, we analyse three IDs,³⁷ involving the 123 largest companies in Argentina (network A, which includes multinationals, state-owned companies, banks, and private local enterprises, some of which belong to business groups and thus are also included in network B),³⁸ companies owned by business groups (network B), and the largest companies and firms owned by business groups (network C).³⁹

Several social network metrics indicate that the largest companies' IDs are the most fragmented (see Table 1). The percentage of isolated firms (those with no connections) was 38 per cent, whereas the percentage of isolated firms in the network of business groups' firms was just 8 per cent. Integrating business groups' companies with the largest companies (i.e., network C) reveals 16 per cent isolated firms.

Table 1. Comparative analysis of structural measures

	Network A Largest companies	Network B Business group companies	Network C (Network A + Network B)
1 Companies	123	221	323
2 Directors	891	855	1534
3 Boards' positions	992	1468	2258
4 Average board size	8	6,6	7
5 Multiple directors	8.35%	28.15%	20.6%
6 Isolated companies	47 (38%)	18 (8%)	53 (16%)
7 Companies in the main component	61 (50%)	204 (92%)	262 (81%)
8 Average degree (main component dichotomised)	4	10.4	9.5
9 Number of links (main component dichotomised)	104	1010	1245
10 Density (main component dichotomised)	0.055	0.053	0.036
11 Density (main component)	0.066	0.087	0.056

37 This analysis corresponds to the intermediate level. See Appendix I.

38 Data and specificities of this network are described in detail in Lluch and Salvaj, Fragmentación.

39 See Appendix III for additional explanation of the data.

In other words, integrating the 221 business groups' firms with the largest companies' network reduces the fragmentation of IDs. If 221 other major companies not belonging to business groups were introduced, then network connectivity might be greatly reduced, but given the intense networking activity of business groups' affiliated firms, network connectivity increased. In this sense, the two networks that include business groups (columns B and C in Table 1) are more cohesive, because business groups' firms tend to share more directors, as well as with outside companies. The percentage of multiple directors (directors on two or more boards) in networks B and C is 28.1 per cent and 20.6 per cent, respectively, whereas in network A, multiple directors represent merely 8.3 per cent. Another indicator that confirms the cohesive role of groups is the average number of connections generated by shared directors, in companies that are in the main component, that is, all firms and relations between them that are part of the largest set of interconnected nodes. In network B, it stands at 10.4, and in network C it is 9.5, whereas in network A, which includes the largest companies, this value is significantly lower (four connections per firm on average).

The number of links in the main component is 104 in network A, 1,010 in network B, and 1,245 in network C. The distribution of links in network C is the following: 15 per cent of the links are between BGs' affiliated firms and stand-alone companies, 11 per cent between companies affiliated to different BGs and 66 per cent between companies in the same Business Groups (BG). The remaining (8 per cent) corresponds to links among stand-alone companies.

While most of the links were within BGs, the 26 per cent of links generated between firms of different BGs and stand-alone companies gave BGs' affiliated firms a big intermediation capacity. Firms with the highest betweenness centrality were mostly owned by BGs, 17 of the top 20 by betweenness. This confirms our proposition on the role of business groups and companies as 'connectors' of the corporate elite.

Density,⁴⁰ a measure that tends to decrease when the sample is larger, varies imperceptibly between networks A and B, or it is even higher in network B, even though the sample in network B is larger. For example, the density of the network's main component, including all ties, is 0.066, whereas in network B, it features a higher value of 0.087. Density is lower in network C because it includes the largest number of companies in the sample.

This comparison of networks can also be performed through a graphic representation. In the following figures, nodes are firms, and lines represent shared directors. Node sizes vary according to betweenness centrality.⁴¹ Node colours indicate whether a business group owns the company, and line width represents the strength of the relationship between two firms: the higher the number of directors, the wider the lines. Figure 1 shows the ID structure of the largest companies in Argentina (network A).

40 See Appendix II for a definition of this metric.

41 See Appendix II for definitions of centrality metrics.

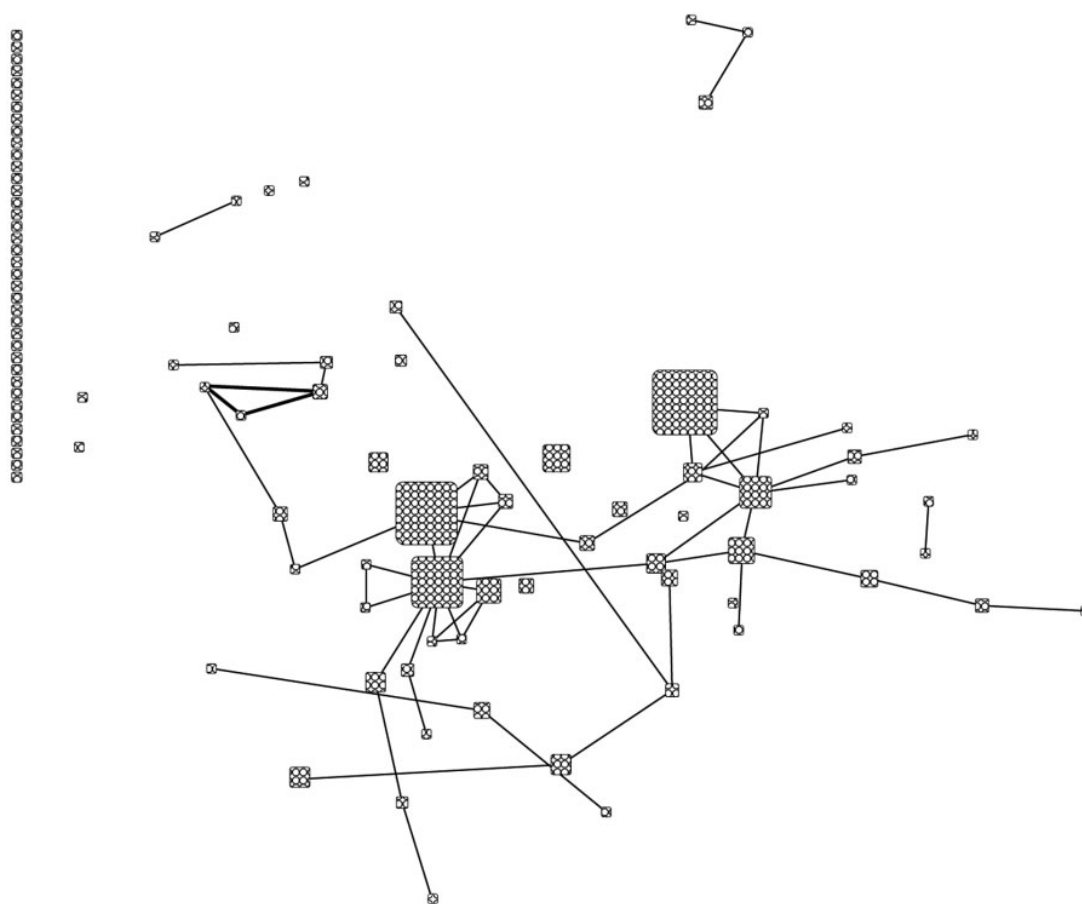


Figure 1. Interlocking directorates, 123 largest companies.

Note: Nodes are firms, and a tie between any two firms represents the directors both firms have in common. The width of the tie represents the number of directors shared by two firms. Node sizes vary according to betweenness centrality. The bigger the node, the more central the company is.

This figure displays a large number of isolated nodes, few ties between companies, and greater fragmentation than Figure 2, which only includes business groups' firms. Figure 3 integrates the largest companies and business groups' firms (network C). Most isolated companies match the largest firms. In addition, business groups' firms build more ties, and such ties are stronger. Finally, the analysis indicates that most central companies (bigger nodes) belong to business groups.

These results support our proposition that business groups were the main coordinators and linkers in the Argentine corporate network. Business groups displayed active relational strategies both within themselves and with respect to external firms. Furthermore, the largest companies share directors not necessarily with companies of their same size but with smaller firms associated to business groups.

Our research thus reveals a role played by business groups that has not been considered by current literature and is associated with their ability to create external networks and operate as linkers in a dispersed corporate network. This

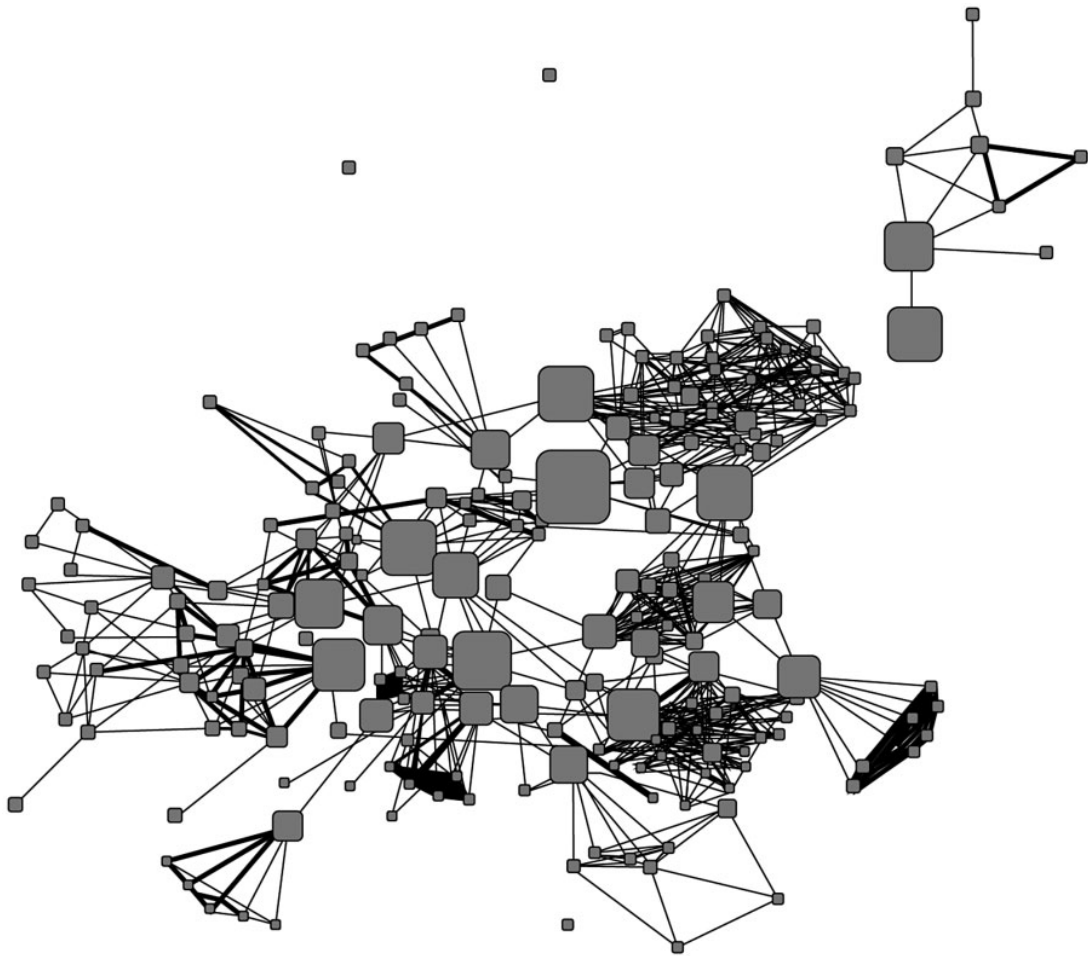


Figure 2. Interlocking directorates, 221 business groups' companies.

Note: Nodes are firms, and a tie between any two firms represents the directors both firms have in common. The width of the tie represents the number of directors shared by two firms. Node sizes vary according to betweenness centrality. The bigger the node, the more central the company is.

role can be explained in terms of business groups' intrinsic features and the context in which they operate, as we will explore in the next section.

Relations among business groups: explanatory factors or vectors of cohesion

Business groups' firms, as a whole, implemented corporate cross-linking strategies that differ from those executed by the stand-alone largest companies on their own. Business groups forged ties with the largest companies and among themselves. For this reason, we conclude that the relational component is a key element of business groups, and that it is safe to assume that the ability to build internal networks may imply establishing external networks. In this section we therefore explore the factors that may explain relations among business groups; in the next section, we focus on key, central groups, companies, and directors.

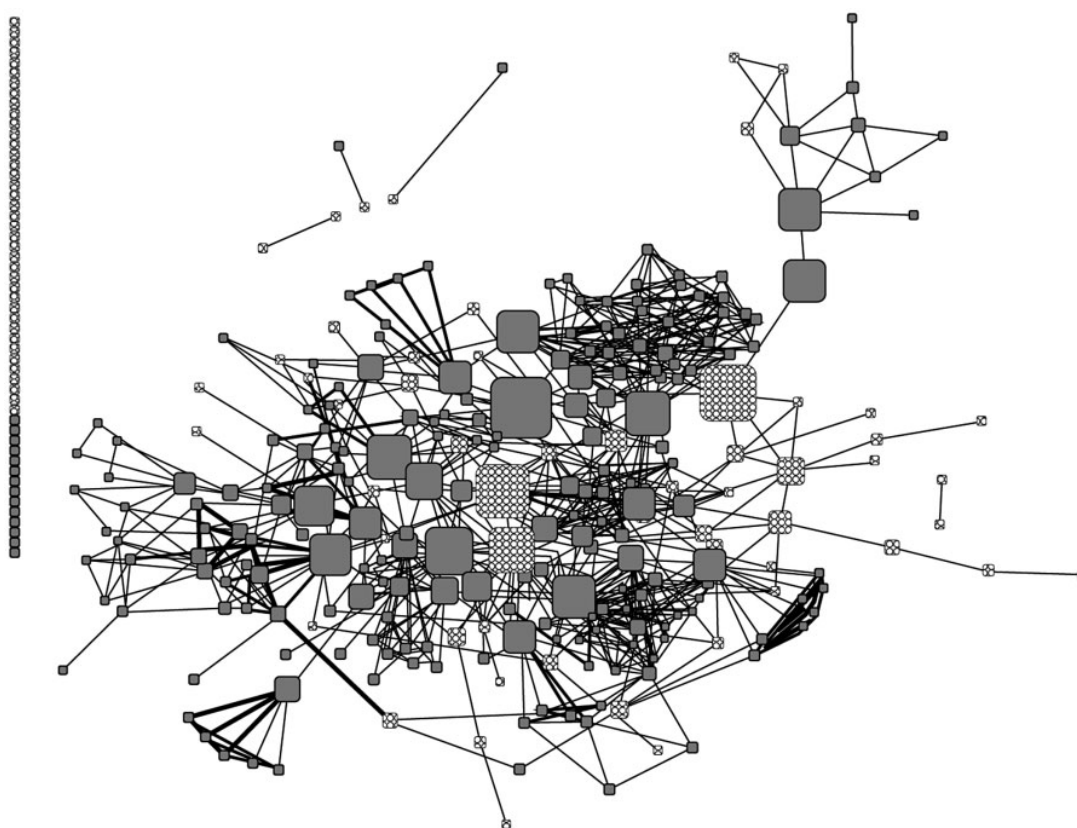


Figure 3. Interlocking directorates, 323 largest and business groups' companies.

Note: Nodes are firms, and a tie between any two firms represents the directors both firms have in common. The width of the tie represents the number of directors shared by two firms. Node sizes vary according to betweenness centrality. The bigger the node, the more central the company is. Grey nodes represent BGs' affiliated firms and circle shaped texture nodes represent firms included in the 123 largest firms database.

The summary matrix of evidence in Table 2 shows the number of directors shared by business groups. The diagonal of the matrix depicts information of the numbers of common directors in each BG. Almost all groups, except for SIAM Di Tella, were connected (i.e. shared at least one director with another group), though with different intensity levels. SIAM Di Tella's isolation might be explained by the critical financial situation this business group suffered by the end of the 1960s.⁴² High indebtedness and state involvement in the group's ownership – leading to its complete seizure in 1971 – may account for this group's few ties in the corporate world at this time.

The matrix features three large cohesion vectors: ethnic links, family ties, and the role of syndics. According to Bender, Biehler, and Ziegler, the vectors are partly revealed by multiple directors that generate several links indicating closer, more permanent relations.⁴³

⁴² Rougier and Schvarzer, *Las grandes empresas*.

⁴³ Bender, Biehler and Ziegler, *Industry and banking in the German corporate network*, p. 95.

Table 2. Shared directors across business groups

BG	AC	Astra	ByB	CE	CI	Fiat	GyZ	GF	Iggam	LE	LN	PC	PI	RO	Shaw	Siam	SO	TD	TO
AC	3	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	0	0
Astra		14	1	1	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0
ByB			36	0	0	1	0	2	0	0	1	0	0	1	0	0	0	0	1
CE				29	1	0	0	1	0	0	0	0	2	1	0	0	1	0	0
CI					3	2	0	0	0	0	1	0	0	0	0	0	1	2	0
Fiat						7	0	0	0	0	2	0	0	0	0	0	0	3	0
G-y Z							10	0	0	0	0	0	0	0	1	0	1	1	2
GF								4	0	0	0	0	1	2	0	0	0	0	0
Iggam									8	0	0	0	0	0	0	0	1	0	0
LE										5	0	0	0	0	0	0	0	0	0
LN											3	1	0	0	0	0	0	1	0
PC												13	0	1	0	0	0	0	0
PI													1	0	0	0	0	1	0
RO														9	0	0	1	0	0
Shaw															5	0	1	0	0
Siam																11	0	2	2
SO																	28	2	0
TD																		2	2
TO																		14	1
																			16

AC, Acindar; ByB, Bunge & Born; CE, Celulosa; CI, Cinzano; GyZ, Garovaglio y Zorraquín; GF, General Fósforos; LE, Ledesma; LN, Loma Negra; PC, Perez Companac; PI, Pirelli; RO, Roberts; SO, Soldati; TD, Techint Dalmine; TO, Tornquist.

The matrix shows multiple shared directors between Fiat and Techint (3), Fiat and Celulosa (2), Fiat and Cinzano (2), Techint and Cinzano (2), Pirelli and Celulosa (2), Techint and Soldati (2), and Fiat and Loma Negra (2). These data may illustrate, except in the case of Loma Negra, close ties within an Italian–Argentine corporate network, featuring Italian multinationals established in Argentina since the beginning of the twentieth century (Fiat, Cinzano) and some Italian–Argentine business groups (Techint, Celulosa, Soldati). In this case, IDs result from mutual trust among members of the Italian–Argentine business community, with ethnicity as a linking factor.⁴⁴ The Italian community was the largest of the immigrant groups that arrived in Argentina from the last decades of the nineteenth century. Strong links were established since that period between immigrant Italian businessmen in Argentina and Italian multinational companies, and these links were still operating at the beginning of the 1970s.

Other groups featuring strong links include Tornquist with Shaw (2), Tornquist with Garovaglio (2), Tornquist with Soldati (2), General de Fósforos with Bunge & Born (2), and General de Fósforos with Roberts (2). These strong ties among so-called traditional groups imply cohesion between historical groups and their respective owner families. This trait may derive from an ‘old boys’ network’ phenomenon, such that IDs respond to a common social background that reflects family, education, and class ties.⁴⁵ In Argentina, we note that even in 1970, cohesion among some members of the corporate elite remained high; the names spawning these ties were associated with traditional Argentine families, such as Shaw, Bunge, Tornquist, and Beccar Varela.

Lluch and Salvaj signalled that the syndics played a linking role of the corporate network.⁴⁶ The syndic – a role provided for by the Argentine Commercial Code to oversee and control corporations – was elected by shareholders at the annual general meeting and was entitled to attend to all Board’s meetings with a consultative vote. Beyond the legal provisions, we postulate that this institution functioned improperly as the owners/major shareholders determined the syndic’s election and main functions. For these reasons, we decided to include the syndics in this analysis, finding that they served as an additional vehicle for business groups to perform their connective tasks as clearly reflected the relation between Bunge & Born and Astra or Iggam and Soldati. In the first case, the common syndic was Benjamín García Victorica; in the second, it was Juan Pedro Castelli. Common syndics also accounted for ties between Italian business groups and/or traditional groups. Therefore, this additional vector of cohesion may be manifest on its own or combine with the other two mentioned factors. For example, Alfredo Lisdero was a very popular syndic among Italian business groups, whereas Horacio Beccar Varela, another influential syndic, connected traditional and Italian groups.

44 Domhoff, *The higher circles*; Pak, *Gentlemen Bankers*.

45 Heemskerk and Fennema, Network dynamics; Maclean, Harvey and Press, *Business Elites*.

46 Lluch and Salvaj, Fragmentación.

Table 3. Business groups' centrality

Business group	Degree	Norm. betweenness
Tornquist	49	2.33
Bunge y Born	37	13.9
Fiat	34	0.38
Shaw	32	0
Techint Dalmine	30	10.31
Soldati/Comercial del Plata	27	26.14
General de Fósforos	27	1.36
Roberts	24	4.66
Loma Negra	19	13.88
Celulosa Fabril/ Banco de Italia y Rio de la Plata	18	6.73
Astra	15	10.62
Cinzano	14	3.60
Pirelli	9	1.00
Garovaglio y Zorraquin	6	1.90
Perez Companc	3	2.53
Ledesma	3	0
Acindar	2	0
Iggam	1	0
Siam	0	0

Most important business groups that bind the network

This section examines groups, companies, and individuals that bring together the local elite.⁴⁷ To measure these aspects, social network literature uses the notion of *degree* centrality, a metric that measures network activity across a node.⁴⁸

Groups with more ties (degree centrality) included Tornquist, Bunge & Born, Fiat, Shaw, and Techint Dalmine (see Table 3). Actors that played a less active role, or with lower degree centrality and thus a peripheral role in the network in 1970, instead were Ledesma (3), Perez Companc (3), Acindar (2), Iggam (1), and SIAM Di Tella (0). Isolated (or less connected) and marginal BGs (defined as those with only one or two ties with other BGs) do not seem to share common features, except that all of them had industrial interests and featured comparatively limited diversification.

Yet degree centrality can prove deceiving in some cases; having more connections is not necessarily the most relevant metric. Also important are where these connections lead and how they enable interactions with other network members. Thus we analyse a second metric, namely, normalised betweenness centrality. Normalised betweenness divides simple betweenness by its maximum value.

Table 3 reveals that groups with higher intermediation centrality included, from highest to lowest, Soldati/Comercial del Plata, Bunge & Born, Loma Negra, Astra, and Techint. The joint analysis of both centrality measures shows that some

47 Drawn from the group network analysis. See the top level in Figure A1 (Appendix I).

48 For more detail, see definitions in Appendix II.

groups, despite boasting high-degree centrality, exhibited low betweenness centrality due to their differing network positions. Measured in terms of how actively the groups forged relationships, Tornquist emerges as the most active, though it did not necessarily serve as a broker. Some of the most traditional groups engaged in more endogamous behaviour to build ties, while also brokering relations among companies in different groups. Bunge & Born proved the exception among the traditional groups; this distinct behaviour and relative size may reflect its early internationalisation, high non-related diversification, dynamic link-building strategy, and greater adaptation and mediating capability.

We considered whether business groups' active linking strategies were associated with two notable features. First, we found that groups with greater intermediation degree centrality shared industrial, investment-intensive operations that required ample access to capital. As a result, the pursuit of intense linking strategies may have been crucial for their expansion plans and funding needs. Second, these strategies seemed to have stemmed from their association with the fastest-growing industries in the 1960s (oil, construction, steel, and energy). Accordingly, these findings support arguments that the most profitable sectors are often the most intertwined.⁴⁹

Most central companies⁵⁰

The previous description of interconnections among groups indicates the need for a deeper analysis to identify companies that enabled their respective groups to be integrated into IDs (or stand out as linkers in IDs).⁵¹ The companies with more active intermediation roles included Loma Negra, Compañía Ítalo Argentina de Electricidad, Propulsora Siderúrgica, and Dálmine Siderca. These companies were located at the network's core, operating in strategic sectors promoted by official industrial policies. Our data suggest that the largest companies in the most dynamic industries may have set out to forge ties strategically, to implement their economic expansion plans. Similar trends marked other countries. With the emergence of new industries, companies tend to foster cross-organisational links to secure resources, including information, capital, and know-how.⁵²

For example, Loma Negra, founded in Olavarría (Buenos Aires Province), ranked as the largest Argentine cement manufacturer by the 1960s, after its intense expansion, initiated in 1926. Its linking dynamics were consistent with the style of owner-director Alfredo Fortabat, who promoted the creation of ties with other companies to drive information flows and relations. Fortabat also included on his boards prominent linkers, such as Alfredo Lisdero and other directors connected to big firms and influential investors. He even may have pursued active

49 Stokman, Ziegler and Scott, *Networks of Corporate Power*; Mizruchi, What do interlocks do?

50 Drawn from the group network analysis. See intermediate level in Figure A1 (Appendix I).

51 See Table A1 in Appendix I.

52 Powell *et al.*, Network dynamics.

business partnership strategies, such as when he founded a company called Cementera Patagónica with the Bracht Group in 1969.⁵³

Compañía Ítalo Argentina de Electricidad was key for understanding Soldati Group's high intermediation capability (along with four other group companies). This company, created in the 1910s, brought together businesspeople and capital from several origins, such that it performed a strong connector role in Argentina's business community.⁵⁴

Dalmine Siderca and Propulsora Siderúrgica, both part of Techint's group, shared a similar centrality. Agostino Rocca, an Italian engineer with vast industrial experience in his homeland, founded Techint in 1947 in Buenos Aires. Within a few years, Techint had become a holding of companies, specialising in engineering, construction, industrial assembly, steel production, and other industrial goods manufacturing. Agostino Rocca and his associates built close ties with the Italian business community in Argentina, as well as with Italian companies.⁵⁵

Another argument to consider in the analysis of companies with greater betweenness centrality, in addition to their industry/business focus, pertains to owners'/leaders' personal traits (i.e. Alfredo Fortabat, Francisco Soldati, and Agostino Rocca). In a setting characterised by ownership concentration, this feature likely enabled controlling shareholders to engage actively in recruiting directors for their companies and formulating linking strategies that may have proved successful to position their groups in their respective industries.

'Linchpin' directors⁵⁶

A company is central when the directors sitting on its board also serve on other companies' boards, thus becoming 'linchpin' directors, or nodes that provide shortcuts.⁵⁷ A nominal analysis of linchpin directors supports our claim about the plurality of modalities in which the phenomenon of ID is manifest and thus of different directors' recruiting patterns. The most prevalent ID types include ownership-based schemes; in addition, IDs have been used as control mechanisms across companies.⁵⁸ Some groups used IDs to control and drive information flows across their companies. Francisco Soldati provides a specific example: Described in business media in 1970 as a leading businessman in Argentina, he personally sat on the boards of 17 companies, nearly all controlled by Soldati Group, as well as on the board of Astra, an oil company for which he was also a shareholder.

Trusted directors representing a firm or group offered another ID type, as in the case of Bunge & Born's Rodolfo Moltedo and Juan Gyselynck, who served as

53 Minsburg, *Capitales extranjeros*.

54 Barbero, Lanciotti and Wirth, *Capital extranjero*.

55 Castro, *Empresa*; Lussana, *Techint*.

56 This analysis matches the lower level in Figure A1 (Appendix I).

57 A fair approximation of being a linchpin is betweenness centrality, which refers to the number of times a node is on the shortest path between all possible pairs of nodes in a network. See Wasserman and Faust, *Social Network*; Davis, Yoo and Baker, *The power*.

58 Pfeffer and Salancik, *The External Control of Organizations*.

high-ranking vectors within their groups, connecting companies of several sizes. In addition to fuelling cohesion and coordination within their respective business groups, these directors created external ties: Moltedo linked Bunge & Born to Loma Negra, and Gyselynck connected it to multinationals such as Ducilo.

However, businesspeople generally were less prominent as big linkers; the greatest betweenness centrality accrued to lawyers, engineers, and certified public accountants. The interlocks created by individuals who sat on the boards of several companies or groups, without any distinct affiliation with any of them, were significant. This finding is relevant and distinctive for Argentina; most classical studies of linkers describe them as business spokespeople and opinion leaders, rather than professional directors serving large companies.⁵⁹ In contrast, in Argentina in the 1960s, they appear to have been mainly low-profile actors – a characteristic that businesspeople thereafter cultivated as political violence grew.

The two main linkers were renowned professionals (law and accounting), not businesspeople. Alfredo Lisdero, unquestionably a network specialist, had a doctoral degree in economics from Turin University and arrived in Argentina in 1938. He opened an accounting-legal firm that was retained by various companies with ties to the Italian–Argentine community, as well as by Italian multinationals investing in Argentina (such as Banco de Italia y Río de la Plata and Fiat). A member of one of Argentina's most traditional families, Horacio Beccar Varela was a lawyer, whose father founded the Beccar Varela Law Firm in 1897. This law firm was a leading expert in corporate, banking, and financial law, representing multiple companies, particularly foreign ones. Both Lisdero and Beccar Varela, with their unique connection styles, emerge as central players, forging ties between foreign companies (the former with Italian, and the latter with US) and several firms owned by local business groups.

By 1970, firms in Argentina's troubled business environment tended to include well-connected legal and financial advisors and government officials in their directories. These individuals knew how to navigate the changing conditions created by political and economic instability, powerful labour unions, new economic regulations, stabilisation-oriented economic plans, and idiosyncratic credit allocation practices.⁶⁰

Serving as directors in both companies and syndics was a key feature of many *big linkers* in 1970, as illustrated by Alberto López and Eduardo Johnson. The syndicate was by this time a permanent, indispensable body in corporations. Headed by an official chosen at shareholders' meetings, they had non-contestable and non-delegable legal faculties to oversee corporate administrations. But in contradiction with the legal provisions, our study reveals that in practice this institution failed and shows the importance of the personal ties and strong links

59 Useem, *The Inner Circle*; Windolf, *Corporate Networks*.

60 Guillén, *Business Groups*; Lluch and Salvaj, *Fragmentación*.

between syndics and controlling shareholders, in that the former served as key linkers in local corporate networks, rather than as auditors.

Therefore, this analysis shows the existence of several ID strategies. Corporate elite linkers were not businesspeople, but instead other types of agents who wielded a different kind of power, based on connections and information. Bank-based stock control, a very common feature in other countries, was not very relevant in Argentina at that time.⁶¹ This finding may be attributed to two features: (i) companies' ownership structure; and (ii) Argentina's business financing scheme. Argentina's capital market was not a relevant source of funding for companies; in fact, its performance in this regard weakened in the 1960s, as a result of highly volatile economic conditions. Neither did private banks offer long-term loans for industries. The business groups that emerged in the 1960s did not branch out into finance as much, and none of the main BGs emerging in the post-Second World War period was organised around a bank, although the Techint group had financial investments and other groups had extensive contacts with private banks and financial firms. Private financing may have been scarcely relevant because companies largely sought their funding from long-term loans provided by Argentina's Banco Industrial (BIRA-1944), followed by Banco Nacional de Desarrollo (Banade-1970), and from international loans enabled by institutions like the Inter-American Development Bank and the World Bank.

CONCLUSION

Our findings support the argument that business groups – even if not yet at the forefront of Argentina's business elite scene – served as connectors of a dispersed corporate network in 1970–71. This contributes to the literature that focusses on board interlocks in countries with underdeveloped financial markets and few publicly traded companies in local corporate business structures. This linking role may have been facilitated by the groups' relational capital, which was leveraged on the basis of cohesion mechanisms, both inside and outside business groups. Many authors emphasise the capacity of business groups to build links and their potential reliance on social relations. In this paper we identify how Argentine business groups used this potential to act as corporate network connectors, creating ties among dispersed firms that could lower transaction costs and information problems, characteristics of an unstable environment.

The ability of Argentine business groups to act as cohesive or linking agents should be taken into account in further studies of business group effects on

61 Except for Enrique O. Roberts, who chaired Banco Francés del Río de La Plata, no other 'big linker' had significant ties with the banking sector.

economies and societies. The influence of business groups has hitherto been viewed largely in terms of their interactions with the state, the extent of their monopoly power, or their impact on social welfare. Our study suggests looking at another function of business groups, associated with business community cohesion and referring to the characteristics and form of relationships among business groups and their environment.

We establish three major business group cohesion mechanisms: ethnic identity, family ties, and the complementary function played in practice by the 'syndicature'. In terms of ethnic identity, we confirm the existence of strong ties in Argentina's Italian business community, which incorporated both local firms created by immigrants and multinational companies within a single corporate network. Family ties also played a key role, linking traditional groups controlled by local elite families; syndics, in addition to serving in their legal capacity, connected groups of different types.

With an SNA, we also shed some light on the most highly connected groups and linchpin directors. The most connected business groups in this network were those that managed to consolidate a corporate identity and gained greater relevance later, along with other groups that were still incipient in this period. In the next decade, some of the most connected business groups, with greater relational capability, turned into leading players in their respective industries. Board interlocking strategies were not consistent across groups, revealing differentiated behaviours at a time of transition in Argentina's economy. More traditional, less dynamic groups, such as Tornquist, were undergoing a declining stage, possibly characterised by in-breeding behaviours, including larger sizes and low connectivity within group networks, despite their continued high centrality in some cases. The exception was Bunge & Born, for multiple reasons, though most notably its large size and a unique dynamism that enabled this group to continue holding a relevant position among Argentina's largest companies.

When analysing big linkers and their attributes, we note multiple elements that may provide a better understanding of Argentine companies' use of IDs and how they differed from similar practices in other latitudes, such as the United States. In this regard, it should be noted that the most important linkers at this time were not businesspeople but, most notably, professionals or technicians who served as directors and/or syndics. We conclude that firms tended to include well-connected legal and financial advisors in their directorates, because these individuals knew how to navigate the changing conditions created by political and economic instability.

Overall, approaches to categorise business groups, in addition to classical criteria, should include analyses of their board linking strategies, to define whether they are connectors or not within a corporate network. We view our research findings as relevant contributions both to studies on business group purposes, which emphasise their relational ability, and to debates on the effects of groups' existence in their business environments.

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APPENDIX I

Methodology

To describe business groups' corporate networks, we apply SNA, which provides a set of tools and relational methods to systematically understand and identify connections among actors. Furthermore, SNA draws heavily on graph theory and relies on the use of mathematical and computational models. We use the SNA

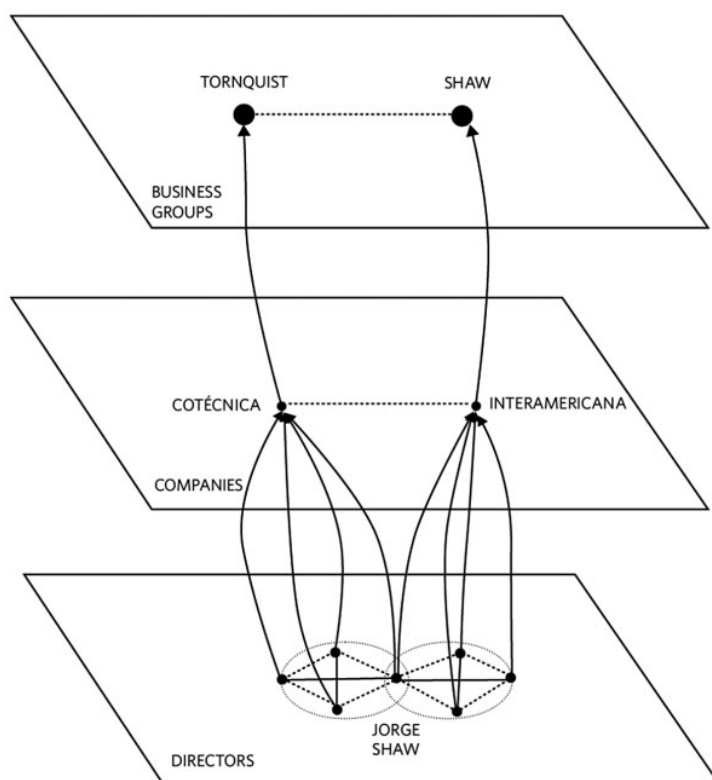


Figure A1. Levels of analysis in interlocking directorates.

Note: Nodes are firms, and a tie between any two firms represents the directors both firms have in common. The width of the tie represents the number of directors shared by two firms. Node sizes vary according to betweenness centrality. The bigger the node, the more central the company is.

software UCINET (Borgatti, Everett, & Freeman, 2006) and Netdraw (version 4.14, a network visualisation package bundled with UCINET) to depict the ID graphs.

The unit of interest in SNA is the combined set of actors and their relations. The relevant data consist of two linked classes, lines and nodes.

Lines indicate the relations among individuals. We consider a two-mode network of IDs. Two-mode networks represent a duality: The data can be projected as people connected to people through joint membership in a group, or as groups connected through their common membership. By projecting the data, we can investigate either the person-to-person or the group-to-group projection of the two-mode network. We restrict our attention to the IDs of business groups.

Nodes can be the individuals, the boards on which they sit, or business groups. We analyse corporate relationships at the level of directors, boards of firms, and business groups. Figure A1 shows the three levels analysed, using an example of two boards that share a director. The lower level refers to individuals (directors), the intermediate level is firms, and the higher level pertains to business groups. At the lowest level, the dotted lines between nodes indicate that they belong to the

same board. Figure A1 shows two boards of four members each, with a common director, Jorge Shaw. At the intermediate level, the projected bonds represent two companies, Cotécnica and Interamericana, and the dotted line indicates their connection because they share a director. Finally, on the highest level, projected ties indicate that the two companies are owned by two different business groups: Cotécnica by Tornquist and Interamericana by Shaw. The dotted line indicates that one-shared director, Jorge Shaw, connects these groups.

APPENDIX II

Measures

We use two measures to capture the centrality of a node: degree and betweenness (Wasserman and Faust). Board **degree centrality** is the number of nodes to which a given node is connected. The degree centrality of a node i can be formalized as:

$$d_i = \sum_j a_{ij},$$

where a is a board connection between firms i and j .

The second measure of centrality is **betweenness centrality**. A board that lies on communication paths can control communication flow and is thus important. Betweenness centrality counts the number of geodesic paths between i and k on which board j resides. A geodesic is the shortest path between a pair of boards (Wasserman and Faust). Betweenness centrality thus can be written as:

$$b_k = \sum_{ij} g_{ik} / jg_{ij},$$

where g_{ij} is the number of shortest paths from node i to node j , and g_{ikj} is the number of shortest paths from i to j that pass through k . Betweenness indexes the extent to which a board facilitates the flow of information within the corporate elite. If a board with high betweenness centrality is removed from the interlock, the transmission from one board to another is more damaged than if a board with low betweenness is removed. This measure captures the extent to which a firm 'brokers' relationships in the network. In order to facilitate comparison with other countries and understand how important the measure was, we used normalised betweenness.

To capture cohesion of the network, we used density. This measure indicates how connected the IDs are in terms of all possible connections that could be made. In other words, density refers to the number of current relationships between actors in a network, expressed as a percentage of the maximum possible

number of relations, given the number of actors in the network. It varies from 0 to 100. If all players are connected, density equals 100 per cent. If all players are disconnected, it is 0 per cent. A network with high density facilitates the diffusion of ideas or social norms, as well as the construction and consolidation of an economic group's identity or corporate elite.

APPENDIX III

Sources and data

We conducted our study building three networks. One for the 123 largest industrial and commercial firms and banks (A),⁶² another for the 221 affiliated firms to the most relevant BGs (B), and a third one (C) resulting for the integration of both. Network C has 323 firms because some of them are owned by BGs and at the same time are part of the 123 largest firms' database. Information on the members of firms' boards (and syndics) was collected from the *Guía de Sociedades Anónimas* (Joint-Stock Companies Guide), published by the Cámara Argentina de Sociedades Anónimas, Buenos Aires, in 1972. The affiliation of companies to business groups was identified using the following sources: Vilas,⁶³ Lozada,⁶⁴ and Minsburg,⁶⁵ who list the firms of each group on the basis of information from the Inspección General de Justicia and the *Boletín Oficial*. Groups and firms have been classified according to criteria in Table A1. As we mentioned previously, our sample includes three Italian multinational companies.

62 More information about sample composition can be obtained in Lluich and Salvaj, Fragmentación.

63 Vilas, *La Dominación Imperialista*.

64 Lozada, *Dependencia y empresas*.

65 Minsburg, *Capitales extranjeros y grupos*.

Table A1. General information about Argentine business groups

Business group	Number of firms	Diversification (related/unrelated)	Nationality (Argentinean/foreign)	Traditional/untraditional	Main economic activity
Acindar	4	R	A	NT	Steel
Astra	14	U	A/F	NT	Oil
Bunge y Born	51	U	A	T	Grain trade and industrial activities
Celulosa Fabril/Grupo Italiano	31	U	A (Italian origin)	T	Paper/paper mills
Garovaglio y Zorraquín	10	U	A	T	Fabricated metal products
General de Fósforos	4	R	A/foreign stock participation	T	Matches
Iggam	8	R	A	NT	Building materials
Ledesma	3	R	A	T	Sugar
Loma Negra	2	U	A	NT	Cement
Pérez Companc	8	U	A	NT	Navigation
Roberts	14	R	A	T	Finance (investments)
Shaw	4	R	A	T	Finance (bank), real estate
SIAM	9	R	A	NT	Machinery/metal products
Soldati/Comercial del Plata	21	U	A foreign stock participation	T	Oil and by-products
Techint Dalmine	7	R	A (Italian origin)	NT	Engineering/steel
Tornquist	19	U	A	T	Finance (bank), holding
Cinzano	4	R	F (Italian)		Beverages
Fiat	7	R	F (Italian)		Automotive industry
Pirelli	2	R	F (Italian)		Rubber