

From local champions to global players: A long-term perspective on Swiss companies' connections across territorial scales*

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Abstract

How do companies' ties to national institutions and organizations evolve over time? Existing research has found an increasing transnationalization of company networks and a decline of companies' ties with national institutions since the end of the 20th century. However, these studies have neglected the question of how companies are connected to the city-regions where they have their seats. In this paper, we conduct a long-term analysis of the multilevel ties that companies maintain with the local and the national context they are embedded in. To do so, we adopt a positional approach and identify the directors of the major companies in the three largest Swiss city-regions (Basel, Geneva, and Zurich) from 1890 to 2020. For seven benchmark years, we track the evolution of company directors' multipositionality in local and national networks. In addition, to capture the transnational embeddedness of directors we look at the evolution of the percentage of foreigners and dual nationals among the corporate elite. Our analysis reveals three different phases of company networks' multilevel ties. From the end of the 19th century to World War I, networks were mainly local and partly transnational, characterized by strong ties of companies to local institutions, weak ties to national institutions, and a certain presence of non-nationals in company directorates. From the interwar period to the fall of the Berlin wall companies' ties were essentially national, with continued importance of local connections and an absence of non-national directors. From the end of the 1980s onwards directors' local and national ties decline and directors' backgrounds become increasingly transnational. Documenting the evolution of the relational embeddedness of companies allows us to show the changing scales of companies' activities in a long-term perspective. The results of this analysis further our understanding of the origins and the evolution of global capitalism.

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Introduction

The most recent wave of globalization that took up speed at the end of the 20th century has fundamentally transformed the corporate world. In the post-war growth era, companies from the same country were closely knit together through interlocking directorates – i.e. a board member or executive director of one company sitting in the board of another. In particular, the finance industry established close ties with companies from the producing industry: the latter needed sources for credits and investments, and the former exerted their control through their presence in these companies' boards. This voice-based model was continuously replaced by an exit-based model with the rise of shareholder capitalism in the last quarter of the 20th century: instead of exerting influence on companies' strategic decisions through presence in company boards, banks would just sell their shares of a company if they were not satisfied with the course taken (Carroll & Fennema 2002, David & Mach 2012).

This development goes along with an increase in transnational interlocking between companies. As long as the voice-based model was dominant, interlocking predominantly occurred between companies from the same country. However, companies have redirected their gaze from the national to the global scale and hence transnational corporate interlocking is on the rise (Carroll 2009, Heemskerk et al. 2015, Nollert 2005), while at the same time national company networks loose significance (Schnyder et al. 2005, Mach et al. 2011, Mizruchi 2013, Heemskerk & Fennema 2009).

The decline of national company networks – and indeed the national scale as a relevant scale for corporate organization of multinational companies – also goes along with the rise of global centres of corporate activity, so-called “global cities” (Sassen 1991). Economic activity, and indeed contemporary capitalism, is increasingly taking place in a few urban areas across the globe – like London, Paris, Tokyo, or New York (Brenner 2003). This raises the question, whether companies located in such city-regions are also increasingly connected among one another and whether we thus see a shift of corporate interlocking not only beyond, but also below the national scale. Some scholars that study the shift of corporate interlocking from the national to the transnational scale have also assessed to what extent cities are connected with one another through “their” companies' corporate interlocks (Carroll 2007, Heemskerk et al. 2016). These studies have revealed the dominance of a few cities –such as London or Paris – in the global corporate network.

What is somewhat missing from these studies, however, are companies' connections within a particular city-region (but see Kono et al. 1998). Can we observe an increase of

companies' interlocking ties which have the seat in the same city-region? Or does the shift from the national to the transnational scale also go along with a dissolution of local corporate networks? A second aspect which is missing from studies on corporate interlocking is the connection of companies not only among themselves but with other organizations – such as business associations, parliaments, or universities. Yet, such a perspective is important, since it allows us to better understand the extent to which companies try to exert direct influence at a particular territorial scale. Finally, to understand how we arrived where we are now, we would need to take a step back and look at the long-term evolution of company directors' ties with particular territorial scales.

In this paper, we engage in a long-term analysis of corporate interlocking and directors' multipositionality over the last 130 years. In doing so, we shed a particular light on the co-evolution of corporate elite connections across different territorial scales – the local, the national, and the transnational. Focusing on the three main economic hubs of Switzerland (Basel, Geneva, and Zurich), we analyze the extent to which directors of the major local companies have established connections with companies and other institutions in the same city-region and across the country. While we do not have systematic data on transnational interlocking available, we study the evolution of company directors' transnational backgrounds as an indicator of transnationalization.

This analysis will allow us to shed a more differentiated light on the rise and decline of national capitalism – by including the local dimension. In particular, it will be interesting to see how corporate ties have evolved in the first wave of globalization – which abruptly took an end with World War I. Can we observe a corporate elite that has both local and transnational characteristics at the beginning of the 20th century? And do we witness a renewed rise of city-regional and transnational capitalism nowadays? Or have company directors not only turned away from the national but also from the local scale since the turn of the millennium?

Corporate Networks at Different Territorial Scales

The study of corporate interlocking and interlocking directorates has a long tradition. Numerous studies have assessed the possible causes and consequences of ties between firms (Mizruchi 1996). In doing so, most of them have focused on national-level corporate networks in specific countries (Nollert 2005). Only in recent decades, scholars started to look beyond the national scale and began to study the connections at the level of the directorate that companies establish across national borders (Sapinski & Carroll 2018). A landmark study in this respect is Carroll and Fennema's (2002) piece on the emergence of a transnational (North Atlantic) business

community. They show how the shift from voice- to exit-based forms of corporate governance is linked to the emergence of transnational corporate interlock structures. At the same time, however, their study also points to the resilience and longevity of national corporate networks. In more recent studies, the authors – together with other colleagues – show that transnational interlocking, and with it maybe transnational class consciousness (Carroll 2009), has become more widespread and less hierarchical over the past 20 years. The transnational network now depends on a growing number of individuals and not just on a few big linkers as it used to (Heemskerk et al. 2015).

While the transnationalization of the corporate elite, as well as of other elites (Henriksen & Seabrooke 2021), has received considerable attention recently, the local dimension of corporate elite networks, the connectivity within cities and urban areas, has been studied less. A certain number of scholars have focused on the role of cities in corporate networks. In a nutshell, these studies aggregate all companies and/or directors that have their seat in a particular city into one node and then examine the links these city-nodes have within (local ties, i.e. interlocking between two companies/directors based in the same city) and between them (nonlocal ties, i.e. two companies/directors from different cities) (Carroll 2007, Heemskerk et al. 2016, Kono et al. 1998, O'Hagan & Rice 2018, Rice et al. 2007, Rice & Semple 1993). Most of these studies are interested in assessing the (changing) role of certain cities in inter-urban corporate networks. For example, Rice and Semple (1993) and O'Hagan and Rice (2018) show that Western Canadian cities such as Vancouver and Calgary gain in connectedness and centrality in the Canadian inter-urban corporate network, while Montreal's importance decreases over the last 100 years and particularly in the 1980s. In a slightly different vein, Rice et al. (2007) look at the insertion of Texas-based directors into the US national corporate network and vice versa to determine the influence of Texas in the national corporate network – where incoming directors from other states are considered to be a sign of influence. Beyond these studies within national contexts, Carroll (2007) and Heemskerk et al. (2016) look at the inter-urban connections at a global scale. While the former focuses on a subsample of the Fortune 500, the latter use a sample of over 5 million companies. Both studies point to the centrality of London as one of the most connected corporate headquarters in the network and show that regional transnational clusters exist – also in inter-city networks.

Beyond these inter-urban corporate connections and the comparison of more or less connected urban corporate centers, Kono et al. (1998) engage in an analysis of the determinants of whether a company has strong local or nonlocal ties. They find that the presence of exclusive social clubs in a city increase local ties as well as the concentration of production facilities

within the same urban region. By contrast, a spread of production facilities across cities increases nonlocal ties of companies.

Kono et al.'s analysis resonates with research from scholars that explicitly focus on the urban realm. At the level of the city and the urban area, many scholars have analyzed local power structures, i.e. the question "who governs", and have debated whether cities are governed by a power elite in the Millsian sense or whether by contrast urban governance is characterized by a plurality of competing elites (Hunter 1953, Dahl 1961). While these studies do not explicitly focus on the corporate elite, the latter nevertheless play an important role. This is particularly the case in studies that have identified long-term coalitions between business and political elites – termed urban regimes or urban growth machines (Logan & Molotch 1987, Stone 1989).² More specifically, Schulze (1961) has also explicitly analyzed the evolution of local connections of "economic dominants", i.e. those leading the largest companies in an American city. He concludes that the era of "local capitalism", until the beginning of the 20th century, is marked by the "wedding" between the economic dominants and the people holding local public office, whereas the subsequent period is characterized by the disinvestment of economic dominants from local affairs:

Insofar as their social and career objectives are concerned, the economic dominants find that decisive and sustained involvement in community affairs, in either the interpersonal or organizational sense, no longer has central relevance. At the same time, increased mobility and the absorption of units into national industrial organizations make it less and less likely that the occupants of key economic statuses will be persons indigenously recruited. Their social and family ties, like their occupational orientations, are ever less likely to have local roots. And thus, rationality and sentiment again join forces, but this time they induce withdrawal rather than involvement in the decision-making process of the local community (Schulze 1961: 22, see also Cox and Mair 1988).

In contrast to the studies focused on corporate interlocking, these studies thus explicitly study corporate actors and business elites' relations to other elites and they are interested in the extent to which corporate elites can influence or participate in making political decisions.

The studies reviewed up to here give interesting insights into companies' connections beyond the national scale, at the transnational, the inter-urban, and the local level. Yet, they leave some important questions open. First and foremost, the studies on interlocking directorates only assess companies' connections among one another, but not with other organizations, such as business associations or political institutions. However, such connections play an important role in studies that aim for a more holistic assessment of corporate power at

² In the European and the Swiss case, such urban regimes are particularly prominent when it comes to spatial planning and land use (Devecchi 2012, Lambelet 2019).

the national or the local level (Bühlmann et al. 2017, Dahl 1961, Mills 1956, Stone 1989, Useem 1984). Second, only few of these studies are interested in delivering a simultaneous assessment of companies' insertion at different territorial scales. Notable exceptions are the studies by Carroll and Fennema (2002), Carroll (2009), as well as Kono et al. (1998), which look at companies' insertion into national and transnational or local and nonlocal networks at the same time. Yet, the need for a "more multi-level or nested approach of social organization of corporate élites" has been recognized by Heemskerk et al. (2016, 25). Finally, only few of these studies take on a long-term perspective, spanning several decades, and trace the evolution of the corporate elite's multilevel embeddedness. In what follows, we will develop such a holistic, multilevel, and long-term perspective on corporate elites for the Swiss case.

Swiss "Local Champions" between Local Rootedness and Global Expansion

The Swiss economy, and its major companies, represents a crucial case to analyze how companies develop connections across territorial scales in a long-term perspective. Major Swiss companies are subject to and engaged in countervailing scalar dynamics, which represent two major characteristics of the Swiss economy: its early export orientation and development of multinational companies on the one hand, and the regional diversity and local rootedness of its major economic sectors, on the other hand.

Because of the limited size of its domestic market, Switzerland, like other small European countries, has early on developed its export orientation, and has become largely dependent on international markets (Katzenstein 1985). This meant that many companies had to expand their international activities to sell their products and services. Bairoch (1990) has shown that already at the beginning of the 20th century, the Swiss economy was among the most internationalized of Europe if we look at indicators such as the share of exports in relation to national GDP, the importance of foreign direct investment (FDI) or the proportion of foreign workers in the country. In line with this, Schröter (1993) has also shown that Swiss companies were among the pioneers when it comes to foreign direct investment in the 19th century, and they hence figured among the first multinational companies worldwide. Since decades, many Swiss companies are producing goods, products, and services for a global market and are highly export oriented.

On the other hand, however, the Swiss economy is also characterized by its regional diversity and differentiation, with its major economic sectors strongly rooted in some regions. This is largely related to the decentralized and fragmented political system, with strong local and regional cultures and politico-administrative structures. Besides the financial sector, mainly

located in the major cities of Zurich and Geneva, as well as Basel (and to a lesser extent Lugano) (Mazbouri et al. 2012), the four main industrial branches since the mid-19th century are characterized by their strong geographical anchorage, forming different regional clusters (for an overview on the 19th century, Humair 2004): the textile industry, historically concentrated in the east of Switzerland, the watchmaking industry mainly present in the Jura and Geneva region (Donzé 2017), the chemical-pharmaceutical industry which dominates the Basel region (Zeller 2001: 112 ff.) and, finally, the machine industry, which is more dispersed, but mainly located in the Zurich region (Bärtschi 2011).

These regional clusters, forming the backbone of the Swiss economy as well as the export orientation of its major companies, have already emerged during the 19th century, a period marked by the weakness of the federal state, only founded in 1848 and without important legislative and administrative capacities. The weakness of the central state and strong regional and local governments implies that if companies and business actors want to influence political decision-making, they cannot exclusively focus on the national level, but also need to be active regionally and locally. In sum, major Swiss companies thus need to be active at different territorial scales to cope with the simultaneous challenges of transnational business activity and local anchorage.

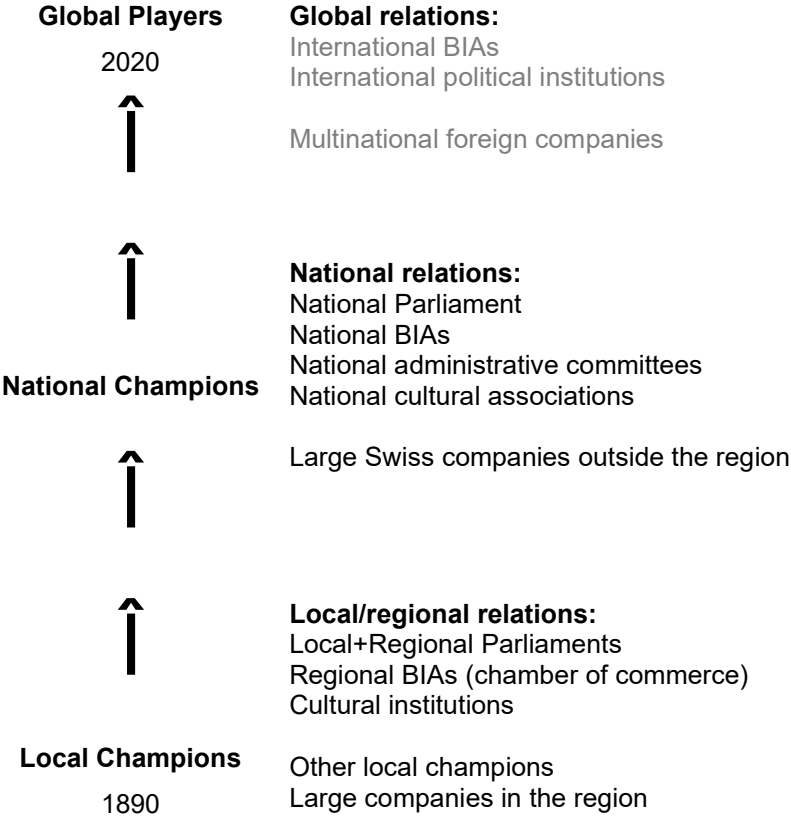
What does that mean for the evolution of Swiss companies' connections to different territorial scales over the long term? Previous studies on the Swiss company network in a long-term perspective have shown that the largest Swiss companies and their corporate elite have formed a dense national network during most of the 20th century (Schnyder et al. 2005, David et al. 2015). After a formative phase, marked by the persistence of strong regional networks, the Swiss company network became much more integrated and exhibited a long period of high density and stability between the 1930s and 1980s, marked by the central position of national business interest associations (BIAs) and the strong connections of business elites to the national political and administrative sphere. However, since the 1990s, the corporate elite of the largest Swiss companies have clearly disinvested from national business associations to privilege integration into global business networks (David et al. 2009, Mach et al. 2016).

Figure 1 summarizes our main expectation concerning the historical evolution of companies' connections to different territorial scales.³ In a nutshell, we expect a progressive

³ Our main interest lies in the observation of the whole company network and not in explaining differences between individual companies' multilevel connections. We thus formulate expectations on the companies' connections to different territorial scales and not on which company features are linked to a stronger or looser connection to a particular scale. Moreover, our expectations first and foremost concern changes over time and not differences across cities.

“upscaling” of companies’ connections from 1890 to 2020: companies transform from “local champions” – important companies rooted and active in a particular region – to “global players” – companies which still have their seats in the same region, but are active and connected on a global scale with production and research centers in multiple sites (Zeller 2010).

Figure 1. Overview of relational embeddedness of local champions/global players



However, this is not a linear evolution. Before the first world war, transnational corporate integration already experienced a first peak (Schröter 1993). This transnationalization was maybe less expressed through corporate interlocking – as it is nowadays. Yet, it took other forms, such as entrepreneur families’ mutual exchange of their offspring to provide them with “on the job”-training for their subsequent directorate position (Davoine & Ott 2000). We therefore expect that in the period from 1890 to pre-World War I, companies’ connections were predominantly local, but some of their directors had a transnational background. Indeed, Strebel et al. (2021) find strong local elite networks at the end of the 19th and the beginning of the 20th century in the three major Swiss city-regions. For the following period – from the interwar period until the fall of the Berlin wall – we expect that this transnational component disappears and that companies establish connections particularly with national institutions – in line with the existing research reviewed above. For this period, we also expect a continued disinvestment

of the corporate elite into local connections. Finally, for the last two benchmark years – 2000 and 2020 – we expect a growing transnationalization of company directors, in line with recent research on transnational interlocking (Heemskerck et al. 2015). We expect this transnationalization to happen at the expense of companies’ connections to local and national institutions.

Research Strategy and Methods

Local Champions: The Major Companies of Basel, Geneva, and Zurich

The focus of our study lies on the most important companies, hereafter referred to as “local champions”, that have their seat in the city-regions of Basel, Geneva, and Zurich and are active in the most important economic sectors of each city-region. These three city-regions represent the main economic hubs of Switzerland since the 19th century and they also represent three of the four historical branches of the Swiss industry: watchmaking, pharmaceutical, and machine industry. Moreover, in each of these city-regions, the financial sector – banking and insurance – is very important. Table 1 gives an overview of the number of companies and company directors – by city-region and sector, and for seven benchmark years covering the last 130 years.

Table 1. Local Champions

City Region	Sector	1890		1910		1937		1957		1980		2000		2020	
		C	D	C	D	C	D	C	D	C	D	C	D	C	D
Basel	Total	16	102	16	137	12	103	11	96	9	102	10	104	8	83
	Insurance	1	17	1	18	1	15	1	13	1	15	1	15	1	11
	Banking	8	67	6	69	4	51	4	50	4	53	2	23	2	17
	Chemical	3	24	5	45	5	39	5	45	4	50	7	68	5	57
	Textile	4	25	4	26	2	23	0	0	0	0	0	0	0	0
Geneva	Total	15	86	15	93	16	77	17	97	14	94	17	123	15	105
	Insurance	1	13	1	11	1	11	1	8	1	9	0	0	0	0
	Banking	8	60	6	46	5	35	5	44	5	46	7	68	6	46
	Chemical	0	0	2	5	2	8	2	9	2	13	2	12	2	19
	Machine	3	15	3	14	6	16	7	27	5	22	7	42	7	40
Zurich	Total	18	170	15	154	17	161	18	149	15	156	13	124	11	124
	Insurance	4	54	4	55	4	61	4	56	4	64	4	51	3	40
	Banking	8	96	4	62	5	80	5	77	6	85	5	59	5	60
	Machine	6	43	7	60	8	63	8	69	5	50	4	29	3	26
Total	49	358	46	384	45	341	46	342	38	352	40	351	34	312	

Note. C=Number of Companies, D=Number of Board Members and Executive Directors. The total number of directors per city-region is smaller than the sum of the directors of the different sectors, because of multipositioned individuals.

In all three city-regions, our selection includes all major banks⁴ and insurance companies, more numerous in Zurich than in Basel and Geneva, for the financial sector. In addition to the financial services industry, we also include companies that represent the main industrial cluster of each city-region. For Basel, this is clearly the chemical-pharmaceutical industry nowadays, with big multinational companies such as Novartis and Roche. Historically, however, the textile industry was also important in Basel, which is why we include major companies from this sector until 1937. In Zurich, the main industrial sector – aside from financial services – is the machine industry, with companies such as Sulzer and Oerlikon-Bührle. Finally, for Geneva, the picture is somewhat more complex. While major luxury watch brands – such as Rolex and Patek Philippe – have their seat in Geneva, other sectors, such as the machine and the chemical industry, also have an important standing in the city-region. For Geneva, we thus put a primary focus on watch-making companies but also include two companies each from the chemical and the machine industry. In all three city-regions, some of the companies are present for all seven benchmark years, whereas others are only present on one or two dates. Moreover, some of them have become real “global players”, large multinational companies such as Novartis, Roche, UBS, Credit Suisse, and Rolex, while others’ scope of activity has remained much more local, like the public owned cantonal banks.⁵

For each company, we identify the company directors (executive directors as well as members of the company board) in the seven benchmark years. For all three city-regions combined, our sample of local champions comprises between 34 and 48 companies and between 316 and 428 directors in each benchmark year. Both the total number of companies and directors decreases from 1890 to 2020. This is due to concentration processes (mergers and acquisitions) as well as to bankruptcies, particularly in the finance industry⁶.

Data: Local and National Elites in Switzerland

To capture the various connections that local champion directors entertain with other organizations at different levels, we have set up two large and systematic databases on local

⁴ This involves all the large universal banks (like UBS or Credit Suisse), private banks (like Pictet or Sarasin) as well as public owned cantonal banks.

⁵ See also Table A.1 for a detailed overview of all the companies included in our study.

⁶ Moreover, the number of companies and directors differs across city-region. In part, this is due to the number of companies included for each city-region. For example, in Zurich there are more major companies than in Basel, simply because Zurich is Switzerland’s major economic hub. In part, however, this is also due to the structure of companies’ executive and directors’ boards. While the number of companies included in the sample is similar for Geneva and Zurich, the number of directors is smaller in Geneva. This is partly because private banks and watch-making companies, organized according to a different status in corporate law, typically have a smaller number of directors in the beginning of the 20th century given that they are predominantly owned by one family, whereas the commercial banks and companies from the machine industry in Zurich have bigger boards.

and national elites in Switzerland. Both databases identify elites based on positional criteria – i.e. holding a position of power in the academic, administrative, cultural, economic, or political sphere. Individuals holding such positions were identified for seven benchmark years in the last 130 years (1890, 1910, 1937, 1957, 1980, 2000, 2020).

The database on national elites includes full professors at all Swiss universities, members of advisory expert committees to the federal administration, board members and main executive directors of the 110 largest Swiss companies, members of the executive committee of the six major national business interest associations (BIA), as well as members of the Swiss bicameral parliament and government.⁷

The database on local elites of the three major Swiss city-regions (Basel, Geneva, and Zurich) includes the full professors at the local universities, the executive committee members of local art societies, the directors of the local champions, members of the executive committee of local chambers of commerce, executive directors and board members of the two major newspapers in each city-region, as well as members of the cantonal and city parliament and government.⁸

Due to these sampling strategies, it should be mentioned that there is a certain overlap for the academic and the economic sphere between the national and the local database, meaning that individuals belong to both databases for holding the same position. Professors of one of the three local universities are also part of the national database because these local universities are at the same time important national universities; similarly, board members and directors of important local champions are (often) also part of the national database, because they are among the 110 largest Swiss companies. When combining the two databases, we have only included one of the two identical mandates.

Mandates at Different Territorial Scales: Four Types of Mandates

Since we are interested in the multipositionality of local champion directors across territorial scales, we include all the positions that they hold in other companies and institutions in the same benchmark year – both locally and nationally. A key point for our analysis is thus to categorize mandates into local and national ones. In the case of mandates in local and national institutions, i.e. organizations that are not companies, the assignment of a mandate to the local or the national level is straightforward. For example, we can easily say that a mandate is a local mandate if someone is a member of the city parliament in which their company has its seat or

⁷ For more details, see <https://www.unil.ch/obelis/en/home/menuintst/the-observatory.html>

⁸ For more details, see <https://wp.unil.ch/sinergia-elites/>

when someone is part of the executive committee of the regional chamber of commerce. Conversely, if someone is a board member of a nation-wide BIA or a member of national parliament, this mandate is also easily classified as national.

The classification of mandates as local and national is more complicated for the company mandates. Companies cannot easily be assigned to a particular scale, since they can operate at several scales – local, national, and transnational – at the same time. Here, we follow Kono et al.’s (1998) definition of local and nonlocal mandates. In their study of US companies’ local and nonlocal corporate interlocking, they define local interlocking directorates as those director connections that exist between companies that have their seat in the same city-region and nonlocal interlocking as the connections between companies that have their seat in different city-regions. To differentiate “local” and “national” corporate connections, we equally adopt a geographic criterion: does the company in question have its seat in the same city-region as the local champion or not? If this is the case, the company is considered a “local company”, since it is based in the same city-region. If this is not the case, it is considered a “national company” – given that it is based somewhere else in Switzerland.

Table 2. Four Types of Mandates

Mandate	Description
Local Institution	Mandate in a local organization or institution located in the same city-region^a as the local champion -- other than a company : <i>Academic sphere</i> : professors at the three cantonal universities <i>Administrative sphere</i> : -- <i>Economic sphere</i> : executive committee members of local/cantonal business associations (chambers of commerce) <i>Political sphere</i> : members of local and cantonal parliament/government
National Institution	Mandate in a national organization or institution – other than a company <i>Academic sphere</i> : professors in all other universities and the two federal technical universities <i>Administrative sphere</i> : members of expert commissions of the federal administration <i>Economic sphere</i> : executive committee members of national business associations <i>Political sphere</i> : members of national parliament/government
Local Company	Mandate in another company that has its seat in the same city-region^a in which the local champion is located. This can include director positions in other local champions in the same city-region.
National Company	Mandate in another company that has its seat outside of the city-region^a in which the local champion is located. This can include director positions in other local champions in other city-regions.

Note. ^a We define location in the same city-region as being located in the same canton as the local champion in question.

We thus classify mandates in local and national institutions and in other companies into four different categories: i. local institutions, ii. national institutions, iii. local companies in the region, and iv. national companies outside the region (see table 2, for an overview).⁹

Three Indicators for Local Champions' Insertion Across Territorial Scales:

To assess the insertion of local champion directors in different local and national networks, we calculate two measures of connectedness for each of the four types of mandates identified above. The first measure of connectedness is the average number of a particular type of mandate that local champion directors hold. To calculate this measure, we take the total number of, for example, mandates in local institutions held by the local champion directors and divide this number by the total number of local champion directors. This measure gives us an idea of the *intensity* of the connectedness of local champion directors to a certain type of organization at a certain territorial scale.¹⁰

However, this measure does not allow us to make a statement about how widespread multiple mandate-holding is among the elites of local champions, since it only gives an average value of the number of mandates held. On the one hand, a high average value might indicate that many directors hold one additional mandate. On the other hand, it might also mean that few board members hold many additional mandates. To differentiate these two scenarios, we also look at the percentage of local champion directors that hold a particular type of mandate in a given benchmark year. Instead of counting the number of mandates, we thus count the number of local champion directors holding a certain type of mandate. This gives us an idea of the *spread* of a certain type of multipositionality among local champion board members.¹¹

⁹ Some additional points are important to note concerning the inclusion and the classification of mandates. First, we exclude all mandates in local institutions that corporate elites of “local champions” hold in other city-regions. For example, if a board member of Zurich-based Crédit Suisse is a member of the local parliament of the city of Bern, this latter mandate would be excluded from our analysis. Second, when it comes to the classification of additional board memberships in companies that we classify as local champions, the seat-principle applies as well. For the Zurich-based Crédit Suisse board member, this would mean that a board membership in Zurich-based Swiss-Re would be classified as a local company mandate, whereas a mandate in the board of directors of Novartis would be classified as a mandate in a national company.

¹⁰ For the average number of mandates in local companies, we subtract one mandate for each board members. Given that each director necessarily holds one mandate in a local company – namely a local champion – not adjusting for this would overrepresent the importance of directors’ connections to other local companies.

¹¹ To calculate the percentage of directors that hold mandates in other local companies, we have to make a certain adaptation. Given that all of them hold a mandate on the board of a local champion – and the percentage would thus always reach 100% for this category of mandates – we adapt the calculation of the percentage of directors that hold a mandate in a local company as follows: (number of directors that hold a mandate in a local company other than a local champion+number of directors that hold more than one mandate in a local champion board)/total number of directors. In this way, we take into account the connectedness among local champions in the same region, but we do not attribute more importance to it than to the connection to other companies in the same region.

In combination, these two indicators allow us to establish a comprehensive picture of how well local champion corporate elites are integrated in local and national networks at specific points in time. They allow us to distinguish different scenarios. First, a high (low) average number of mandates with a high (low) percentage of mandate holders suggests that many (few) directors hold a high (low) amount of a certain type of mandate – a situation with both high (low) intensity and spread. Second, a high average number of mandates paired with a low percentage of mandate holders points to the existence of a few board members each holding a substantive number of mandates – a situation with high intensity but low spread. Finally, a low average number of mandates with a high percentage of mandate holders suggests that many board members only hold one mandate of a certain type – a situation with low intensity but high spread.

For company directors' transnational connections, we unfortunately cannot rely on network analysis techniques, because we do not have systematic data on directors transnational connections. A collection of such data over a large period poses a key problem. Unlike the local and national institutions included in our study, transnational institutions – such as transnational business associations and policy groups – represent a rather recent historical phenomenon. Many of these organizations were only created in the last quarter of the 20th century (Nollert 2005, 309). This thus prevents a long-term analysis of company directors' ties to transnational institutions, because we would underestimate these connections for the most part our study period. To nevertheless approximate the transnational character and connections of local champion directors, we shift the focus from the company network to the individual level and look at directors' background. More precisely, we take directors' nationality as an indicator for the transnational character of their biography and for their transnational connections.

Results

How do the connections of corporate elites with different territorial scales evolve over time? Do we witness a progressive “expansion” of their scale of activity over the last 130 years? What role does the local level still play in corporate elites' considerations? To answer these questions, we first assess local champion directors' multipositionality at the local and the national level and in a second step turn to the changes in their transnational background.

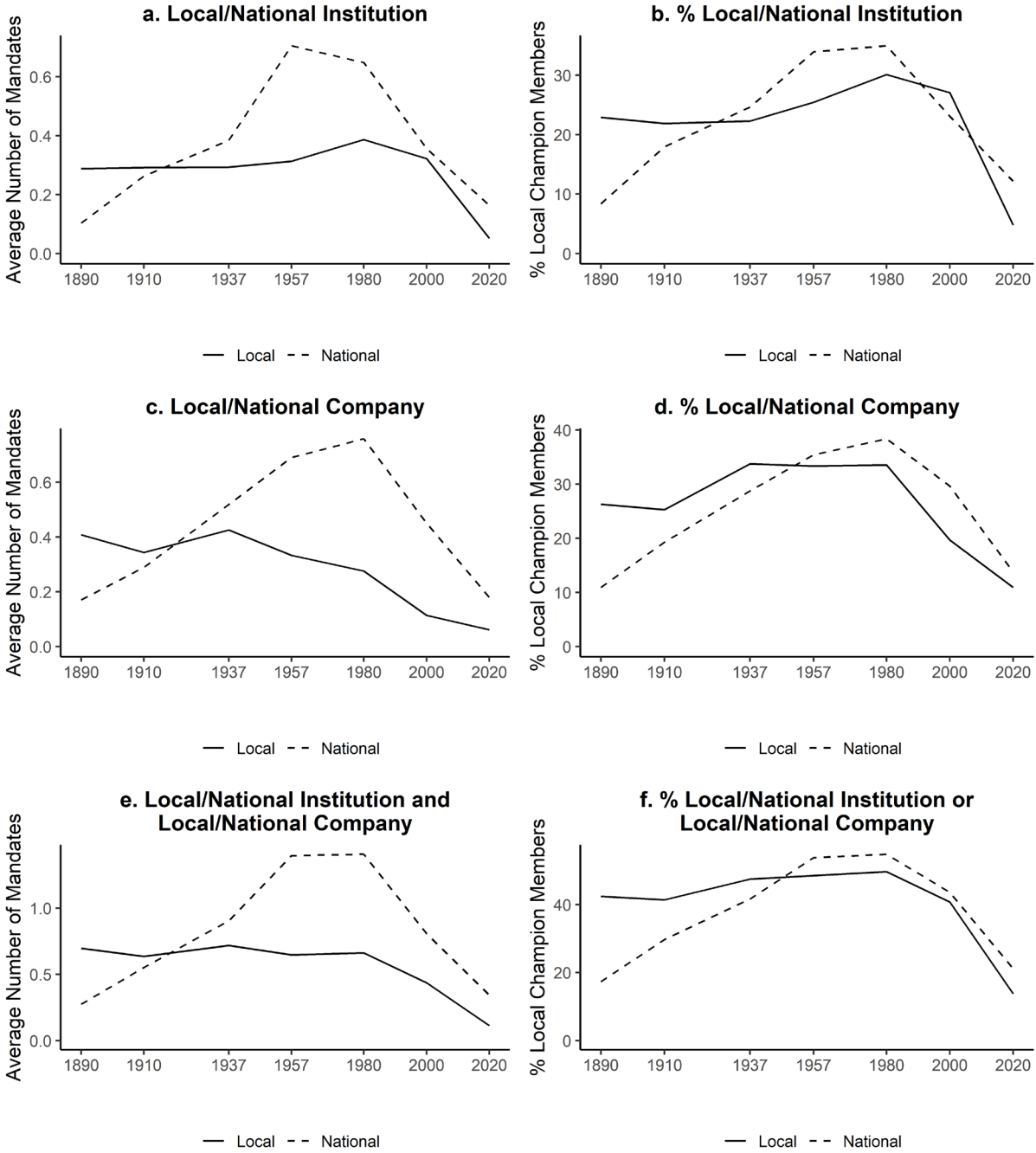
The Local and the National Dimension: The Network Connections of Board Members

To assess how connected local champion directors are with the local and the national scale, we examine the distribution and the evolution of these connections graphically. Figure 2 (subfigures a-f) shows the evolution of the average number of mandates per director (left column) as well as the percentage of directors that hold a specific type of mandate (right column) for the four different categories of mandates (subfigures a-b: local/national institutions; subfigures c-d: local/“national” companies) as well as the combination of both type of mandates (subfigures e-f: local/national institutions and companies). The figure shows the aggregated results for all three city-regions (see Figures A.1-A.3 in Appendix for graphs by city-region and Figure A.4 for the local champion network).¹²

In each of the 6 subfigures of Figure 2, the dashed line represents the connection to national level organizations, whereas the solid line shows the connection to local level organizations. In general, Figure 2 shows relatively similar trends for both institutions and companies, with higher connection to local organizations in 1890 and 1910 than to national organizations, then a period of higher connectivity with national organizations until 1980 followed by a clear decline in 2000 and 2020 for both the local and the national level. This is in line with previous studies that have found very dense and strong local urban networks in Swiss cities at the end of the 19th century (Strebel et al. 2021) as well as with research on the rise and decline of the Swiss national company network (Schnyder et al. 2005). After 1910, national connections gain in importance and exceed the degree of connection to the local/regional level. This is partly explained by the creation and growing importance of some national institutions. We can mention the creation of important national BIAs between 1890 and 1910 (the Swiss employers association, created in 1905, and the Swiss Bankers Association, created in 1912, but already included in the 1910 cohort) as well as the growing importance and number of national expert committees for the federal administration since 1937. This second period from 1937 to 1980 thus represents the heydays of national corporatist institutions (for more details, David et al. 2009).

¹² For this combined analysis, we proceed in two steps. First, we take the sample of directors of each benchmark year/city-region combination and the associated mandates. In a second step, we pooled the datasets for all three city-regions for the same benchmark year. A small number of directors (123 out of 2324) are present in the sample of two city-regions in the same benchmark year.

Figure 2. Local and National Connectedness of Directors



If we examine the two levels separately, we see a similar picture for the national connections across all 6 subfigures: at the end of the 19th century, the connection of local champion directors to national institutions and to companies outside of their region was weak, but then grows continuously until 1957 where it enters a period of relative stability until 1980 and then rapidly declines again. Since the pattern is very similar across both connectivity measures, this suggests that the increase in the average number of mandates over time is not due to a few individuals that accumulate many mandates, but to a substantive percentage of board members (more than

50% in 1957 and 1980) that hold a mandate in a national institution or in a company outside of their region. This suggests that we are dealing with a very cohesive national network – a high intensity and a high spread of multiple mandate-holding – in which these local champions are embedded in the post-war decades until the fall of the Berlin wall. Moreover, this inverse u-shaped relationship also ties in with the findings of earlier studies on the integration of the Swiss national business elite (Schnyder et al. 2005, David et al. 2015).

Directors' connections to local organizations and to other local companies exhibit a somewhat more complicated pattern. Subfigure a and b show directors' multipositionality in local institutions of the same city-region (solid line). We can see that both in 1890 and in 1910, directors were more connected to local than to national institutions. It is only afterwards that the national integration of the business elite takes up speed. Surprisingly, however, we do not witness a decline of local champion directors' ties to local institutions until the year 2000. Given that the curves in subfigures a and b follow rather similar patterns, we can again state that the intensity and the spread of multiple mandate-holding among directors follow parallel trends.

The results from subfigures c and d tell a more complex story. Judging from subfigure c, the connections of the local champion directors to other local companies starts to gradually decline from 1937 onwards. However, judging from subfigure d, their connections with other local companies increase between 1910 and 1937 and then remain stable until 1980 – meaning that a high (and slightly growing) proportion of directors remains connected to local companies during this period.

How can we explain these diverging trends in intensity and spread of directors' connections to other local companies? It seems that in the years 1890 and 1910, a relatively small number of directors accumulated many positions in other local companies – therefore we find a relatively high average number of mandates that coincides with a lower share of directors that hold mandates in other local companies. From 1937 to 1980, the interpretation reverses: now a larger share of directors each hold relatively few positions in other local companies – there's a wide spread of mandates in other local companies across directors. If we take a closer look at the patterns for each city-region, we find that this mismatch between the two curves can be found for Basel and Geneva, but not for Zurich (see Figures A.1-A.3 in Appendix). A possible explanation for these city-regional differences might be that local elite networks were dominated by members of old patrician families in Basel and in Geneva, but not so much in Zurich, at the end of the 19th century (Strebel et al. 2021). These families were well-connected among one another – both through marriage ties as well as through corporate interlocking in the companies they owned – and they might constitute these few very connected individuals

(Sarasin 1997). In the decades that followed, these local patrician families to some extent lost their grip over the city and its companies and new elites entered the scene. This might explain the low concentration, but high spread of local company mandates between 1937 and 1980 in these two city-regions. In sum, these findings suggest, however, that local champion directors continued to invest in local networks throughout the 20th century – even during the heydays of the Swiss “alpine fortress” in the post-war years (David & Mach 2012). Only since the new millennium did the ties to local institutions and companies decline – like those to national ones.

If we take a closer look at the organizations that have the strongest connection to local champions -- measured as the number of local champion directors with a mandate in a particular type of organization in a given city-region and year – the results confirm the general trends discussed above. Yet, we also find some interesting city-regional variations both with respect to the local anchorage of directors as well as with respect to their cross-sectoral involvement.

Table 3 10 most connected organizations by type, year, and city-region

City-Region	Type of Organization	1890	1910	1937	1957	1980	2000	2020
Basel	Local Institution	2	2	2	1	2	2	0
Basel	Local Company	8	6	6	3	1	1	1
Basel	National Institution	0	2	2	3	3	3	1
Basel	National Company	0	0	0	2	3	3	0
Geneva	Local Institution	4	5	2	3	4	5	0
Geneva	Local Company	7	6	6	2	5	3	0
Geneva	National Institution	0	2	3	4	5	5	3
Geneva	National Company	0	0	0	2	3	2	1
Zurich	Local Institution	3	3	1	1	2	2	1
Zurich	Local Company	10	4	6	4	4	3	2
Zurich	National Institution	2	3	4	5	2	4	4
Zurich	National Company	0	2	1	0	2	2	3

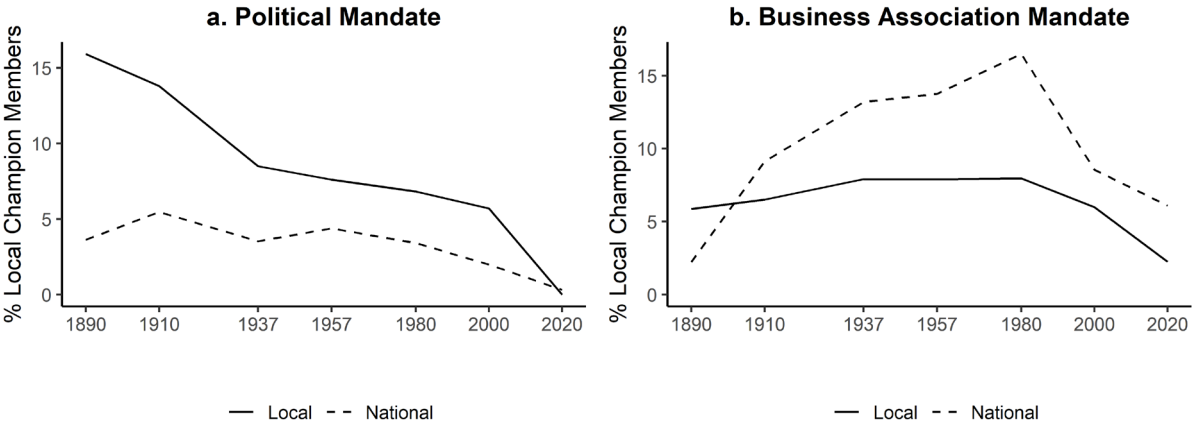
Note. Criterion for the ranking of the connection is the absolute number of local champion directors involved in a particular type of organization. To enter the ranking, an organization needed at least two connections/local champion directors. If several organizations have the same number of connections, they are all included, therefore the total number of organizations per year and city-region can sometimes exceed ten. In other cases, there are less than 10 organizations which have at least two connections.

Table 3 clearly highlights the stronger connections of local champion directors with some local institutions and companies at the end of the 19th century, which then declined and were replaced by national institutions and companies.

Among the most connected institutions at the beginning of the period, we find the communal and/or cantonal parliaments, as well as the regional chamber of commerce, the latter remaining in the top ten most connected organizations during most of the 20th century. The stronger presence of national institutions among the most connected organizations is mostly due to local champion directors’ membership in national expert commissions and in national

BIAs (Swiss bankers’ association, and Economiesuisse, the latter being the major Swiss BIA). Interestingly, the national parliament only appears three times among the organizations most connected to the local champions (in Zurich between 1890 and 1937). A final remarkable observation that can be made about the most connected organizations is that there are always more local than national companies among them in all city-regions, except in Basel in 1980 and 2000. This points to the continued relevance of the local scale for local champions – even when they have become global players.

Figure 3. Mandates in Local and National Political Institutions and Business Associations



The analysis of the most connected organizations already suggests that the connections of local champion directors have profoundly changed over time, which might illustrate the changing strategies of companies to exert political influence. In line with Schulze’s (1961) results, we can observe that while at the beginning of the period, directors were heavily invested in local and regional parliaments, they stopped this involvement at the beginning of the 20th century, but they remained involved in business associations – both at the local and the national level. Figure 3 confirms this observation. Subfigure 3a shows the evolution of the percentage of local champion directors that hold a mandate in local/regional or national parliament and subfigure b shows the percentage that holds a mandate in a regional chamber of commerce or in a national BIA. We can clearly see the disinvestment in local politics from subfigure 3a as well as the comparatively low percentage of directors that sit in the national parliament throughout the period. Subfigure 3b, however, shows the continued importance of the regional chamber of commerce. Until 2000, at least five percent of directors were also in the executive committee of their regional chamber of commerce and since 2000, the top management of the national branch of the respective companies (not included in the database) is still well-represented in these regional chambers of commerce. In addition to the continued importance

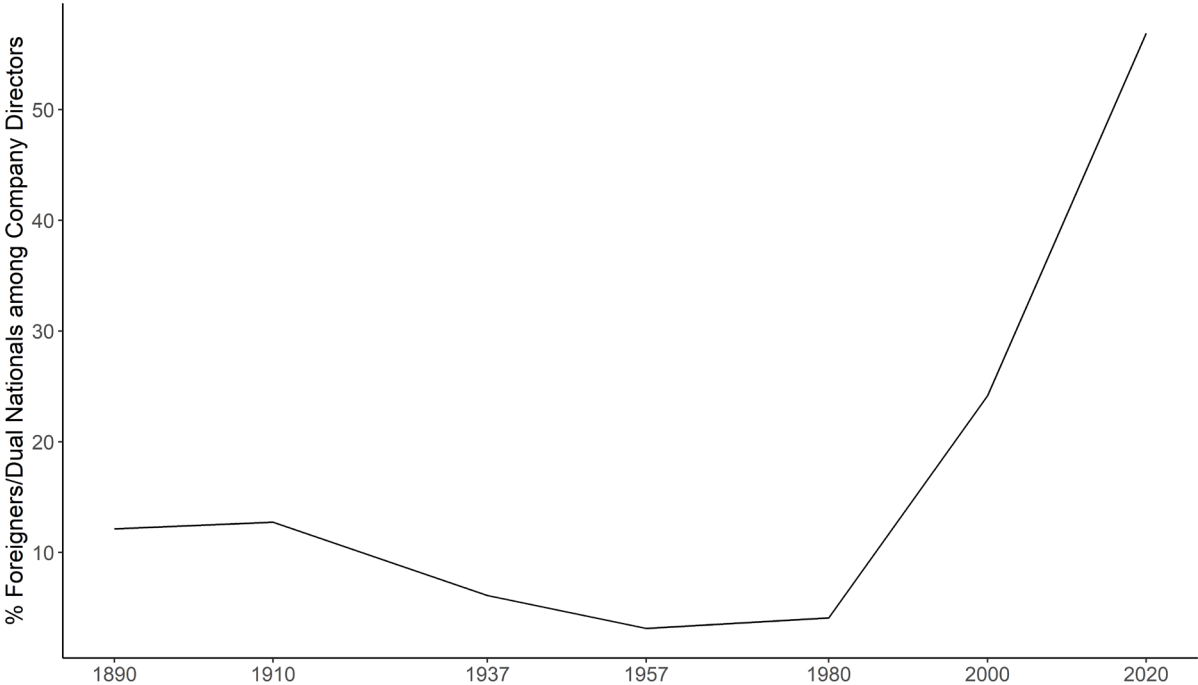
of regional chambers of commerce, we also clearly see the rise of the national BIAs in the 20th century. This suggests that the corporate elite of major Swiss companies exerts their political influence mainly indirectly through their involvement in BIAs and less so through direct involvement in political institutions. Interestingly, this is not at all a new phenomenon, but seems to be the dominant pattern since the 1930s (on this issue for the national level, see David et al. 2009).

The Transnational Dimension: Directors’ Nationality

After having established companies’ connections with local and national institutions and companies, we can now turn to the analysis of the transnational dimension. As mentioned above, it is not feasible to study the transnationalization of directors over the long term through a positional approach. To compensate for the absence of systematic information on the transnational positions of directors, we focus on directors’ national background, which allows us to assess one important aspect of the diversity of the directors of our local champions.

Figure 4 presents the evolution of the share of foreigners and dual nationals – i.e. foreigners that have obtained Swiss citizenship in their lifecourse – among the local champion directors.

Figure 4. Transnational Background of Directors

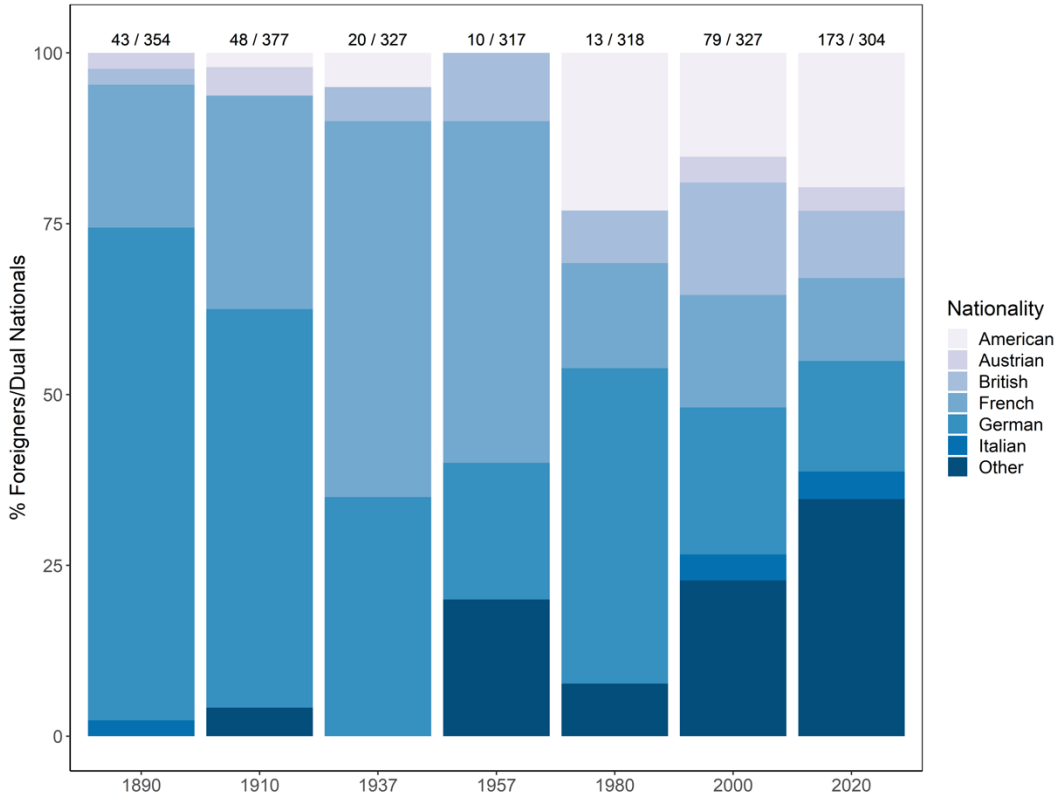


We can see that in the initial period before World War I, around 10% of the directors of our local champions were not Swiss nationals. In the interwar period, and particularly in the post-

war growth period, the share of foreigners dropped to low single-digit numbers. In that period, the Swiss corporate elite was highly exclusive and connected. A central feature of corporate elites in that time was an officer rank in the Swiss militia army – which probably fulfilled a similar function as some elite schools in countries such as France or the UK (cf. Bühlmann et al. 2017). Finally, from the 1980s onwards, we see a staggering increase in the share of non-nationals among the directors. It increased by almost 20 percentage points from 1980 to 2000 and again by 20 percentage points from 2000 to 2020, reaching more than 50%. This is strong evidence for a substantive transnationalization of the corporate elite since the end of the 20th century (Mach et al. 2011).

If we take a closer look at the nationalities of these directors, we can also see an interesting evolution. Figure 5 depicts the distribution of different nationalities among those directors that are either non-nationals or dual nationals, i.e. have another passport in addition to the Swiss one.

Figure 5. Nationalities of Transnational Directors



Note. Numbers indicate number of foreigners/dual nationals and total number of board members.

As we can clearly see, the transnationalization of the beginning of the 20th century is very different from the one at the end of the 20th century. At the beginning of the 20th century, most

directors with a transnational background are German and French. This suggests that transnational connections were predominantly established with neighboring countries of Switzerland – or even of the cities studied here, notably Basel and Geneva. Some prominent examples include Georg Siemens (1839-1901) and Emil Rathenau (1838-1915) who were involved in the AIAG-Alusuisse, an enterprise which was founded jointly by Germans and Swiss. We also find many directors with French nationality in the textile industry in Basel. At the end of the 20th century, this picture looks much more diverse. While there is still a sizable proportion of German and French directors, other nationalities – American and British but also nationals from other countries – make up the majority. This suggests that the current wave of globalization is much more global – also at the elite level – than the one at the beginning of the 20th century.

Conclusion: The Multilevel Embeddedness of the Corporate Elite

In this paper, we have studied the long-term evolution of the corporate elite's insertion at different spatial scales. Figure 6 summarizes our results in one graph. It presents the percentage of company directors that have a mandate in another local company or institution, in a nonlocal company or national institution, as well as the share of directors which are non-nationals.

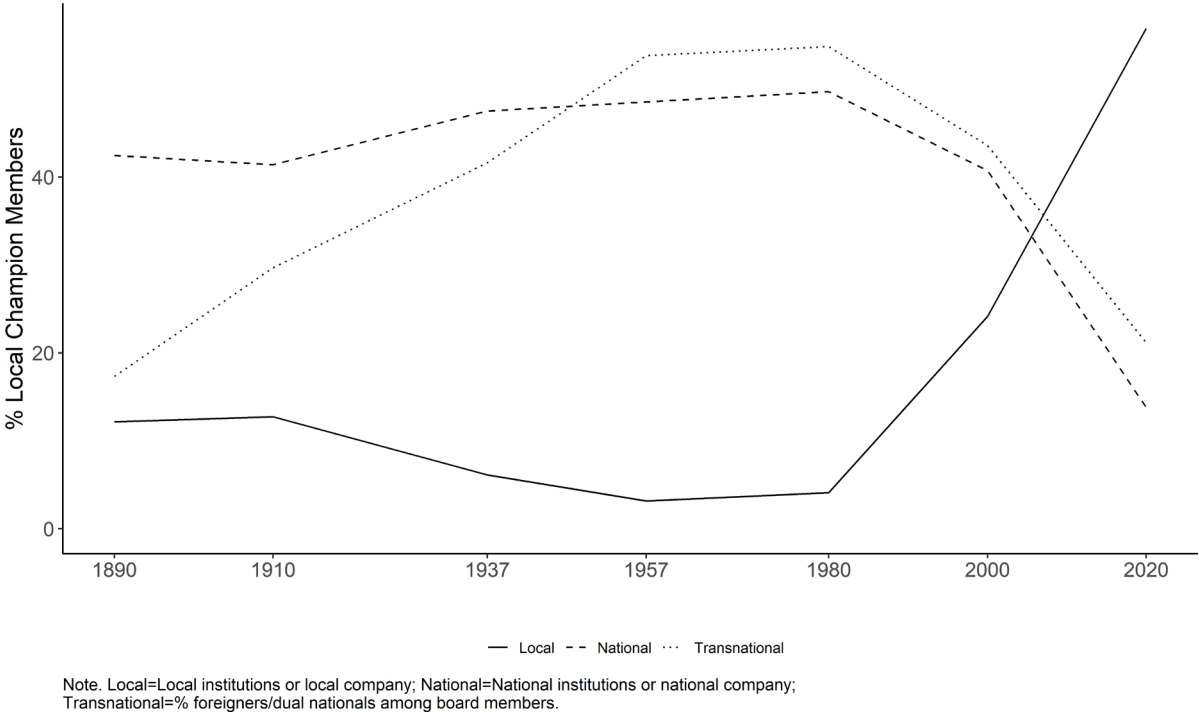
This figure clearly corroborates the idea of different phases of corporate elites' multilevel connections. In a first phase, from 1890 to World War I, local champion' directors were strongly rooted in their respective city-regions and entertained close connections with local parliaments and business associations. At the same time, a substantial percentage of them also had a transnational background. This early transnationalization in the "first wave" of globalization until 1914 also ties in with previous research. Schröter (1993) highlights the early transnational connections that major Swiss companies entertained and Jones (2005, 28-29) states that

[...] a great deal of international business in the nineteenth century was 'cosmopolitan' and not easily fitted into national categories. The place of registration, the nationality of shareholders, and the nationality of management could and quite often did point in different directions before 1914. In the twentieth century cosmopolitan capitalism was replaced by much sharper national identities.

This fundamentally changed after World War I: from the interwar period until the 1980s, company directors were almost exclusively Swiss and very strongly integrated into national institutions and linked with Swiss companies outside the region. This nationalization of the corporate elite, of corporate networks, and of major companies is a more general phenomenon that can be observed in several countries (Jones 2005). Yet, and somewhat surprisingly, local connections continue to be valued by the corporate elite throughout that period and were not replaced by national connections. It remains an open question whether this stability in local

connections can also be observed in other countries or whether this is a Swiss particularity – owed to its decentralized political system and economic structure.

Figure 6. The Relational Embeddedness of Local Champion Board Members



The decline of local connections only set in after the 1980s, which marks the transition to the third phase which coincides with the “second wave” of globalization. Both local and national ties dramatically decrease, whereas the presence of company directors with transnational background strongly increase until they reach almost 50% as of today. The observation of a disintegration of the national corporate network and the growing transnationalization of corporate elites is equally in line with previous research (Mizruchi 2013, Heemskerk et al. 2015). What is important to note, however, is that it is not only the global players and the large multinational companies that disinvest in local and national ties. We can see the same phenomenon for the remaining “local champions” whose business activity has a strong focus on the regional or national level – such as the public-owned cantonal banks in each city-region.

What can we take from these results? First, there does not seem to be a zero-sum game between corporate elites’ insertion at different spatial scales: when they start to integrate at the national level, their local ties remain strong. Second, however, we also do not see a symmetrical shift away from the national level in the most recent period. It does not seem to be the case that corporate elites turn their attention away from the national level and redirect it to the transnational as well as to the local level at the same time. In other words, we do not see a

“glocalization” process of the corporate elite – even if our analysis includes global cities such as Zurich, which ranks among the most important cities in the global corporate network (see Carroll 2007, Heemskerk et al. 2016). Our results suggest, third, that there is no linear evolution from local rootedness to global activity. Rather, during the first wave of globalization at the end of the 19th century, we can observe that corporate elites simultaneously have strong local connections and a transnational background. Finally, we can also clearly see, however, that the prioritized scale of activity has shifted over time. And here, the picture seems to be more one of a linear evolution from local to global.

Obviously, our study has several limitations. First, our analysis remains very general and does not distinguish between different types of local champions. We could for example imagine that corporate elites from the financial sector behave differently than those from the producing industry, that multinational companies, such as Novartis or Roche, show a different connection pattern than cantonal banks, or that the degree to which a company is transnationalized (e.g. in terms of the number of employees and locations abroad, or in terms of shareholding from abroad) is linked to its multilevel embeddedness. This should be explored in future research.

A second limitation of our study is that it only looks at formal connections – established through the occupation of powerful positions in organizations. However, our analysis might look different, if we considered more informal ties between the corporate elite and organizations at different territorial scales – as they are established in social clubs or at high society events – or new intermediaries, such as public relations officers, which play a growing role in the communication and advocacy strategies of large multinational companies.

Finally, the biggest limitation of our analysis is that we cannot adequately measure transnational connections. At the moment, we lack the data for doing so. However, for the more recent period, it should be possible to collect data on important international policy groups – such as the European Roundtable of Industrialists (Nollert 2005). Moreover, it would probably also be possible to include data on the largest 500 companies in the world for the more recent period. Yet, for the end of the 19th century it might be difficult to find equivalent data.

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Appendix

A Network Connectivity Graphs by City

Figure A.1 Board Members Connectivity Basel

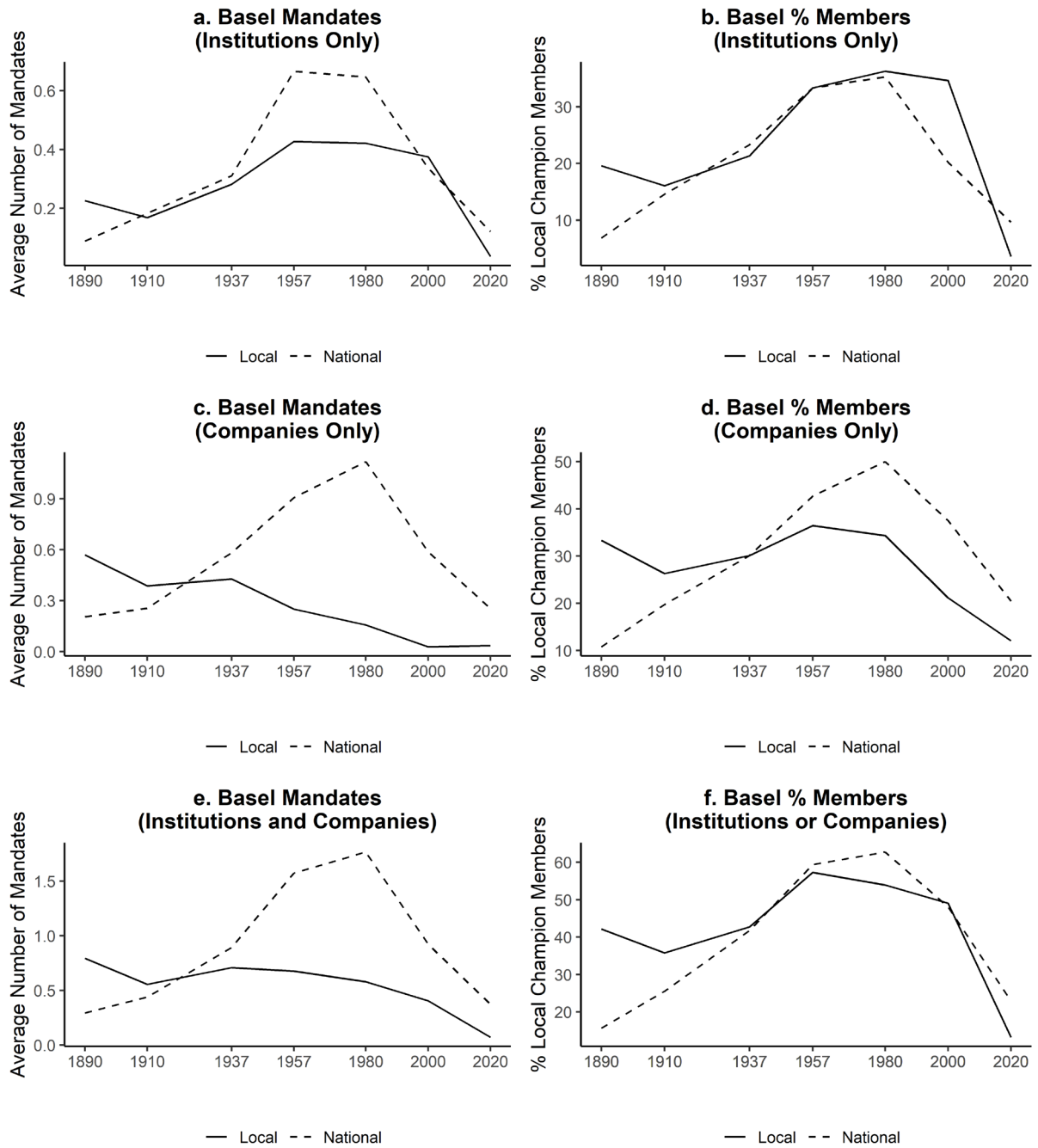


Figure A.2 Board Members Connectivity Geneva

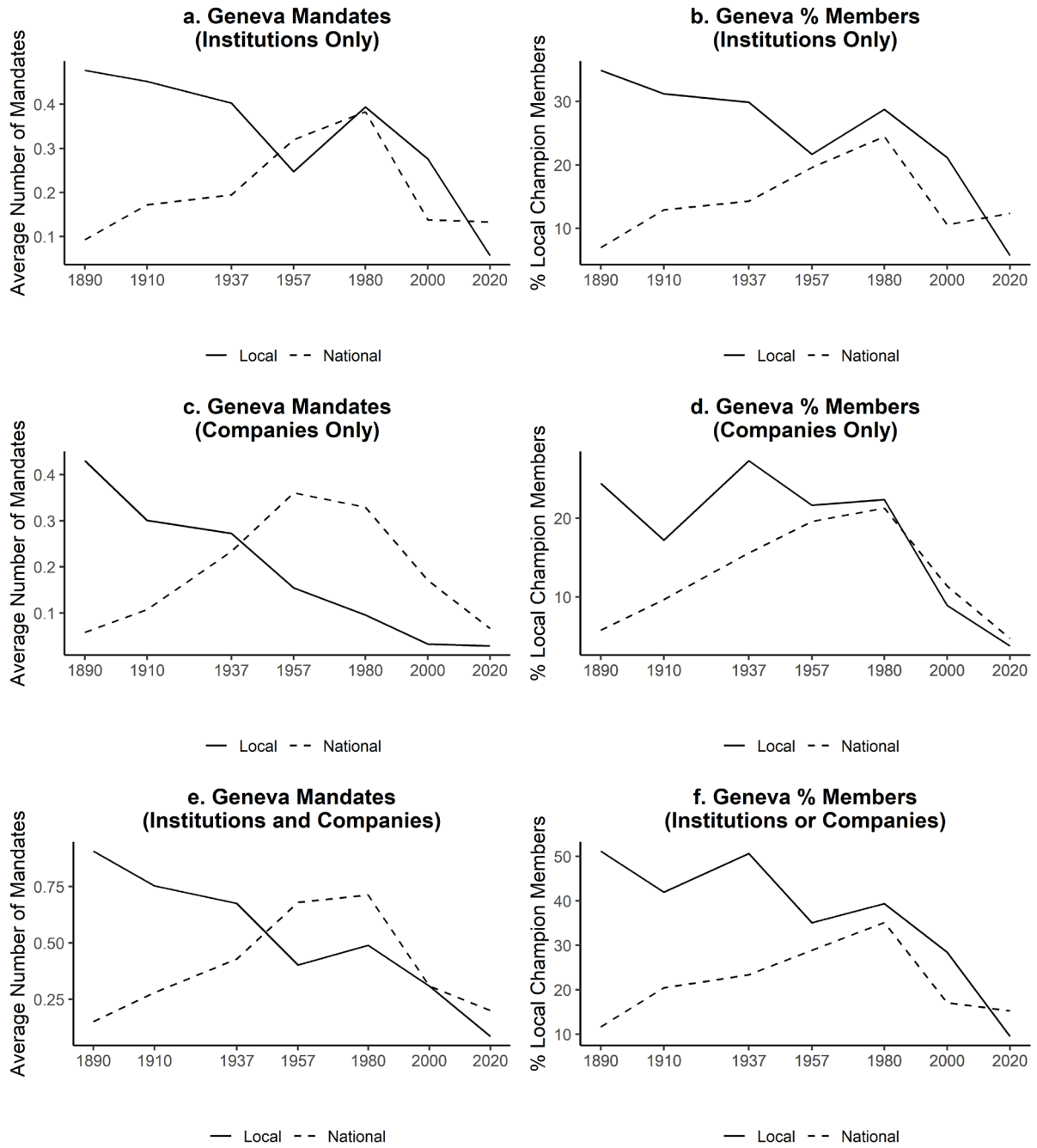


Figure A.3 Board Members Connectivity Zurich

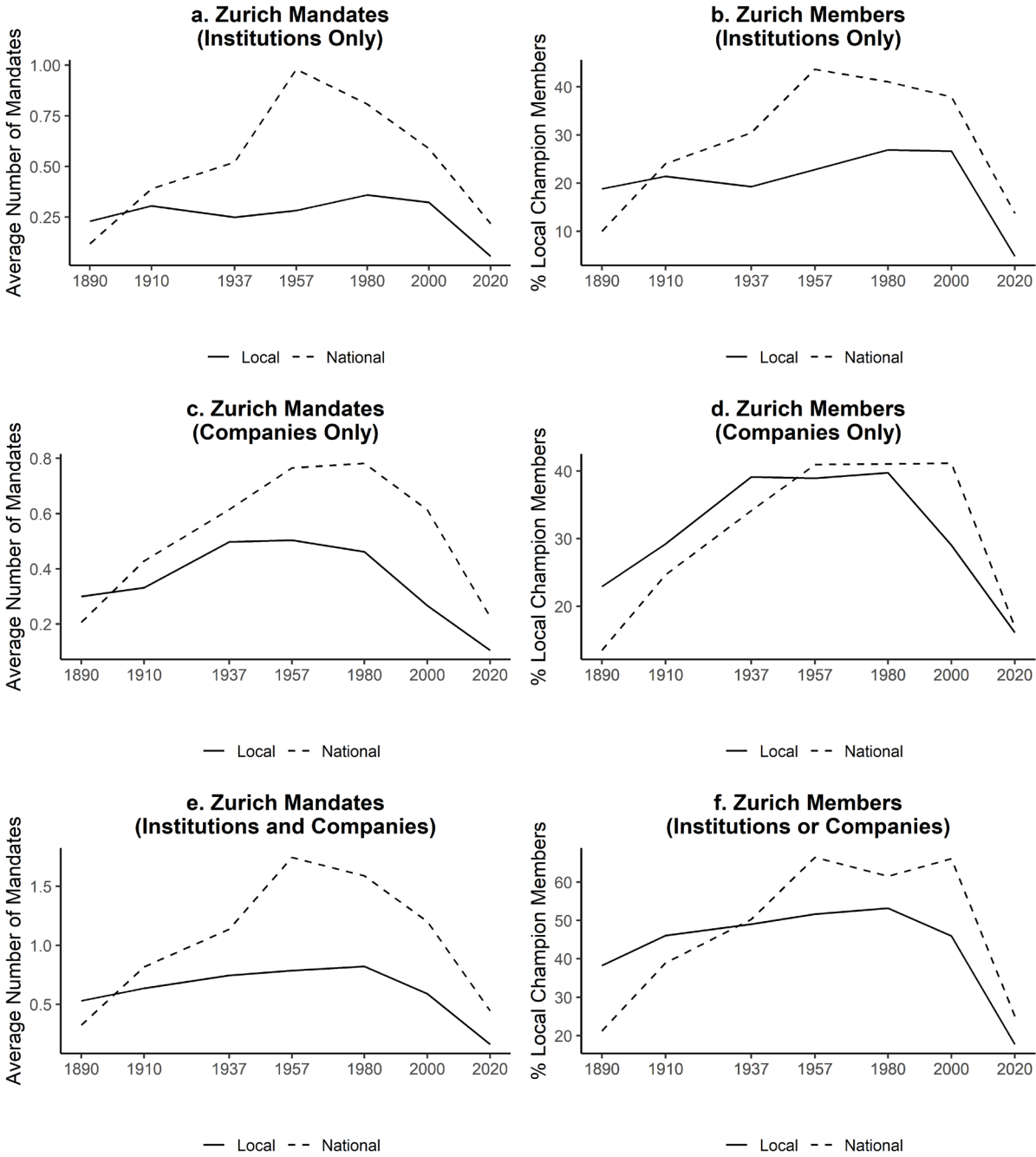


Figure A.4 Local Champion Networks, 1890-2020

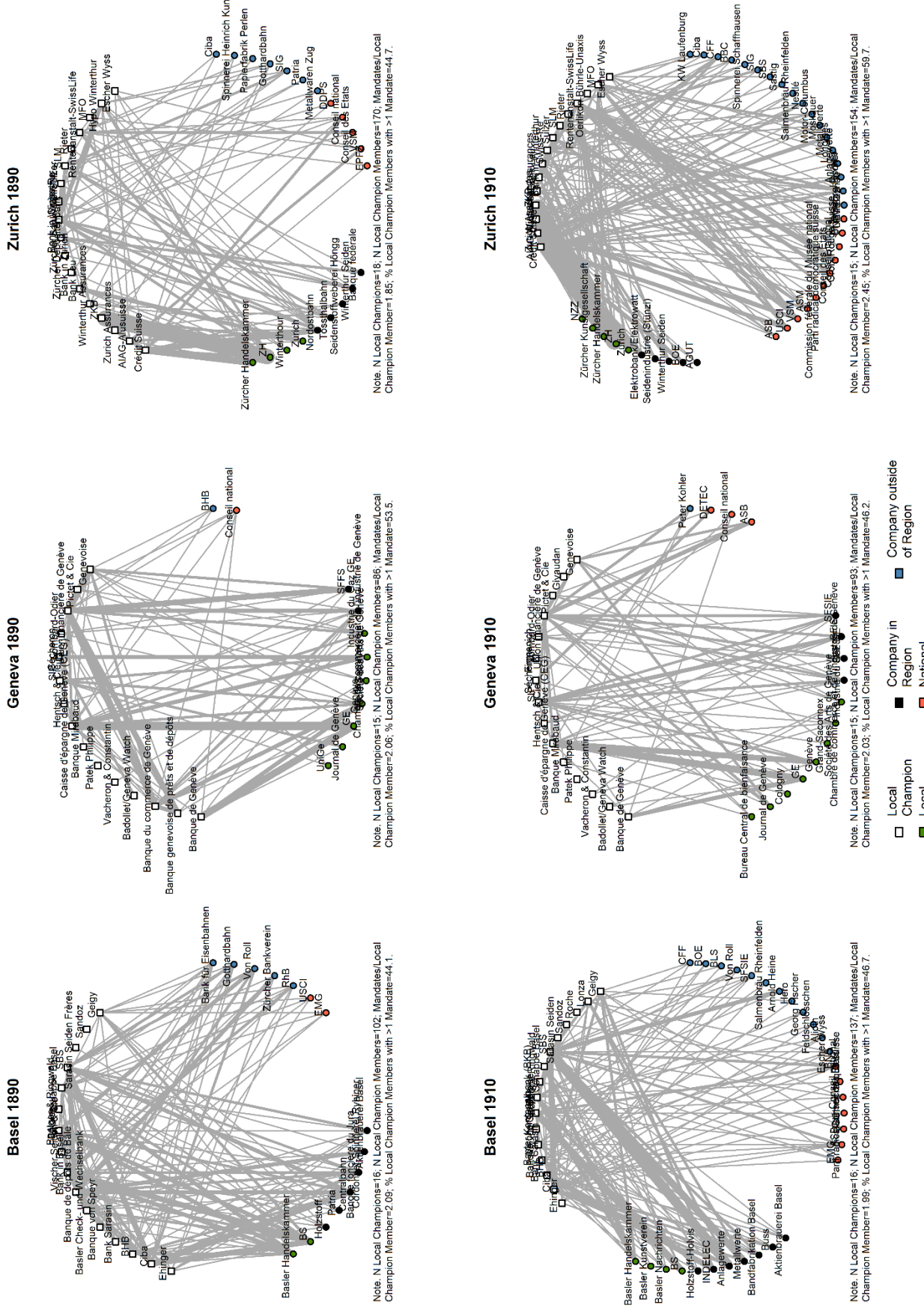


Figure A.4 Continued

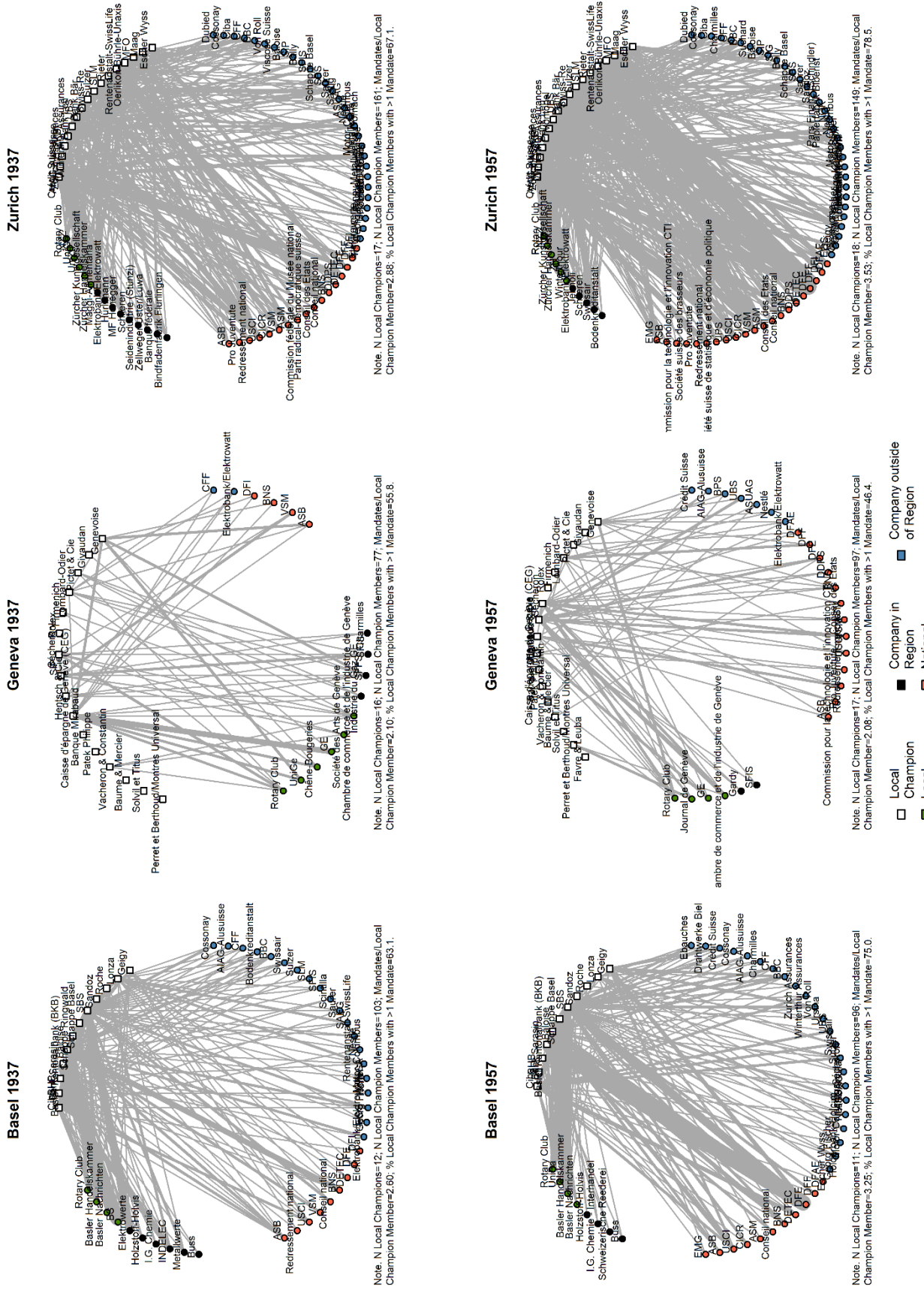


Figure A.4 Continued

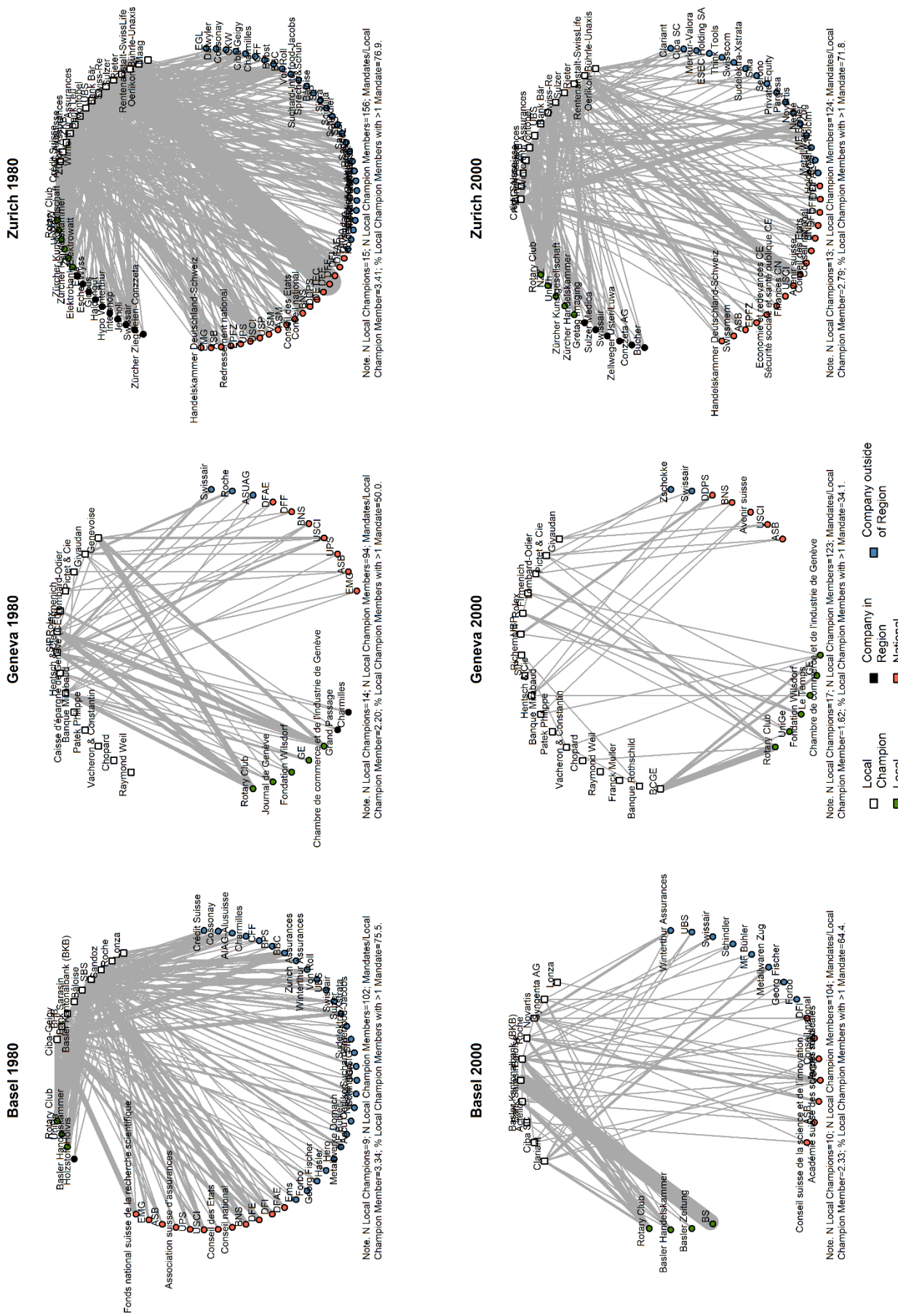


Figure A.4 Continued

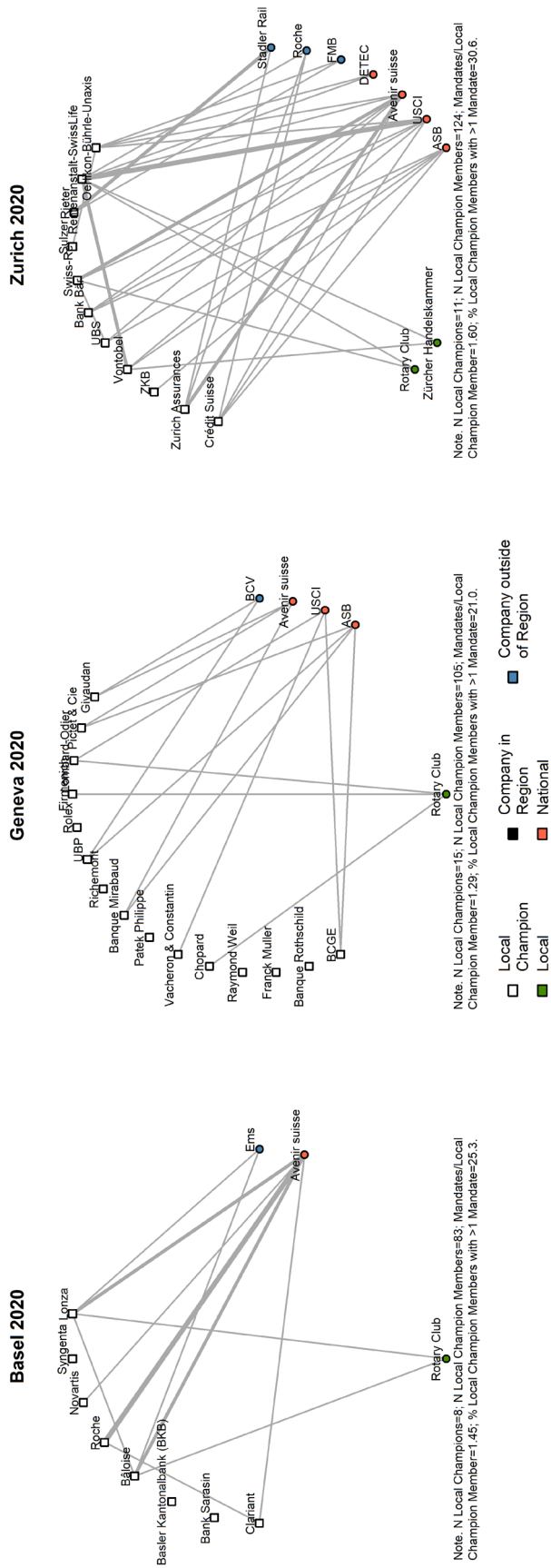


Table A.1 List of Companies and number of directors included for each benchmark year

City-Region	Company	Sector	1890	1910	1937	1957	1980	2000	2020
Basel	Bâloise	Insurance	17	18	15	13	15	15	11
Basel	SBS	Banking	12	21	19	27	26	-	-
Basel	Bank in Basel	Banking	11	-	-	-	-	-	-
Basel	Banque de dépôts de Bâle	Banking	12	-	-	-	-	-	-
Basel	Basler Check- und Wechselbank	Banking	7	-	-	-	-	-	-
Basel	Banque von Speyr	Banking	3	14	-	-	-	-	-
Basel	Bank Sarasin	Banking	5	3	7	6	6	9	7
Basel	BHB	Banking	15	12	10	3	6	-	-
Basel	Ehinger	Banking	2	4	-	-	-	-	-
Basel	Basler Kantonalbank	Banking	-	15	15	14	15	14	10
Basel	Geigy	Pharma	10	7	5	8	-	-	-
Basel	Sandoz	Pharma	2	6	7	9	12	-	-
Basel	Ciba	Pharma	12	16	10	12	-	-	-
Basel	Lonza	Pharma	-	11	11	10	10	5	9
Basel	Roche	Pharma	-	5	6	6	9	11	12
Basel	Ciba-Geigy	Pharma	-	-	-	-	19	-	-
Basel	Syngenta AG	Pharma	-	-	-	-	-	12	-
Basel	Novartis	Pharma	-	-	-	-	-	14	15
Basel	Actelion	Pharma	-	-	-	-	-	10	-
Basel	Ciba SC	Pharma	-	-	-	-	-	8	-
Basel	Clariant	Pharma	-	-	-	-	-	8	12
Basel	Syngenta	Pharma	-	-	-	-	-	-	9
Basel	Sarasin Seiden Frères	Textile	3	-	-	-	-	-	-
Basel	Schappe Basel	Textile	12	12	13	-	-	-	-
Basel	Boelger & Ringwald	Textile	6	-	-	-	-	-	-
Basel	Vischer Seiden & Cie	Textile	4	-	-	-	-	-	-
Basel	Sarasin Seiden	Textile	-	2	-	-	-	-	-
Basel	Schappe Ringwald	Textile	-	9	10	-	-	-	-
Basel	Vischer Seiden	Textile	-	3	-	-	-	-	-
Geneva	Genevoise	Insurance	13	11	11	8	9	-	-
Geneva	Pictet & Cie	Banking	3	2	5	7	7	8	7
Geneva	Union financière de Genève	Banking	11	13	-	-	-	-	-
Geneva	Lombard-Odier	Banking	3	5	6	8	8	8	7
Geneva	Hentsch & Cie	Banking	2	2	5	6	8	6	-
Geneva	Caisse d'épargne de Genève (CEG)	Banking	20	20	17	19	20	-	-
Geneva	Banque de Genève	Banking	12	8	-	-	-	-	-
Geneva	Banque Mirabaud	Banking	3	4	2	4	3	5	7
Geneva	Banque du commerce de Genève	Banking	11	-	-	-	-	-	-
Geneva	Banque genevoise de prêts et de dépôts	Banking	7	-	-	-	-	-	-

Table A.1 List of Companies and number of directors included for each benchmark year

City-Region	Company	Sector	1890	1910	1937	1957	1980	2000	2020
Geneva	UBP	Banking	-	-	-	-	-	12	7
Geneva	Banque Rothschild	Banking	-	-	-	-	-	15	8
Geneva	BCGE	Banking	-	-	-	-	-	14	10
Geneva	Givaudan	Pharma	-	1	4	4	6	9	9
Geneva	Firmenich	Pharma	-	4	4	5	7	3	10
Geneva	Patek Philippe	Watch-Making	6	5	5	4	4	4	4
Geneva	Vacheron & Constantin	Watch-Making	2	6	4	6	4	7	2
Geneva	Badollet/Geneva Watch	Watch-Making	7	3	-	-	-	-	-
Geneva	Rolex	Watch-Making	-	-	2	3	8	11	7
Geneva	Baume & Mercier	Watch-Making	-	-	2	2	-	-	-
Geneva	Solvil et Titus	Watch-Making	-	-	1	2	-	-	-
Geneva	Perret et Berthoud/Montres Universal	Watch-Making	-	-	2	4	-	-	-
Geneva	Favre & Leuba	Watch-Making	-	-	-	6	-	-	-
Geneva	Chopard	Watch-Making	-	-	-	-	3	4	4
Geneva	Raymond Weil	Watch-Making	-	-	-	-	3	3	2
Geneva	Richemont	Watch-Making	-	-	-	-	-	10	20
Geneva	Franck Muller	Watch-Making	-	-	-	-	-	3	1
Geneva	Sécheron	Machine	7	7	7	9	-	-	-
Geneva	SIP	Machine	7	8	8	9	10	-	-
Zurich	Rentenanstalt-SwissLife	Insurance	25	26	30	27	27	17	13
Zurich	Swiss-Re	Insurance	7	8	7	8	11	12	15
Zurich	Winterthur Assurances	Insurance	14	14	13	13	14	12	-
Zurich	Zurich Assurances	Insurance	8	7	11	8	12	10	12
Zurich	Hypo Winterthur	Banking	10	-	-	-	-	-	-
Zurich	Bank in Winterthur	Banking	12	14	-	-	-	-	-
Zurich	Zürcher Bankverein	Banking	14	-	-	-	-	-	-
Zurich	Zürcher Depositenbank	Banking	8	-	-	-	-	-	-
Zurich	Bank in Zurich	Banking	12	-	-	-	-	-	-
Zurich	Bank Leu	Banking	11	11	12	12	15	-	-
Zurich	ZKB	Banking	17	16	15	15	14	15	14
Zurich	Crédit Suisse	Banking	12	21	30	21	21	17	13
Zurich	Bank Bär	Banking	-	-	3	4	10	9	11
Zurich	UBS	Banking	-	-	20	25	22	10	12
Zurich	Vontobel	Banking	-	-	-	-	3	8	10
Zurich	Escher Wyss	Machine	4	11	8	10	-	-	-
Zurich	MFO	Machine	9	8	9	9	-	-	-
Zurich	Rieter	Machine	3	4	5	6	8	6	9

Table A.1 List of Companies and number of directors included for each benchmark year

City-Region	Company	Sector	1890	1910	1937	1957	1980	2000	2020
Zurich	SLM	Machine	9	10	8	8	-	-	-
Zurich	Sulzer	Machine	5	7	14	19	17	11	9
Zurich	AIAG-Alusuisse	Machine	13	16	9	11	13	5	-
Zurich	Oerlikon-Bührle-Unaxis	Machine	-	4	4	1	7	7	8
Zurich	Maag	Machine	-	-	6	5	5	-	-