

The brokerage role of small states and territories in global corporate networks

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Running Title: small states and territories as global brokers

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Abstract

Global economic activity is networked through cross-national linkages between firm headquarters, branches, and subsidiaries. *Brokerage* emerges as a key territorial function of this network, with some places acting as gateways or intermediaries for flows of global knowledge, information, or trade. This function is particularly salient for small states and territories leveraging the benefits of borrowed size by offering global professional services, warehousing, logistics, shipping, and finance to wealthy nations or high-net individuals. Nonetheless, to date our understanding of how small states and territories facilitate wealth accumulation is limited to broad concepts of their role as ‘gateways’ or ‘brokers’. Drawing on the Gould and Fernandez (1989) brokerage typology and a network analysis applied to the ties between approximately 700,000 firm headquarter and subsidiary locations of 13 of the worlds’ largest stock exchanges, we explore the brokerage role of small states and territories through case studies of Luxembourg, Singapore, Hong Kong, and Panama. Brokerage is found to play an important role in the economy of all four. We argue that each of these small states and territories is uniquely positioned as a broker in global corporate networks, but that this role differs according to geo-economic and political positionality.

Key words: brokerage, social network analysis, corporate networks, economic geography

Introduction

Small states and territories occupy a distinctive space in the global economy that has long been of interest to scholars (Keohane, 1969; Selwyn, 2014[1975]; Vital, 1967). They are defined by populations that are relatively small by global standards, and are often the vestiges of monarchies and/or colonial regimes. The number of small states has risen in the second half of the 20th century with decolonization producing several dozen of these small states, along with a number of semi-autonomous territories whose economies often operate rather independently than associated sovereign states. In practice, they are often quasi city-states with an urban center firmly dominating the remainder of the territory (e.g. Andorra, Belize, Luxembourg). In addition, many of the world’s small states are island states. In principle, their relatively small size often means they have limited to no access to resource wealth, which makes them particularly dependent on external trade and vulnerable to market shocks.

However, the size and political alignment between the state and local activities (Baldacchino, 2018; Hesse, 2014) also allows small states to capitalize on being ‘in a rather unique context of the niche sovereignty politics of the small state/small city’ (Hesse, 2014, p.612). As Hesse (2014) contends, small states often provide very specialized services to larger economies and

being highly open to trade enables them to ‘borrow’ market size. The idea of ‘borrowed size’ (cf. Alonso, 1973, who first applied the concept to cities and regions) stresses that, among other attributes, network connectivity is integral to sustain higher order functions. This helps explain the advantages gained by small states acting as brokers within the global economic system, and the mechanism they use to achieve higher-than-expected economic performance as measured by GDP, economic growth, etc (cf. Meijers and Burger, 2017).

Whilst the intermediary role of small states and territories has been widely documented (Hesse, 2016; Lohmann et al., 2009; Scholvin et al., 2017; Sigler and Zhao, 2015), this is often largely descriptive with broad generalizations regarding the various flows they attract, thus providing limited insights into what brokerage *means* in a global context. Indeed, there is little empirical evidence of *how* small states act as brokers or which *specific* connections they mediate. This has occurred in part due to the difficulties in obtaining global datasets that are reasonably comprehensive across nations and industries (cf. Short et al., 1996). Thus, despite extensive theorization of what brokerage entails for individual and/or other actor networks (Boari et al., 2017; Diani, 2003; Gould and Fernandez, 1989; Kadushin, 2002; Kirkels and Duysters, 2010; Walther and Reitel, 2013), there remains a knowledge gap when applied to territorial units such as cities, small states, and other areal configurations (for an exception, see Neal, 2014). This paper aims to address this through a social network analysis (SNA) of a comprehensive global dataset of corporate networks, following established methods in world city network research (e.g. Alderson and Beckfield, 2004; Martinus and Sigler, 2017; Neal, 2008) to generate a more nuanced understanding of the ‘brokerage’ role of small states and territories.

The paper first introduces Gould and Fernandez’s (1989) five brokerage types, before providing the historic context of the four small states and territories used as empirical examples: Luxembourg, Singapore, Hong Kong, and Panama. All are well-documented within the literature as key global intermediaries with service agglomerations centered – at least in part – on brokerage roles. All four are clearly small states and territories with globally significant financial and commercial centers and proportionally larger expatriate communities compared to domestic populations (Hesse, 2016; Sigler, 2013; Woo, 2015). We then present our methodology, which applies a network projection technique to data on approximately 700,000 firm-subsidary ties derived from firms listed on 13 of the world’s largest stock exchanges. Next, we explore Gould and Fernandez’s brokerage typologies to unpack the specific role of each of the selected examples within the overall network. The paper concludes

that small states and territories do indeed act as brokers, whereby each intermediates a unique set of relationships.

Network Brokerage as Ways of Knowing Global Relations

In the urban literature, places acting as brokers have been referred to as ‘gateway cities’ (Burghardt, 1971; Breul and Diez, 2018; Drennan, 1992; Scholvin, 2017), ‘relational cities’ (Sigler, 2013), and/or ‘entrepôts’ (Muller, 1976). Sigler (2013) argues that the unique attributes of some small city-states and territories situates them exceptionally well to be such economic intermediaries. Many are sites of ‘globally critical flows of capital, goods, and ideas ...[being]... dedicated to intermediary services such as offshore banking, container- and bulk-shipping, and regional re-exportation’ (p.612). Indeed, some specialize in tax-related activities, such as offshore financial centers (e.g. Andorra, Liechtenstein, Mauritius), and/or hubs for global logistical operations such as air freight (e.g. Qatar, United Arab Emirates), transshipping (e.g. Panama, Netherlands (Rotterdam)), and logistics (e.g. Hong Kong, United Arab Emirates). Understanding their role in the global economic system means grappling with *how*, despite their relatively small land mass and lack of resource wealth, they facilitate wealth accumulation in their jurisdictions (Olds and Yeung, 2004). Whilst there is a substantial number of such economies worldwide, scholarship on their relevance remains relatively limited (Baldacchino, 2018).

This paper focusses specifically on small states and territories commonly associated with an economic brokerage role. As defined by Diani (2003), a broker is an actor whose ‘most crucial property lies in their capacity to connect actors who are not communicating because of some specific political or social barrier, rather than the mere absence of practical opportunities’ (p.107). As Neal (2008, p. 99) points out for the case of cities:

A city that is highly ‘between’ offers its producers a benefit that derives from its criticality as an intermediary. Because the city, and more specifically the [services] firms within it, is essential for others’ access to global markets, all participants in the global economy have an interest in ensuring the health and stability of these broker cities’ economies. Producers located in cities that broker others’ access to markets, therefore, enjoy the goodwill of others toward its host city’s economy, perhaps in the form of deference or elevated status.

This paper assumes the same logic applies to all territorial definitions of a node, including small states and territories. Brokers are generally seen to be those who form a ‘bridge’ between two

others compensating for network connectivity weaknesses or ‘structural holes’ (Diani, 2003; Boari and Riboldazzi, 2014; Kirkels and Duysters, 2010; Watling Neal et al., 2019). Whilst the general concept of brokerage highlights the unique position of certain nodes in a network, it is decidedly static and highly generalized in its interpretation. This is despite a longstanding acceptance in sociology of the dynamic nature of relationship structures and differences in the properties of dyadic and triadic groups (Simmel and Hughes, 1949; Spiro et al., 2013). The general brokerage concept therefore does little to highlight the different types of brokerage which can emerge amongst three nodes with asymmetries in power, influence, policy context, information, motivations, etc. This is because brokerage is not just a position, but a *process* which Spiro et al. (2013) argue can be divided into three classes: 1) *transfer* from one node to another through the broker; 2) *matchmaking* by the broker to bring two other nodes together; and, 3) *coordination* by the broker for the activities of two other nodes where flows are only from (not through) the broker to the other two nodes. They contend that a dynamic brokerage framework is needed to operationalize the brokerage concept recognising that actors may appear or disappear, or change their brokering role. Their work builds on the seminal work of Gould and Fernandez (1989) on brokerage types, which are essentially variations of the *transfer* brokering process.

Our study is specifically interested in the *transfer* class of brokering, given that the brokering process that small states and territories are not likely to be involved in global matchmaking or coordinator processes. As such, we draw upon the understandings of the five types as put forward by Gould and Fernandez (1989): 1) the *coordinator* broker between other members in the same group where flows are passed from one node to the other through the broker (different to Spiro et al. (2013) coordinator which directs rather than mediates); 2) the *consultant* (sometimes referred to as a ‘cosmopolitan’, or ‘itinerant’) broker which is from a different group from the other members who are in the same group; 3) the *gatekeeper* broker who acts in group interests and selectively decides if outsiders can access; 4) the *representative* broker who contacts outsiders on behalf of the group (not selective); and, 5) the *liaison* broker who sits outside of all groups and mediates between different groups. These are graphically represented in Figure 1.

INSERT FIGURE 1

The Gould and Fernandez’s (1989) brokerage typology has been used in range of scholarly applications, including examining brokerage in innovation (Belso-Martínez et al., 2017), education (Watling Neal et al., 2019), policy and knowledge (Jasny and Lubell, 2015), social

media (Abul-Fottouh, 2018), organizational studies (Diani, 2003; Boari and Riboldazzi, 2014; Kirkels and Duysters, 2010), and cross-border organisational networks (Walther and Reitel, 2013). There is yet limited application in economic geography (see however Boari et al., 2017; Vicente et al., 2011), with brokerage of firm networks between places loosely described as ‘bridging’, ‘brokering’ or ‘mediating’ functions (e.g. Liu et al., 2014; Martinus and Sigler, 2018). As such, a study explicitly drawing on the Gould and Fernandez typologies to unpack global economic networks is both overdue and critical in elucidating a more nuanced understanding of the role of how territorial units fit into broader networks.

Small States and Territories as Brokers

Our application of brokerage types to spatial economic relations assumes that the strategic location and/or governance and regulatory framework of some small states and territories allows them to adopt particular positions in the global economy. In some cases, small economies play highly specialized roles to discrete entities, such as that of the Vatican City to the Catholic Church, and Nauru to Australia (Baldacchino, 2018; Briguglio, 2010). However, as Hesse (2014) contends, the restructuring of economic activities between regions and nations through processes of globalization assumes a complexity beyond mere spatial ordering. The sovereignty of these small economies allows them to follow niche strategies to serve specific global economic interests.

Our selection of small states and territories includes a number of recognized first-tier ‘global cities’ (Hong Kong, Singapore), financial centers (Hong Kong, Luxembourg City, Panama City, Singapore), shipping and logistics hubs (Colón, Hong Kong, Panama City, Singapore), and air freight hubs (Luxembourg City, Singapore, Hong Kong). Each has a hybrid culture of sorts: for example, those in Luxembourg speak more languages per capita than any other European country. And, in Hong Kong and Singapore, business is routinely conducted in English alongside multiple Chinese dialects. Each is a geographically small state or territory (though Panama is significantly larger than the rest) with populations ranging from roughly 600,000 (Luxembourg) to 7.5 million (Hong Kong). All are amongst the highest per capita income in their respective regions, and, despite relatively small populations by global standards, each is highly influential in organizations that operate at regional or global scales, such as the European Union or United Nations (Briguglio, 2010).

Luxembourg lies between several large European cultural regions, with Germany to its east, France to the south, and Wallonia (the largest part of Francophone Belgium) to the west. It was historically at the north-western extremity of the Roman Empire, later becoming a Duchy extending well into the current Wallonia. Its modern history began with its establishment as an independent Grand Duchy in 1815. This past is reflected in its highly multicultural and multi-lingual present, as well as the high value it places on close ties to its neighbours and its membership in the European and global community. It is an original member of Benelux (Belgium, Netherlands and Luxembourg economic agreement), which informed the formation of the European Economic Community and the subsequent European Union (Gehring et al., 2018). Its proactive stance in securing national economic and social alliances with larger markets is in response to its small-state vulnerability, which has also been overcome by how it has positioned itself in global trade markets (cf. Hesse, 2016).

Its contemporary economy was founded on its iron ore wealth and success in steel production from the late nineteenth century, reaching its peak prior to World War I. However, successive wars, depression and oil shocks of the 1970s and 80s saw a gradual decline of the Luxembourg economy, made even more pronounced when its low-content iron ore was replaced by supplies of richer ore from France, and later Brazil and Sweden (Zahlen, 2007). Luxembourg then began transitioning to a global niche market in the provision of specialized financial products based on competitive advantages associated with its historic role at European cross-roads: having a large number of highly skilled and educated migrants, housing the newly formed European capital as well as close links to some of Europe's wealthiest economies (Hesse, 2016).

Luxembourg is now an established financial center (Dörry, 2016), benefitting from its banks' passporting rights within the European Union. Its financial role is primarily within the funds management industry, and more recently it has leveraged its tax regime to attract the European headquarters of firms like Amazon and Microsoft. It also serves as a major air freight hub within Europe as home to Cargolux, and as a 'free port' for domiciling and importing high value goods such as art.

The city-state of *Singapore* was established by the British in 1819 due to its strategic position in the Malacca Strait as one of the most important waterways linking India and China (Wong, 1982). Its establishment was claimed to have stopped the Dutch invasion of territories in the region which, if left unchecked, would have led to the choking of British East Indies trading interests. Indeed, its trade importance produced centuries of political insecurities as various kingdoms controlled it in various periods to ensure smooth trading for their empires.

Singapore's geographic positioning as the key hub linking major trading partners meant it attracted merchants and migrants from China, India, the Malay Archipelago as well as Europe (Wong, 1982). Its economic growth accelerated from its independence in 1965 onward as it developed initially into an Asian manufacturing 'Tiger' economy and later into an advanced knowledge economy hub under the leadership of Lee Kuan Yew. The transition from colonial port to financial and services center established Singapore's contemporary 'cosmopolitan' feel and outlook, paving the way for its current status as a 'global' city entrepôt or melting point (Olds and Yeung, 2004). This economic 'leap-frogging' meant that Singapore's small physical size was overshadowed by its large economic presence and commercial ties to the world's major economies. Moving beyond its initial entrepôt function, it expanded its logistics from shipping port commerce and distributions functions into a global center for airline travel, finance, education and business service center (Tan, 2007).

Even a brief glance at the history of *Hong Kong* provides insight into its role in the world economy as an entrepôt or hub of diverse relationships intersecting across and between different activities (Sigler and Zhao, 2015). The British involvement in its development emerged after the two opium wars of the mid 1800's where technological advancements in communication gave the British military advantage. China was forced to open its ports to foreign traders. Initially ceded to the British in 1842, contemporary Hong Kong derives its character from a 99-year lease on Kowloon and the New Territories from 1898 to 1997. Migration during this period from mainland China was substantial, and Hong Kong's intermediary banks became increasingly significant in mediating financial flows from diasporic Chinese in Taiwan, the Nanyang counties, and beyond. Hong Kong was set up by the British as a free trade zone for merchants from any nation (including China), enabling it to become a transitory trade point between China and the rest of the world (Baark and Sharif, 2006; Tsang, 2004).

In 1984, negotiations leading up to the British handover of Hong Kong back to China established that it would preserve its capitalist 'way of life' under a 'one country-two systems' framework. In 1997, it became a special administrative region (SAR) of China under these conditions, and for the next 50 years thereafter (Baark and Sharif, 2006). Hong Kong's cultural hybridity continues to be derived from its historic role as 'a territorial base along the coast of China to support the trading relations [the British] wished to establish with the Chinese Empire' (Tsang, 2004: 20).

Although *Panama* appears quite distinct from the rest, it has long been regarded as an intermediary economy for Latin America. Due to its geographical position on the eponymous isthmus, the short distance between the Pacific Ocean and Caribbean Sea (leading to the Atlantic Ocean) has made it a trade thoroughfare. Established as a Spanish colony in 1509, its history of international commerce, growth and development is inextricably linked to its role in mediating the flow of precious metals from Ibero-America (Sigler, 2014a). Over time, this evolved into a more diverse transit gateway to and from the west coast of the Americas. Population booms in the 19th century were linked to the California gold rush, and later to a French attempt to build a trans-isthmian canal. Independence (from Colombia) in 1903 was largely catalyzed by an American-led effort to do the same.

Modern-day Panama is an upper-middle income Latin American country with one of the highest economic growth rates over the past decade (Bakari and Mabrouki, 2017). The Panama Canal, which is central to the country's economy as well as its discursive identity, is at the center of a significant financial services and logistics agglomeration. It is well-known as a regional center of cargo re-exportation, offshore banking, legal services, and corporate headquartering (Sigler, 2013). Its 1999 handover from the United States to Panamanian jurisdiction was integral to its recent economic boom. This invigorated the local economy through migration and investment from neighboring Latin American attracted by its relative political and economic stability. National legislation supports the development of Panama's intermediary services sector through a variety of incentives, drawing private enterprise into a 'transit corridor' running parallel to the canal between Panama City to the south and Colón to the north. The canal was expanded in 2015 to accommodate more ships, and multi-modal container terminals. This is complemented by some of the western hemisphere's most significant free trade zones (Sigler, 2014b).

Methodology

The past two decades have increasingly seen economic geographers thinking about space relationally, where mobile and networked actors across multiple scales are at the center of the analysis (Bathelt and Glückler, 2003; Boggs and Rantisi, 2003). As such, network methods and concepts have been increasingly applied to understand the processes of globalization and how places are positioned within a global network of locations. This body of research has explored both micro-networks at the level of individual firms (cf. Murphy, 2003) and macro-networks at the city-regional scale (cf. Hesse, 2010). As Dicken et al. (2001) note: networks have

‘become the foundational unit of analysis for our understanding of the global economy, rather than individuals, firms or nation states’ (p.89).

This paper applies social network analysis (SNA), a derivative of graph theory that approaches social structures as the outcome of (and impacting upon) ties between individual actors. Though initially envisaged as a method to quantify social relationships and systems, SNA has evolved into a complex scientific realm that is simultaneously a tool, a method, and a perspective on approaching systems-oriented problems. SNA has garnered widespread use across sociology and related social sciences such as anthropology, political science, and geography (Borgatti et al., 2009), and has crossed over into more advanced network tools and application from physics, engineering and related disciplines. At its core, SNA reduces individual actors (e.g. people, places) to nodes, which are interconnected through their relations (e.g. co-membership, acquaintance, affinity) as ties. A network consists of nodes and ties, and can be visualized as a graph and/or broken down into individual, dyadic, sub-network communities or whole-network metrics. Network communities are densely interconnected groups of various types of nodes, and can be either (1) pre-defined such as participants in social groups, co-ethnic communities, age brackets, or geographically defined areas or (2) identified through formal community detection algorithms.

SNA allows the exploring of actor brokerage roles within spatial networks (Diani, 2003; Boari and Riboldazzi, 2014; Gould and Fernandez, 1989; Kirkels and Duysters, 2010). The most common method in geographical networks research is the application of ‘betweenness centrality’, which measures the degree to which nodes sit in the shortest distance between other nodes or communities of nodes and allows them to accrue an important network ‘intermediary’ positions (e.g. Neal, 2013; Hennemann and Derudder, 2014). Here, we employ a different method to better *distinguish between* brokerage types, rather than merely identify brokerage network positionality.

Our network is comprised of parent company-subsidary locational relationships (approximately 700,000 in total) of all firms listed on 13 of the world’s largest stock exchanges¹. The commercial firm directory from *Bureau Van Dijk*, Osiris, was used to create the master dataset of parent company headquarters and subsidiary locations, whose connections were treated as directed links between states or territories (nodes). Our network is thus the result of a transformation from a two-mode network (firm-by-territory) to a one-mode network

¹ For a more detailed explanation of this dataset, see [Sigler et al., 2019].

(territory-by-territory). Directionality is derived from a parent company located in territory i having a subsidiary in territory j constituting a link (i, j) . Furthermore, the weight w_{ij} indicates the relationship strength between territory i and territory j , and is added to each link by counting the pairs of parent company-subsidary ties between corresponding nodes. For example, if a company located in territory i has three subsidiaries located in territory j , the weight w_{ij} of the connection is three. Self-loops were removed, retaining only data related to companies with a subsidiary in a different location than the parent company.

We extracted communities by applying an Order Statistics Local Optimization Method (OSLOM) to our weighted graph (Lancichinetti et al., 2011). OSLOM is a robust method to extract significant communities in networks, accounting for the possibility of having overlapping communities organized in hierarchies. Communities are found by locally maximizing a fitness measure that represents cluster statistical significance with respect to an appropriate null model. This guarantees that the emerging clusters are not the results of random fluctuations. As a null model, the standard configuration model that simultaneously preserves both strength and weight distributions is used. Three significant communities of territories emerged through this method (see Table 1, the full list is shown in Appendix 1), allowing us to test the Gould and Fernandez brokerage types.

INSERT TABLE 1

Our three communities are not only the result of graph partitioning, but also generally conform to known geo-economic configurations. Community 1 reflects many smaller Western European countries (Belgium, Spain) along with others that could be considered as tax havens (Ireland, Jersey). It also contains a number of resource rich countries (Australia, Bahrain, Brunei, Venezuela), and China. In contrast, Community 2 contains the core of the global economy, including six of the eight largest global economies - Brazil, France, Germany, Japan, United Kingdom, and the United States. It demonstrates financial interdependencies between territories whose firms are globally active. In contrast, Community 3 is primarily characterized by tax havens - such as Cyprus and Liberia - and peripheral European economies - such as Bulgaria, Georgia, Slovenia, and the Ukraine.

The various ways nodes are linked within and across the three communities reveals the brokerage relations of specific small states and territories. For example, a ‘broker’ of a business transaction (financial, knowledge, resource, etc) may act as an independent third party situated either in the same network community (coordinator), in another community (consultant),

between communities (liaison), in the same territory as the sending community (representative) or the receiving community (gatekeeper). A small state or territory appears to ‘broker’ due to the underlying *firm locational preference information* of our dataset, as firms *select* a particular location (either headquarter or subsidiary) for some strategic advantage (Martinus and Sigler, 2018; Taylor and Derudder, 2016). This may be connected to tax advantages (such as Bermuda), or industry co-locational advantage (such as a link between an iron ore producer like Australia and buyer like China), or for geopolitical reasons (such as, gaining access to energy reserves or as the Western business entry point (e.g. Hong Kong) to business in China). Indeed, as noted by Phelps and Wood (2006), global economic integration is as strongly mediated by local interests influencing domestic inward investment as it is global capital, and that this local-global tension can be seen articulated across multiple scales. The brokerage role of respective small states or territories is an outcome of these relationships, with respective network motifs indicating their nature and directionality. Network broker motifs corresponding to each brokerage types were identified by counting the occurrences of territory triplets within respective communities (or cluster) of table 1. As such, each broker motif was composed of three territory nodes ($j \rightarrow i \rightarrow k$), with motifs defined by the central node i . For example, the frequency $f_{m2}(i)$ for the consultant (cosmopolitan) motif (m2) for a territory i belonging to a cluster α is computed as:

$$f_{m2}(i) = \frac{1}{k_i} \sum_{j \in \beta, \beta \neq \alpha} \sum_{k \in \beta, \beta \neq \alpha, k \neq j} a_{ji} a_{ik}$$

Where $a_{ij} \in \{0,1\}$ is an element of the network adjacency matrix denoting the presence ($a_{ij} = 1$) or absence ($a_{ij} = 0$) of a link between node i and node j . The formula above is equivalent to counting how many times territory i has an in-coming link from a territory $j \neq i$, belonging to a different cluster $\beta \neq \alpha$ and an out-going link to a different territory $k \neq i, j$ and belonging to the same cluster $\beta \neq \alpha$. The normalization factor $\frac{1}{k_i}$ accounts for different connectivity levels between territories, with k_i being the unweighted degree of a territory i as calculated by the sum of its in-coming and out-going links. Frequencies for the other motifs are computed similarly. The five motifs do not include nodes (territories) without at least one out-going and one in-coming link, therefore only 42 out of the 212 considered territories emerged as part of the analysis. It can be argued that a limitation of our model is that using the community structures to define the motifs implies that we cannot test motif robustness through standard statistical validation (which would involve comparing motif frequencies to those obtained after

reshuffling links according to an appropriate null model) as this would destroy the partitioning given by the community structure. Given this, we use and discuss results purely descriptively to broadly explore how regions fit unevenly into corporate networks. Our aim is not to make definitive statements or produce formally testable hypotheses.

Following this, the five motifs emerging from our conceptualization of the Gould and Fernandez (1989) brokerage types are as follows:

1. **Coordinator** territories are in the same community as the territories they connect; e.g. when large territories connect regional trade blocs, such as the UAE within the Middle East, and Germany within the European Union.
2. **Consultant** territories sit outside of the community of the territories that they mediate for (who are in the same community). It might also be akin to ‘round-tripping’ in which territories from one community disguise investments back into the community by first routing payments to locations with more attractive tax regimes or regulatory benefits (Fung et al., 2011; Sigler et al., 2019).
3. **Gatekeeper** territories have a large number of relations from outside communities, as their role is to ‘control’ access to the community. It reflects the classic *entrepôt* function, where a territory serves as the first point of contact within a system. For example, Hong Kong has long been a trade gateway into China for the rest of the world.
4. **Representative** territories mediate flows to territories outside their own community. Such territories act as a ‘spokesperson’ for the group, most likely due to their powerful position in the global economy. Examples may be in the way UAE represents the Arabic-speaking world, and the United States represents the ‘Western’ one. The gatekeeper role is effectively the inverse of the representative role, as the former refers to the brokerage of flows *to* one community and the latter *from* a community.
5. **Liaison** territories sit in one group, connecting territories in two other separate groups, e.g. when nations act as tax havens to obfuscate the provenance of capital flows (Garcia-Bernardo et al., 2017).

The Brokerage Role of Small States and Territories

The relative brokerage position of states and territories in the global economic network is summarized in Figure 2, where each bar chart (row) shows the frequency of a specific

brokerage motif (a-e, displayed on the right-hand-side) for each territory. The different states and territories (x-axis) are sorted in descending order by their normalized frequency value (y-axis), and denoted by a code. Appendix 1 gives the country codes, names and the three significant communities of the analysis. Overall, the gatekeeper role was the most prominent (19,391 connections) and liaison was the least (8,424 connections), suggesting that brokerage between two groups was more common than between three groups. However, this implies that those who acted as a broker across three groups were highly trusted and specialized.

INSERT FIGURE 2

We begin our discussion of how small states are relatively positioned within the global economy by first presenting the brokerage role of other major world economies. In the overall network, the largest economies (USA, UK, Germany, France and Japan) assume top brokerage roles in the same group (C2 of Appendix 1) as either a coordinator or gatekeeper – this suggests they control information and resources within or to this group. The small states and territories with a large coordinator role are Switzerland and Bermuda – indicating they are operating as ‘clearing houses’ (cf. Gould and Fernandez, 1989) for the business interests of other nations in same community (C2). Switzerland, Austria and the Netherlands are the top small gatekeeper economies, implying a role in mediating information or resources to members of their respective groups (each is in a different community).

A slightly different large economy set is found in the representative broker group or ‘spokespersons’ (China and India in C1; USA and UK in C2). The Netherlands, Ireland, Luxemburg and Singapore emerge as the top small economies, albeit all are in the same (and largest) group (C1). Consultant and liaison have very different national profiles to their motifs. Top consultants are the Netherlands, Italy, Singapore, Australia and India (all C1 except for Italy in C3), with the UK, USA, Germany and France (all C2) playing a lesser role. This configuration may occur as the ‘superpower’ nations use these smaller nations as ‘consultants’ to facilitate ‘round-tripping’ activities back to their group. Similarly, top liaisons are Italy, The Netherlands, UK, Singapore and Luxemburg – with all in C1 except the UK which is C2.

However, it is clear from Figure 2 that brokerage is not specific to large territories, with several small states and territories playing a large role in brokerage relative to their size. Figure 3 summarizes findings on the brokerages types for our four case study small states and territories, and where each is proportionally over-represented. This was calculated by using location quotients (LQ). LQs are a standardized measure of the frequency that a particular territory acts

as a specific broker relative to how often that broker type was recorded in the whole network. An LQ of over 1 means that our states were a relatively higher proportion of that type than other states, and therefore over-represent that broker type.

INSERT FIGURE 3

The strongest coordinator was Panama, characterized by strong network connectivity within the Americas (e.g. Brazil, Colombia, Mexico). Hong Kong was also a strong coordinator, primarily as its community included both China and Macau between which it mediates firm flows, as well as acts on their behalf in trade with the rest of the globe. All our small states and territories performed strongly as consultant brokers, with Luxembourg, Singapore, and Hong Kong in the same community. The consultant role played by small nations can be linked to their function in connecting large global industrial systems with relatively smaller network of tax havens. Interestingly, although Panama is globally known as a tax haven, it did not act strongly as a consultant. The majority of its brokering is with its local community, and perhaps reflects strong links to the other Latin American large economies there.

Luxembourg and Singapore's representative roles were higher than Hong Kong and Panama, with the latter two disproportionately tied to their own communities of China and major Latin American economies respectively. Luxembourg's role reflects its position in the community with major European economies such as Germany, France, and the UK, and its broader global connections to large economies (China, India) as well as known tax havens such as the British Virgin Islands, Cayman Islands, and the Netherlands. Singapore's representative role is highlighted by its localized community connections to large global economies such as Australia, China, Hong Kong, and India as well as connections to the large industrial producers (Japan, Germany) or tax havens (Bermuda and Mauritius) of other communities.

The inverse emerges for the gatekeeper role: Hong Kong and Panama are stronger gatekeepers to their communities compared to Luxembourg and Singapore. This is reflected by the large number of connections through Hong Kong from China, as well as from known tax havens such as Bermuda, the British Virgin Islands, Cayman Islands, Ireland, Jersey, and Luxembourg. Panama plays a similar role, but in connecting Latin America (e.g. Brazil, Colombia, Mexico) and the United States.

And finally, liaison appears to be the most specialized brokerage type having a smaller number of countries carrying out the role. Luxembourg and Singapore are relatively more important, pointing to the unique way in which they connect territories across groups. This perhaps reflects

both their roles as tax havens and independence from the community they sit within (unlike Panama and Hong Kong who appear to represent certain regional or national interests).

Brokering Corporate Flows in the Global Economy: Concluding Comments

This paper has applied network analysis to better understand the nuanced functions that states and territories play in the global economy - and specifically, the various ways small entities act as *intermediaries* or *brokers*. By contextualizing the historic development of our four small states and territories, we highlight how their ‘smallness’ engenders competitive advantage when offering high-order economic functions to the global network. They have a level of control over their political, economic, institutional and social environments which larger economies do not, allowing them to construct highly specialized enclave spaces and leverage borrowed size. We found similarities (located at strategic cultural and economic crossroads) in how each emerged as brokers in the global corporate network, as well as differences (the large economies they link to and services provided). Luxembourg has the most extensive set of connections in the corporate network, comprised of both industrial production economies and those with newer services economies. Singapore and Hong Kong are somewhat less well-connected, but nonetheless distinct gateways to other places with the latter being a strong bridge to China.

By applying the five brokerage types of Gould and Fernandez (1989) to our global corporate network, we advance beyond an understanding of our small states and territories as mere ‘gateways’ to specifically unpack nuances in how each is uniquely positioned in the global network. We find *consultancy* to be the most common brokerage type, being characterized by the broker in a community ‘outside’ of a second community housing the nations it negotiates for. This may reflect how corporates use the low-tax and high secrecy provisions of small states and territories to complicate investment trails between nations. Other small states and territories also acted as *gatekeepers* to particular groups of economies – Hong Kong to China and Panama to the Latin America’s and the US – the occurrence of which is aligned with their historic development and importance as regional trade centers. Indeed, further analysis of other small states and territories in our data set may find other such regional gatekeepers. Interestingly, some were *representatives* between large global regions and a group containing China and tax havens, highlighting global alliances not usually apparent in city network research. Panama was found to play a strong *coordinator* role to the Latin American-US connection – indicating the highly specialized nature of this broker type. Hong Kong appeared to operate in the same

‘regional’ way for China and Macau, as well as for Chinese firm financial flows via the Cayman Islands and British Virgin Islands (financial round-tripping). *Liaison* relationships were the least prominent among our case studies, though proportionally higher compared to the entire sample. This may be because liaison brokers sit peripherally to large systems, as small states and territories obviously often do.

Our findings provide further evidence of other studies noting that small states and territories appear to use ‘different filtering mechanisms’ to shape global regional development and the exacerbation of inequality between nations (Breul et al., 2019, p.829). Indeed, our analysis suggests that financial flows to, from and between tax havens are significant and prevalent in global economic networks. Looking beyond our four case studies, many small states and territories ranked highly across the five broker types. This includes offshore financial centers, such as the British Virgin Islands, Cayman Islands, Mauritius, Bermuda, Jersey, and Cyprus, as well as less obvious tax havens, such as the Netherlands, Ireland, and Belgium. This result is not surprising given that tax havens and offshore financial centers are well-placed to broker global financial flows by attracting corporations to house activities within them (Wojcik, 2013), being frequently small jurisdictions that exercise their sovereignty to provide special tax concessions and secrecy to both corporations and (mostly high net worth) individuals. Dharmapala and Hines (2009) observed that of all nations globally around 15 per cent were tax havens, and that these were characterized by small populations, affluence and good governance structures. Indeed, whilst geography or strategic co-location may be highly relevant to firm strategy, the footloose nature of financial flows also connects distant places in ‘brokering’ type arrangements.

Our method draws on the brokerage concept as developed in sociology to operationalize how firm-subsidiary ties might be used to discern how territories might assume various broker roles in global corporate networks. The findings are novel in that they *distinguish between* brokerage types rather than just identifying it as a description of node positionality. Nonetheless, we did not confirm the levels of significance of respective brokerage motifs, as the present method relies on inferential logic to confirm apparent relationships. Further research is therefore required to develop an appropriate null model and test the robustness of emergent patterns, as well as whether this method is applicable at other spatial scales (e.g. cities or localities) or using alternative data sets.

As the analysis demonstrates, the concept of brokerage provides an understanding of how small states and territories gain relative power in the global economy. This needs more nuanced

understandings of the positionality of cities in global networks beyond simple ‘relationality’. Indeed, buzz words such as gateway, relational or broker city, often evoked to describe their position, give little insight into *how* they operate or the brokerage process itself. As such, our study calls for novel ways to understanding the global economy vis-à-vis empirical spatial networks that move beyond simply discursive applications of ‘networks’, such as is used in global production networks (GPN) or actor-network theory. Nonetheless, applying standard social network metrics to understand world economic networks generates only very generic understanding of positions and processes at play, and ultimately prevents truly comprehending the meaning and complexity of global relationships being studied.

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TABLES

<i>Community 1</i>	<i>Community 2</i>	<i>Community 3</i>
Australia	Bermuda	Cyprus
Belgium	Brazil	Isle of Man
Cayman Islands	Canada	Italy
China	France	Liberia
Hong Kong	Germany	Malta
India	Guernsey	United Arab Emirates
Ireland	Israel	
Jersey	Japan	
Luxembourg	Mexico	
Macau	Panama	
Singapore	Russia	
Spain	South Africa	
The Netherlands	United Kingdom	
	United States	

Table 1: Indicative Territories included in Network Communities

FIGURES

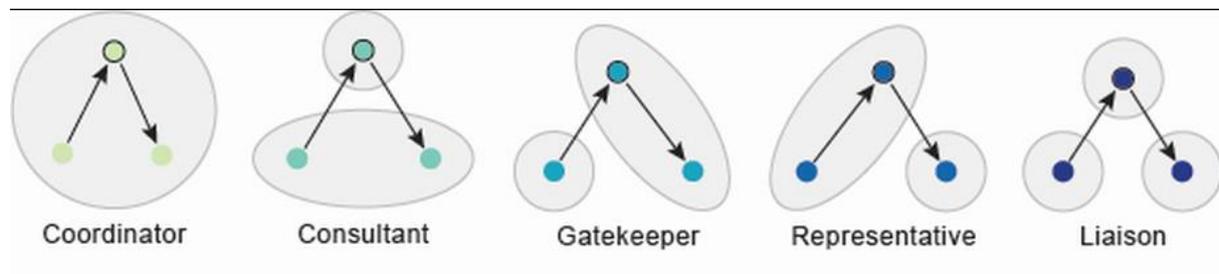


Figure 1: Five brokerage types (Authors, adapted from Gould and Fernandez, 1989)

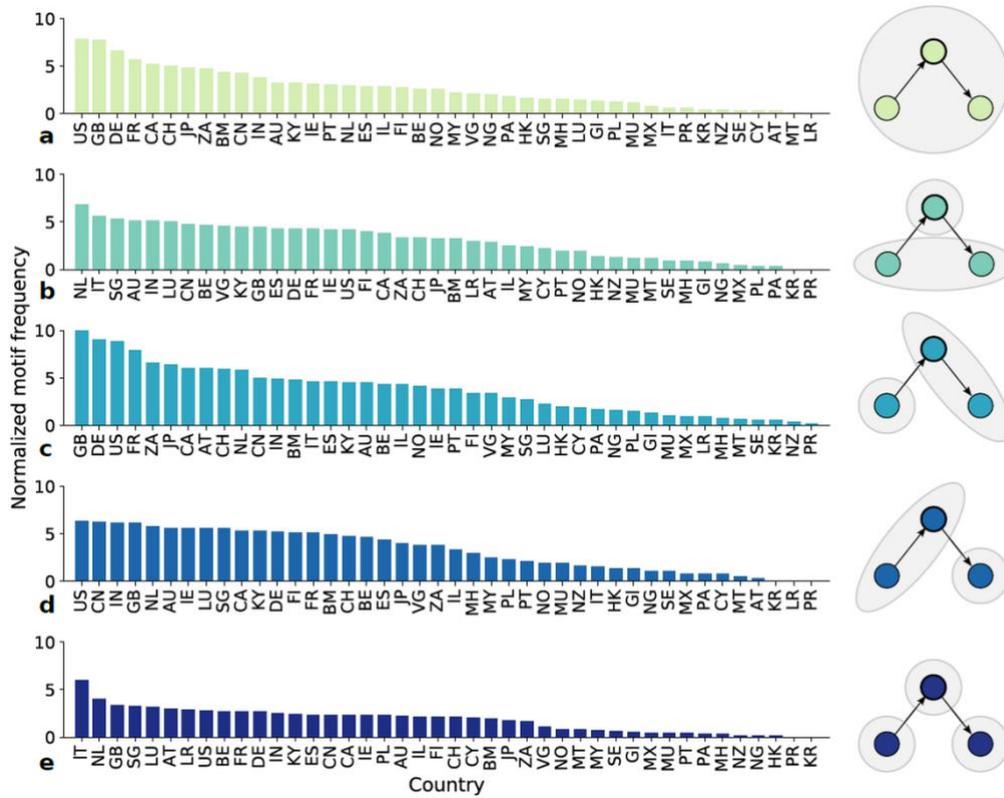


Figure 2. Normalised motif frequency of all states and territories for: a) Coordinator, b) Consultant, c) Gatekeeper, d) Representative, and e) Liaison brokerage types

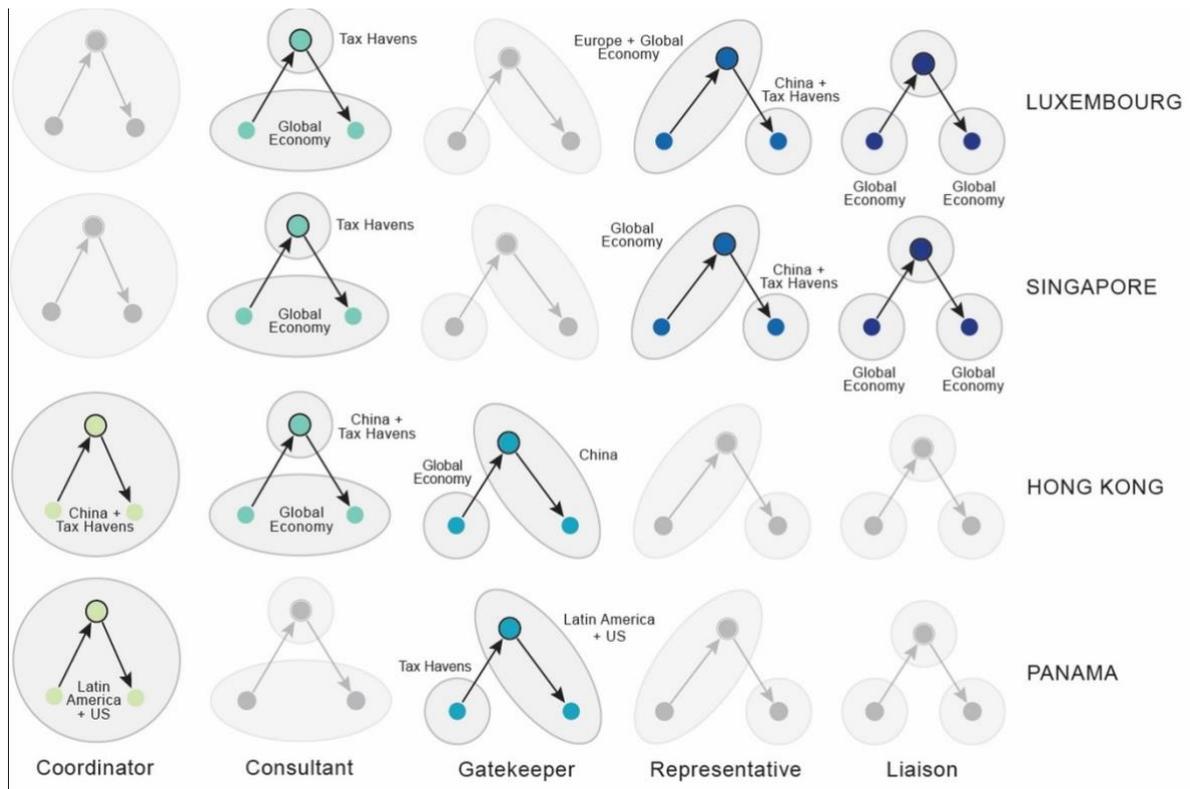


Figure 3. Most significant brokerage types by state or territory with indicative motif (a-e) relationships in bold (based on location quotients)