



**HAL**  
open science

# Hyper-elites and network: Capturing the powerful upper tail in Madagascar

Mireille Razafindrakoto, François Roubaud, Linda Rua

► **To cite this version:**

Mireille Razafindrakoto, François Roubaud, Linda Rua. Hyper-elites and network: Capturing the powerful upper tail in Madagascar. World Development, 2021, 147. hal-03616270

**HAL Id: hal-03616270**

**<https://hal.science/hal-03616270>**

Submitted on 22 Aug 2023

**HAL** is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.



Distributed under a Creative Commons Attribution - NonCommercial 4.0 International License

**Hyper-Elites and Network:  
Capturing the Powerful Upper Tail in Madagascar**

*Mireille Razafindrakoto, François Roubaud, Linda Rua*

Mireille Razafindrakoto  
(corresponding author)

Institut de Recherche pour le Développement, LEDa-DIAL Research unit,  
PSL, Université Paris-Dauphine,  
4 rue d'Enghien, 75010 Paris, France  
E-mail: razafindrakoto@dial.prd.fr  
Orcid ID: 0000-0002-6797-3021

François Roubaud

Institut de Recherche pour le Développement, LEDa-DIAL Research unit,  
PSL, Université Paris-Dauphine,  
4 rue d'Enghien, 75010 Paris, France  
E-mail : roubaud@dial.prd.fr  
Orcid ID: 0000-0003-2234-5256

Linda Rua

UMR LEDa-DIAL Research unit, 75010 Paris  
PSL, Université Paris-Dauphine,  
UMR LEDa, DIAL, 75016 Paris, France  
linda.rua.t@gmail.com

UMR LEDa-DIAL, Université Paris-Dauphine,  
Place du Maréchal de Lattre de Tassigny 75775 • Paris  
• DIAL, 4, rue d'Enghien • 75010 Paris • Tél. (33) 01 53 24 14 50 • Fax (33) 01 53 24 14 51  
E-mail : dial@dial.prd.fr • Site : www.dial.ird.fr

## **Hyper-Elites and Network: Capturing the Powerful Upper Tail in Madagascar**

### **Abstract**

In order to gain an understanding of how elites affect the development process, one of the first challenges is to investigate who are the elites and how do they access positions of power. The characteristics of the hyper-elites network and how it impacts on the distribution of power may constitute a key determining factor of the political equilibrium and the economic trajectory of a country. This article shows first the relevance of data from a first-hand statistical survey designed to be representative of the hyper-elites in Madagascar. This survey managed to capture in a comprehensive manner the pathways and the social networks of 'elites'. The latter are defined as those who hold or have held top positions and/or have a level of responsibility in nine different spheres of power (political [governmental, elective and partisan], economic, religious, military, civil society, international organisation and public institution). Our empirical approach focused on social capital, instead of income or wealth, provides an innovative way to apprehend and to study in its entirety and nationwide how "the powerful upper tail" functions. Drawing on this unique dataset of 1,000 hyper-elites, we show to what extent position of power is associated to four key elite network dimensions: size, quality, diversity of contacts and strength of ties. More specifically, the quality and diversity of ties are among the most relevant determinants of access to positions of power. Our analysis sheds light on the hyper-elite strategy of network building to "keep themselves to themselves" and on the importance attached to casts and other inherited positions. It explains the limited social mobility and the huge gap between the elites and the majority of the population, which are among the causes of Madagascar's recession.

**Key words:** Elite, Power, Madagascar, Statistical survey, Social network

**JEL codes:** C83, O12, O55, Z13

# **Hyper-Elites and Network: Capturing the Powerful Upper Tail in Madagascar**

## **I. INTRODUCTION**

How elites affect the development process is a major concern in elite studies.<sup>1</sup> But before addressing this question, one can wonder if the first challenge should not be to investigate who are the elites? How do they access positions of power? Following this principle, our purpose is to focus on the hyper-elites, their network characteristics and how they shape the power distribution.

**Network and power:** The question is whether it is possible to be successful without a specific network? Social contacts can be a valuable tool in finding a job, especially a good job, because they potentially provide information and references. Why would it be different for elites? We are dealing with exceptional “jobs”: social networks may therefore be even more important to elites than the rest of the population. Elite positions may require outstanding abilities, difficult to detect without knowing the applicants or someone who knows them. Some sociologists show that relationships play a more important role in hiring for high-status jobs than for low-status jobs (Marsden and Campbell, 1990; Granovetter, 1995). Moreover, elite positions are rare and highly coveted due to the power they impart. That may drive up strategic networking behaviours to reach such exceptional positions. But the importance of elite social network goes beyond its instrumental role (to access high-ranking positions). Connections with members of the elite world are not available to anyone. Building up “bonding” social capital (Lin, 2001), individuals who hold positions of power may not want to share them with anyone, but preferably with like-minded people. Therefore, the use of social networks for elite positions may not have the same implications for society at large. The elite minority group holds and closely guards a prominent and influential position. When social networks are inherent to elite positions, those without an elite network are excluded from decision-making bodies.

**The elite monopolization of power in Madagascar?** This country has been in deep recession for nearly 60 years. None of the classical economic theories of development has actually managed to

explain this singular trajectory. Moreover, every time the country has set out on a growth path, it has been stopped in its tracks by a socio-political crisis. This is what Razafindrakoto, Roubaud and Wachsberger (2015 & 2020) call Madagascar's *Puzzle and Paradox*. One explanation of this puzzle can be found in the unequal distribution of the benefits of economic growth. Monopolization of power by a small privileged group is a key factor in the recurrent socio-political unrest which dashes all hope of economic growth.

Over and above the Malagasy case, the distribution of wealth in a society is largely regulated by institutions.<sup>2</sup> And institutions are themselves shaped by elites (DiCaprio, 2012; Kashwan, MacLean and García-López, 2019). But again who are the elites? How do they function? The characteristics of the hyper-elites network and how it impacts on the distribution of power may constitute a key determining factor of the "political equilibrium" (Acemoglu and Robinson, 2012). The North et al. (2009 & 2012) political economy framework, which put forward the notion of "limited" or "open access orders", aims at explaining development issues by the way the elites have control over institutions or different spheres of power. Therefore, how the elites form and mobilize their social capital to access or hold positions of power can play a central role on development in general.

**Capturing the hyper-elites through their social capital.** Social networks have long been a topic of interest for sociologists and more recently for economists, given their key role in the labour market. However, quantitative research remains thin on the ground as to the characteristics and role of social networks for elites, mainly because of a lack of data. In this paper, we use the first individual database from a unique representative statistical survey of a country's elite members (ELIMAD 2012-2014). This dataset provides previously unavailable rich and exceptionally detailed information on the elite's positions and social network. Elites were asked to give all the elite positions they had held during their lifetime and extensive information on their elite connections.

Our statistical approach focused on social capital (instead of financial capital) can constitute a credible option to capture in its entirety and nationwide the "powerful upper tail" (of distribution of

power), a complementary or alternative approach to strategies based on national account or tax records (Piketty, 2005; Anand and Segal, 2017). Indeed, in developing countries, administrative registers are of low quality with massive underreporting. Besides, the option relying on tax records has the generic shortcomings of capturing mainly economic elites (missing the other spheres of power) as it is focused on income or wealth.

A representative sample of 1,000 elite members in Madagascar allows to investigating to what extent the level of power attained by individuals in their career is related to the elite networks they mobilize. We innovate in two dimensions: in elaborating a scale of power; and in capturing elites' network associated with a rich set of characteristics. We have constructed an ordinal scale of power by hierarchically classifying the positions held by elites, based mainly on their institutions' organization charts and other relevant available information. We analyse four of the most stressed network dimensions that constitute our variables of interest: size, quality of network, diversity of contacts, and strength of ties.

We show the relevance of our survey approach. Our results are consistent with the view that the social network characteristics are among the most relevant determinant of the elites' level of power in Madagascar. The quality and diversity of contacts seems to count the most while the strength of ties appears to be more ambiguous, a way to qualify Granovetter's theory in this particular context. To have an elite network made up largely of kinship ties is a disadvantage, but to have at least one elite kinship tie is a huge advantage when it comes to climbing the power ladder. The family background, in particular the status group (or caste)<sup>3</sup>, is also a key element. This study contributed to the current understanding of how and to what extent social network can characterise elite positions, and more globally the elite world. We show its increasing role as we climb the ladder of power in the case of Madagascar. Therefore, we provide an innovative way to capture the specificity of the hyper-elites social capital and to conduct a broad quantitative analysis on how the "powerful upper tail" functions in one country.

The paper is structured as follows. Following this introduction, Section 2 presents the literature review. Section 3 describes the survey and the data collected. Section 4 formulates the empirical strategy to investigate how elite position is associated to network characteristics. Section 5 offers some descriptive statistics, while Section 6 presents and discusses the results. The final section concludes.

## **II. ELITES AND THE KEY ROLE OF SOCIAL NETWORKS: A BRIEF LITERATURE REVIEW**

### **II.1. Economic opportunities in the general population**

Many studies deal with the effects of social networks on economic opportunities. Granovetter (1973 & 1995) has played a pioneering role in analysing and theorizing the key role of social networks in the labour market. He distinguished weak from strong ties and defined the strength of ties as a *“combination of the amount of time, the emotional intensity, the intimacy (mutual confiding), and the reciprocal services which characterize the tie”* (Granovetter 1973). According to him, weak ties are more likely to provide access to networks beyond the individual’s own network, and hence to new and useful information. Burt (1992) and Tassier and Menczer (2008) expand on and qualify this theory. The latter find results similar to Granovetter when the population is integrated and job information flows to individuals randomly in society. But when the population of workers is highly segregated (in terms of ethnic groups, race or social class), groups with a high proportion of “non-random ties” are more likely to find a good job because they are more able to keep and protect the job information within the group (the strength of strong ties). Their results show that when the labour market is segregated, *“minority groups may have incentives to isolate themselves in the labour market.”* In the context of the minority group of elites in Madagascar, where we can assume that information flows are non-random, Tassier and Menczer’s thesis appears the most likely. But no study on the role of the strength of ties has as yet been conducted in this context.

The abovementioned studies differentiate ties according to their nature, but consider the people at the end of these ties to be homogeneous. In addition to the nature of ties (weak or strong), the

characteristics of the contacts an individual can access, and in particular their social status, also play an important role in social network effectiveness. Lin's social capital theory (1999 & 2001) states that individuals with high-level social relationships are at an advantage in the labour market. Whereas Granovetter focuses on the strength of ties, Lin highlights the role of the "strength of position" of the contacts to whom individuals have access.

There is no lack of empirical studies aiming at investigating the role of social networks in economic opportunities. Berrou and Combarous (2011) find that a large proportion of high social status relationships in a network has no impact on informal firms' economic outcomes in Burkina Faso. They argue that the resources held by lower status alters are more useful to informal entrepreneurs. Caeyers and Dercon (2012) find that households who have close associates holding official positions, have higher probability of obtaining food aid than other households that are not vertically connected in Ethiopia. Other studies emphasize how the mobilization of a network (for information or assistance) can be helpful to find a job (Pellizzari, 2010; Bian, 1994), some of them taking into account the characteristics of relationships (Simon and Warner, 1992; Fernandez and Weinberg, 1997; Datcher Loury, 2006). Fafchamps and Quinn (2018) identify the network effect on the diffusion of business practices in manufacturing firms in Africa. Using detailed data in different villages in India, Banerjee et al. (2014) go beyond the observation of how network is a vehicle for information sharing to identify the persons who are best-placed to diffuse information.

## **II.2. Elites' network**

Turning to social networks and elites, Bourdieu (2011) argues that the dominant class tends to form a group of agents "*socially unified [...], by filiation and alliance ties*" (our translation). This unified group seeks to establish sustainable domination in the field of power. For elites, the use of a social network is therefore not only a way to climb the power ladder individually, but also a collective way to retain power within the dominant group. Knorringa and Van Staveren (2006) point up power asymmetries, control and exclusion in social relationships. When these asymmetries are strong, it is likely that only



a small group in the society takes advantage of their social relationships, which has potentially adverse consequences for democracy. Van Campenhout (2008) raises the same idea by pointing out the inequalities between groups in society and the power relationships which drive them. Whereas society is viewed as an “*integrated set of collaborative relationships*” (our translation) by most of the literature on social networks, he considers society as a set of multiple systems of relationships and partnerships perpetuating these power relationships. In other words, everyone does not cooperate with everyone and, as a result, everyone does not have access to every type of network (Field, 2003). This suggests that to access positions of power, individuals have to be connected with elites already in positions of power and willing to cooperate with them.

Most studies on this issue are either theoretical, sociological or historical. In sociology, Useem (1979) analyses how social networks enable American economic elites to access positions in public institutions influencing governance. But, network in this study is not directly measured by interpersonal relationships, but approximated by the involvement of directors in multiple enterprises.

Lee and Brinton (1996) discuss the effect of networks set up in “elite universities” on the job market in South Korea. The results show that this type of network is an important determinant of the company size in the first job. To our knowledge, few economic studies shed light on how elites benefit from their network. Kramarz and Thesmar (2013) provide empirical evidence of the influence of CEOs and directors’ social networks on board composition of French public firms. Thus, the board members tend to pay their CEOs more, and are less likely to replace a CEO who underperforms. Maclean et al. (2014) examine more than 1,000 members of the French business elite in at least one of the 100 largest French companies. They identify two corporate elite groups: “hyper-agents” who hold multiple key positions in a number of large companies, and the others who do not. The former are part of the field of power. They are considered to have power over society as a whole. One of their results is that social networks (measured by links with other businesses or institutions) are useful to becoming a hyper-agent, especially non-economic networks.

Turning to Africa, some sociologists and political scientists started looking into the process of elite production and reproduction in the 1970s. The post-independence formation of a privileged group in high-level, mainly administrative positions developing strong social interactions caused researchers to wonder whether the notion of social class could be applied in this case and the group called an “elite class” (Miller 1974). Is the class culture or consciousness that appears to develop compatible with maintaining strong links with family members or home villages not necessarily at the same social level? Cohen (1981) puts forward the idea that elites in positions of responsibility in different social spheres do indeed form a group of individuals who do not overtly stand apart, but who coordinate, cooperate amongst themselves and conduct strategies in secret. Although the use of the “elite” concept or elite class for African countries has been much debated, there have been many studies of the “state bourgeoisie” or ruling class. These studies have, in particular, criticized the group’s negative role in these countries’ trajectories. In this regard, Bayart (1993) develops the idea of an alliance between the different categories of elites based on a “reciprocal assimilation” strategy. He introduces the concept of a “rhizome state”, suggesting that there are underground shoots that enable political and private players (elites) to monopolize the administrative and economic apparatus. In the same vein, Médard (1992) takes the notion of “neopatrimonialism” to highlight the confusion between the public and private sphere at the ruling class level. He discusses the existence of a strategy of straddling positions of power to facilitate access to and remain in the highest social positions.

Two studies provide clear examples of the negative impact of collusion between the economic, the bureaucratic and the political spheres, even though the analysis are not focused on the network features. Rijkers, Arouri and Baghdadi (2017) show that firms owned by the Ben Ali family in Tunisia were more likely not to submit tax declaration or to underreport their earnings to the authorities. They use their political connections to evade taxes. Using data from the British colonial administration, Xu (2018) examines the cost of patronage. He finds that governors connected to the Secretary of State are more likely to be promoted to higher paid and larger colonies. Moreover, once

allocated, they provide more tax exemptions, raise less revenue, and invest less. Some articles looked into specific country cases, taking essentially descriptive approaches to the elites' alliance strategies and rent monopolization. The theoretical literature on the social production of elites has run somewhat dry, as if there were nothing more to say at the end of the data road (difficulty finding more detailed qualitative data and even less quantitative data availability).<sup>4</sup>

Quantitative empirical approaches are extremely scarce in Africa. To give some illustrative examples, Miller (1975) gathered data on the social backgrounds of 342 Ugandans and 356 Tanzanians of the elite class for a comparative analysis of the characteristics of political and bureaucratic elites. Augé (2007) studied 110 histories of individual appointments in the public administration in Gabon to show that ethnic solidarity, often singled out in political studies in Africa, appears to be a necessary, but not sufficient form of solidarity. It combines with other types of links, such as political affiliation and membership of a Masonic lodge, and with high-ranking and alumni connections to explain access to elite positions in the public administration.

Our approach is much more ambitious. Using collected information on a broad, representative sample of hyper-elites in one country, the challenge here is to take a functional definition of elites (holding or having held a position of responsibility) to examine elites' characteristics and measure the weight of their interactions to take the study beyond qualitative approaches and suggestive evidence of the role of elite social network.

### **III. The survey and the data: ELIMAD a unique dataset**

With a sample size of 1,000 elite members, ELIMAD is a representative comprehensive survey designed to capture the powerful "upper tail" in Madagascar. It is the first of its kind to our knowledge. The top elites are interviewed on three areas: their background and trajectory (both personal and family) via a biographical approach, their social networks (scope, structure and characteristics), and their values (cultural and in terms of development). It poses a triple methodological challenge: definition and scope of the universe to be studied (*who are the elites?*),

representativeness of the sample selected (*how to put together a comprehensive list of the elites for the sample frame to minimize sample errors?*), and reliability of the information collected (*how to guarantee honest, and systematic, answers to minimize measurement errors and non-responses?*).

***Survey scope: a definition of the “elite”***

Given the debate and lack of consensus over the notion of elite in the literature, we need to specify the definition we have adopted. We define “elite” in its broadest sense as: *any person with or potentially with power and/or influence over the decisions and running of society in Madagascar.*

For this purpose, we first classify the people who hold or have held top positions and/or have a level of responsibility in nine different spheres (see Razafindrakoto, Roubaud and Wachsberger, 2020, for a detailed presentation): government, elected office, political party, public institution, security forces, largest corporations and enterprises (public or private), civil society (employers and trade unions, national NGOs, associations, etc.; including the media), religious institution, and international organization (including large international NGOs).

These conceptual choices call for two comments. First, the power held by the hyper-elites (to be measured; see below) is not a binary variable (has or has not), but a continuous variable (has more or less). Although this definition does not pose a ceiling problem (e.g. the President of the Republic in the political field is necessarily a member of the elite), a floor needs to be set below which an individual is no longer considered part of the elites. This threshold is arbitrary by definition. In ELIMAD, we chose specific floors for each sphere (see Table 1). Second, our breakdown into nine spheres is designed to cover all the elites in Madagascar with power at national level.<sup>5</sup> For the needs of the analysis, we have aggregated the nine spheres above into four fields of power to which elites belong. As we will see later, the elites were active in different spheres (by means of straddling strategies) when they reached their maximum point on their power scale. In this paper, we have therefore assigned the survey respondents to a main field as follows:

- Political field (29.8%): all individuals who have held (or currently hold) a position in government or elected office, or senior political party leaders;
- Economic field (22.1%): business elites who have never held a position of political responsibility;
- Bureaucratic field (24.8%): the elites who have held (or currently hold) senior positions in public institutions (civil or military), but have not had either political responsibilities or responsibilities in large corporations;
- Civil society and others (23.5%): the elites who cannot be classed in the above three categories are classified in this category. Over two-thirds of them head civil society organizations.

***Sampling strategy to obtain a representative sample of the elite universe***

In the absence of any pre-existent sampling frame, we used a two-step strategy. We combined two approaches, the name-generator and the position-generator techniques to overcome the usual shortcomings of survey on social network (Lin, Cook and Burt 2001).

***Purposive sampling.*** A first survey round was launched with the selection of some 30 “super-interviewers” (themselves members of the elite; see below) from the widest range of socio-economic backgrounds possible. They interviewed respondents in their own network (after validation by the central team). Taking this base as the launch pad, a “snowball” technique was then used whereby the “elite” network of these first respondents was asked at the end of the ELIMAD questionnaire to fill in a table suggesting eight people to be contacted to take part in the survey in turn. The name-generator methodology is applied at this step. Following a mid-term qualitative evaluation (400 questionnaires) to identify shortcomings, a second survey round was launched targeting the main sub-fields underrepresented in the first round (e.g. the Indo-Pakistani community, Catholic elites, etc.) to be reached “by all means”. At this stage, the second strategy was launched.

***Building a sampling frame.*** Alongside the first survey round, we set out to develop a comprehensive elite sampling frame. We drew on a wide range of sources for this, some common and others specific to each elite sphere. They included: the *Official Journal*, the different official directories and registers,

websites, the press and direct interviews. Wherever possible, we also went through these sources' archives for the 1960-2014 period. This gave us a list of nearly 10,000 names (9,357), corresponding to some 7,000 single individuals once double counts had been eliminated (individuals identified in more than one sphere), and representing 0.03% of the total population of Madagascar. This sampling frame is obviously imperfect, but it constitutes a reasonable preliminary approximation of the elite universe. Its purpose is to align (during the survey) the ELIMAD sample with the frame structure (e.g. proportion of women). From this point of view, ELIMAD could be considered as a stratified survey based at least on two criteria: gender and sphere. Therefore, it applies the position-generator technique since the sampling frame relies on the identification of different types of positions in the nine spheres of power.

***Highly sensitive questions: minimize non-responses and guarantee reliability***

How can a satisfactory response rate and honest answers be obtained to such sensitive subjects? Respondents at the top of the social ladder may feel they do not have time to waste on answering a statistical survey or may have good reason not to want to divulge their resources? Particular strategies had to be put in place to address these measurement error issues.

Firstly, ELIMAD targets elites: only a "horizontal" relationship is possible (elites talking to elites). Given that elites like to cultivate their own small world (as this paper's network analysis clearly confirms), interviewers were chosen from among the members of the elite itself. Secondly, the ELIMAD questionnaire is particularly long (two hours on average). The opportunity cost of the time spent answering the questions is very high. Consequently, despite all the respondents being connected, interviews can only be conducted face to face. Thirdly, ELIMAD deals with highly sensitive questions, especially the question of network and social capital. Respondents are asked to provide a list of all their connections and a number of personal characteristics. Not only is such a procedure intrusive, but it also bears a certain number of negative connotations. The idea of elite collusion via their networks is quite common. So a relationship of absolute trust is needed between interviewer

and respondent. Only an interviewer who is not only a member of the elite, but also known (or recommended) by the respondent, is in a position to obtain reliable answers.

These three main strategies were applied successfully to limit total and partial non-response rates. Other approaches were also used. For example, emphasis on the esteem of being chosen as part of the elite, akin to other well-known public figures, made the survey a mark of elite membership. In addition, reference to the long-standing credibility of the team of researchers served as a guarantee of data confidentiality (see Herrera, Razafindrakoto and Roubaud 2015).

**Table 1** sums up some of the main technical characteristics of the ELIMAD survey. With 1,000 elites surveyed, 6,600 elite positions held throughout their life cycle and nearly 16,000 elite connections identified (meaning that the average elite network size is 16),<sup>6</sup> the ELIMAD survey has no equivalent to our knowledge. This uniqueness is not only quantitative, but also qualitative: both in terms of positions on the social ladder and also for its rich set of information on each of these units of analysis. Our survey sample represents the most powerful people in Madagascar, including presidents, prime ministers, line ministers, generals, admirals, large corporation CEOs and senior management, and political and civil society leaders.

**Table 1** around here

#### IV. ELITE POSITIONS AND NETWORK CHARACTERISTICS: ECONOMETRIC APPROACH

##### IV.1. The model

We set out to test the link between the level of power reached by the elites and different network dimensions: size, quality, diversity and strength of ties. In order to do so, we estimate a multinomial ordered model given the ordinal nature of the dependent variable. The main estimated equation is as follows:

$$P_i = \alpha_i + \beta NR_i + \gamma PR_i + \delta NS_i + \varepsilon LF_i + \theta C_i + \epsilon_i \quad (1)$$

where  $P_i$  is the maximum level of power reached by individual  $i$  in his or her career and  $\alpha_i$  is a constant term. Variables of interest are:  $NR_i$ , network size;  $PR_i$  network quality;  $NS_i$ , diversity of connections;  $LF_i$  a vector of variables to test the strength of weak ties according to Granovetter's theory. Finally,  $C_i$  is a set of meaningful control variables meriting discussion in themselves.

Individual characteristics are controlled by age, gender, level of education and place of residence. Social affiliation is controlled by castes, given its importance in Madagascar's history and present, ethnic group and religion. Father's professional status is finally introduced to control for more usual channels of social reproduction.

Equation (1) is first estimated for all elites combined, and secondly for each aggregated field separately: political, economic, bureaucratic and civil society. In the latter case, the dependent variable is the maximum level of power reached by the individual in the field concerned.

## **IV.2. The variables**

### ***Inequalities in the elite universe: developing a scale of "power"***

One of our key challenges is to develop a metric to quantify the "elites' power" (how to weight observations and rank highly heterogeneous individuals *and spheres* along a single scale of power?). In a population survey, the observation units are considered to be equivalent, are weighted in the same way and can be substituted for one another. This statistical principle echoes the democratic principle of "one man, one vote" and reflects a relative homogeneity among statistical units. Yet unlike the rest of the population, the elites are profoundly and intrinsically heterogeneous from the very viewpoint of what defines them; that is their power. It stands to reason that the President of the Republic has an infinitely greater power of action, agency and influence than a director-general in the central administration, a president of a producer's association or a prelate. This heterogeneity is both internal (between the elites themselves) and external (between the group of elites and the rest of the population). From this point of view, a survey of the elites is more like a business survey than a



household survey: where businesses need to be differentiated by size (in staff numbers or turnover), elites need to be able to be identified according to the power they hold.

However, measuring an individual's power is a tricky exercise. Firstly, the sources of power (status position, charisma, expertise and tradition) and the instruments of power (law, force and influence) are many and varied. It is very hard not only to capture them all, but also to determine a metric whereby they can be compared. Secondly, power cannot be addressed solely by a substantialist approach like realizable, accumulative, disposable capital. An individual's power lies not solely in the individual's capacities for material or moral action, but also in the potential to "*impose one's own will within a social relationship, even in the face of resistance,*" (Weber 1968). This approach defines power less as a stock than as a relationship, since its influence only really comes to bear in the interaction.

Power cannot be measured directly by the ELIMAD survey, either from its interactionist or its substantialist angle. Our approach therefore consists of making the reasonable assumption that is essentially a function of the individuals' status position(s). The individuals have hence been classified according to their rank on a "standardized" hierarchical scale, mainly by means of organization charts. Putting this theoretical metric into operation is no mean task. It calls for a double classification operation: first within each of the nine spheres (and sub-spheres) and then between the spheres. This was a painstaking task based on the survey's two main pieces of information: institutional affiliation and position held. Some auxiliary variables were also used (e.g. business size for the economic sphere) with a diagnostic conducted by manual processing, on a case-by-case basis, of qualitative information declared in detail in the survey questionnaire by respondents on their status (e.g. business name, still in the economic sphere). This operation encoded nearly 7,000 elite positions held by the 1,000 sampled elites during their lifetime (up to the time of the survey), and around 16,000 links with their elite network. Three nested classifications were hence developed. For the purposes of this paper's analysis, we use here only the most aggregated scale with its four levels of power.

Our dependent variable, the maximum level of power reached by an individual in his or her career, based on this classification, is therefore an ordinal scale between 1 and 4, with 4 being the maximum level of power. For example, presidents of the Republic, ministers, presidents of the National Assembly, members of the higher judicial council and CEOs of the largest firms are classified in the 4<sup>th</sup> level of power. Directors-general and executive directors, regional and provincial representatives, and department heads in public institutions and enterprises are classified in level 3. District representatives and senior managers are in level 2 and finally, management staff and local elected officials are in the first level (level 1).

***Measuring four dimensions of networks: the independent variables of interest***

In the literature, a network is addressed from different angles and each angle leads to different conclusions. In this article, we aim not only at answering the question as to whether social networks are inherent to elite positions, but also at analysing which of the network components matters the most. Is an extended network needed to expand information sources? Or is it better to focus on finding the “right” relationships? Is it also important to forge a network covering different elite spheres? Can solely elite kinship ties suffice or should more strategic relationships be developed? With this in mind, we construct our six variables of interest.

Network size is measured by the number of elite relationships listed by people in the survey. Elite interviewees were asked to list only relationships among the elite in Madagascar with whom they were close enough to have their phone number and to be able to contact them directly by phone. The questionnaire considers up to 45 potential ties (5 connections for each of the 9 elite spheres identified above). Network quality is measured by the network’s average level of power based on the same power scale as the dependent variable, applied, this time, to individual’s relationships. The level of power of all the individual’s relationships is summed up and then divided by the number of the individual’s relationships. The diversity of connections is measured by the number of spheres covered by the individual’s network among the nine identified spheres. For example, if an individual

has three relationships in his network in a government position, two in the army and four in religious institutions, the number of spheres in that person's network is three.

The first variable to test Granovetter's theory is an indicator of weak ties, a binary variable equal to 1 if the individual has at least one weak tie, i.e. one relationship that is more of an acquaintance with whom the person is not in contact very often. This is based on two questions in the survey. The first concerns the degree of proximity with the relationships s/he listed. Respondents had to choose among three proposed answers: (1) not so close; (2) close; (3) very close. The second question asked interviewees about the frequency of contacts with their relationships. Proposed answers were: (1) less than once a year; (2) once a year; (3) more than once a year; (4) once or more times a month; (5) one or more times a week; (6) every day. A tie is considered as weak if the interviewed elite answered (1) to the first question and (1), (2) or (3) to the second question. The second variable to test Granovetter's theory is a measure of strong ties, which equals 1 if the individual has at least one kinship tie, 0 otherwise. A third and last variable is the percentage of elite kinship ties among all ties. Testing both having at least one weak tie or one strong tie, and the proportion of kinship ties seems interesting to us, because it is not necessarily the number of ties that is significant. One weak or one strong tie may well be enough to help an individual climb the power ladder if the tie is helpful. We also tested the percentage of weak ties, but as it had no significant effect on the level of power, we excluded it from the regressions.

***The other determinants of the level of power: the "meaningful" control variables***

Individual characteristics are controlled by elite interviewee age, gender, place of residence (in the capital city of Antananarivo or not) and education (number of years of university degree, but also type of schools).<sup>7</sup> We expect being older and male to be an advantage in ascending the power scale in Malagasy society. We also assume that people living in Antananarivo, the capital city, are closer to decision-making bodies and other resources, and so have an advantage when it comes to entering such institutions. Qualifications might be vital to access such positions.

Social affiliation is controlled by the following variables: castes, ethnic group, and religion to capture historical power relations between different groups in Malagasy society. The father's socioprofessional status is lastly introduced to control for social reproduction *via* inherited social capital. The caste of the descent variable is constructed from the caste of the individual's parents. When the mother and father are not from the same caste, the highest caste is taken.<sup>8</sup> One of the survey's questions was: "*Is belonging to a caste important for society?*". We introduce this variable because we think that the perception that status group is important for society can reflect either particular abilities required to hold a position of power, or the use of status group to ascend the power scale.

Ethnic group is built from the ethnic group of the individual's parents. As for status groups, when mother and father are not from the same ethnic group, we take the ethnic group considered as dominant in Malagasy society.<sup>9</sup> Individual religion comprises five categories, corresponding to the four major churches in Madagascar and other religious affiliations.<sup>10</sup> Finally, father's occupation<sup>11</sup> is also a means to control for inherited economic and social capital.

## **V. DESCRIPTIVE STATISTICS ON THE HYPER-ELITES AND THEIR NETWORK**

Who are the elites in Madagascar? First, with an estimated number of around 10,000 people, and all the characteristics described in Tables 2 and 3 (in particular, in terms of networks), our universe of interest is an archetypal example of what is called "a small world" in the sociological literature (Watts, 1999). It corresponds to less than 0.1% of the most powerful individuals and families in Madagascar (a simple conservative calculation turns up 0.04%: 10,000 people in 25 million). Among what is usually called "the elite" in the literature and in common practice, these are the cream of the cream of what could be called the "hyper-elite".

Second, when classed by our four aggregate fields, they are evenly distributed by groups: 30% attain their maximum level of power in the political field, 25% in the bureaucratic field, 24% in the

economic field, and 20% in the civil society field. Looking at sociodemographic characteristics, all spheres combined, note firstly that this is a mature, graduate, male population (Table 2). Their average age is 52 years and 55% are over 50. Just 20% are women and 96% have graduated from higher education (a huge 39% hold a master's degree or higher). Their religious breakdown is relatively balanced between Protestants (*FJKM* Calvinists) and Catholics, with the other churches representing approximately a quarter of the total. The *Merina* ethnic group (the dominant ethnic group from the highland region around the capital city of Antananarivo) is predominant (64%), followed a long way behind by the *Betsileo* (another Central Highlands ethnic group). Nevertheless, one-quarter of the elites are from coastal regions (*Côtiers*). Lastly, most (52%) of the elite population state they are descendants of the *Andriana* or equivalent (nobility in the days of the Kingdom of Madagascar, formally abolished by the colonial power; Randrianja and Ellis 2009). Compared to the public at large, the elite are en masse from privileged social backgrounds rooted in ancient times. Elites are 31 times more likely to be higher education graduates than the rest of the population and up to 34 times more likely to claim to be of *Andriana* descent or assimilated. In addition, 41% of their fathers used to be elite themselves, holding prestigious, high-ranking professional positions (senior managers in the public or private sectors or leading businessmen), pointing to a widespread phenomenon of social reproduction. Lastly, they are concentrated in the capital city, as nearly three-quarters (72%) reside in Antananarivo, the best way to tread the corridors of power daily.

**Table 2** around here

Turning now to the elite's relative power, note that our survey captures the very top positions for each elite sphere. Our sample distribution looks like an inversed pyramid, with more than a half (53%) situated at the top on our ordinal ladder from 1 (minimum) to 4 (maximum). On this scale, the average is 3.27.

The hyper-elite network (among elites) is dense, powerful and diversified. **Table 3** presents the main characteristics of the Potential Network.<sup>12</sup> The other two dimensions are mentioned here merely to

gain a fuller picture of network topology. At the age they entered their highest position, the hyper-elites declared having eight elite contacts in their network on average with a maximum as high as 37!<sup>13</sup> These contacts are influential people with an average power level of 2.89 (of a maximum of 4), a level slightly below the sample itself (3.27). Even more interestingly, their network is involved in an average 3.79 (out of 9) spheres. This means that each sampled elite can count on a personal network distributed across four different areas of power, suggesting that a decisive diversification strategy is at work. The nature of ties is also diverse: 28% of the hyper-elites have distant people in their network (weak ties) and more than half (52%) count at least one kinship tie, which represents 25% of all contacts. Conversely, three-quarters of hyper-elite contacts are not family members.

**Table 3** around here

Mechanically, the mobilized network is a sub-sample of the potential network. However, the main stylized feature is that the overlap is nearly systematic. The potential network is not dormant: the elites activate their network in practice. While the average number of ties is 7.97, the elite have mobilized 6.4 of them on at least one occasion. The mobilized network shares the same properties as the potential network in terms of level of power and number of spheres, bar none.

**Table 4** examines the elites' networks in more detail, by field. The main feature is the overall similarity of elite networks. All kinds of elites share a common pattern in terms of the structure and characteristics of their respective networks. However, some significant particularities are of note, albeit secondary. First, the central nature of the political elites is confirmed. They have both the densest network, in numbers of relations, with the highest level of power and highest proportion of weak and bridging ties. Second, the business elites have the lowest number of contacts (maybe due to their relative youth) and also rely the most on family ties, a characteristic consistent with the private mode of business inheritance. Finally, bureaucratic elites benefit the least from weak ties, while the power of their connections is the lowest, a feature they share with civil society elites. The latter are also the elites who count the most on kinship ties, behind the business elites.

**Table 4** around here

## VI. RESULTS AND DISCUSSION

To analyse access to positions of power, we differentiate mainly between three types of factors or mechanisms (albeit not necessarily independent): first, variables which can be linked to ability and experience, such as education and age, provide the opportunity to test if the meritocratic process is at work; second, the importance of social reproduction can be evaluated by the effect of family background; and third, capturing the role of the social network<sup>14</sup>, and more specifically connections within the elites' world, can assess the extent to which the most privileged categories (the elite class) prefer "to keep themselves to themselves."

The analysis is carried out in two steps. In the first step, the dependent variable is the maximum level of power attained regardless of the sphere, estimated by ordered logit models. In the second step, the four fields are considered separately in order to identify their respective particularity and test the extent to which observed effects in the global model hold to explain access to (or holding) high-ranking positions of power within each sphere.

For the detailed discussion, we focus mainly on **Table 5** (all spheres together), which presents the estimation results for the effects of the sociodemographic variables, social and family background and network on the maximum level of power for all spheres taken together. The first two columns (columns 0-1) provide the simple specification without considering network effects. The estimation without the variables related to education aims at checking if the latter do not capture effect which should be attributed to family background. The subsequent columns (columns 2–5) separately present the estimates for the different variables characterizing the networks (size, quality, diversity of members, and strength of ties) while controlling for socio-demographic characteristics and family background. The far right-hand column (6) covers all the categories of factors (the full specification model).

**Table 5** around here

Looking at the estimations for each sphere separately, Table A1 (in the appendix) shows that, in general, the different network characteristics considered one by one are correlated with access to positions of power in each field. However, in the full model represented by Table A2 (in the appendix), the coefficients are less (or no more) significant in many cases. This result may be due to the limited number of observations for each field. But it could also stem from the fact that elites do not climb the power ladder in a linear way within one sphere. If they sphere hop to access high-ranking positions of power, the model taking all spheres together (in the first step) is more appropriate. Indeed, if we introduce the number of spheres in which the individual has held a position of power as an explanatory variable in the general model, this variable is positively and significantly correlated with the maximum level of power attained.<sup>15</sup> The more spheres in which the individuals have had some influence, the higher up the power ladder they can climb. We will therefore not elaborate on the second step, which isolates effects by field separately. Comments on the particularity of each field are merely given alongside the detailed discussion of the general models combining all spheres.

Note that the question could be asked as to whether the differentiated results for each sphere do not also stem from the methodology used to define the four-position scale of power, which may not necessarily be equivalent from one sphere to the next (see section 4.2). To tackle this possible issue of non-equivalence between spheres, we consider sphere-dummy variables to control for sphere (i.e. sphere in which each individual attains his/her maximum level of power) in the different estimations. The significance of the dummy variables confirms the existence of specific sphere effects, but it does not change the sign or the magnitude of the coefficients of the other variables.

#### ***Access to upper scale of power: a meritocratic promotion?***

As expected, the age coefficients appear to be highly significant. Looking at standardized coefficients, the age effect is largely the strongest among all the independent variables. This is not surprising



since, intuitively, older people have more time of exposure and a certain number of years of experience are necessary to attain such positions of power. However, even if the eldest have already had the time to reach the peak of their career, a generation effect cannot be excluded: a gerontocratic logic could also be at work whereby age as such takes precedence. This argument is all the more plausible since respect for elders (*raiamandreny*; “father and mother” in Malagasy) is very important in Malagasy tradition (Razafindrakoto, Roubaud and Wachsberger 2020). Looking at the result for each sphere considered separately, age is statistically significant for all fields except business. It seems that access to high-ranking positions of power is relatively easier for younger generations in the economic sphere. However, this may also reflect family channels in the transmission of firms through the generations.

Regarding the role of education, high university degree (4 years or more) appears to be determinant to access to high-ranking positions among elites. More significantly, studying abroad matters and makes a difference. Educational qualifications are important: we observed in Section 2 that elites are overqualified compared to ordinary citizens. Therefore, a university qualification, in particular acquired abroad, appears to be a necessary prerequisite to access positions of power in the elite class. Besides, other refined criteria (such as university name and location, discipline studied, etc.) should be considered to catch possible hierarchies or differentiation. Then, in line with studies which investigate if well-known high status schools play specific role in the elite formation (Williams and Filippakou, 2010), we identified five secondary-schools where privileged categories send their children. We noticed that 31% of elites are from these “elite college or lycée”. But being a former student of these schools does not have a significant effect on access to high position of power. This is not surprising as this variable is highly correlated with others already included in the model (in particular with the two variables on high-level education and study abroad).

However, differences captured by such education variables do not necessarily reflect a meritocratic process (with a level of qualification, ability or skill required to warrant high-ranking positions).

Actually, substantial financial resources and social capital are necessary in Madagascar to get the opportunity to go beyond 4 years of higher education and, in particular, to study abroad. Therefore, education and school types can also be classically interpreted as a signal or as the cultural capital described by Bourdieu (1985): a form of *resources* “like aces in a game of cards” which are needed to gain standing among the powerful elites.

### ***The family background effect and the social reproduction phenomenon***

Among the variables which characterize social affiliation, two variables are significantly correlated with the level of power: status group (or castes) and father’s occupation. Clearly, social reproduction is at work. More precisely, elites who are descendants of the *Andriana* (the nobles) have 58% more chance than descendants of commoners or families without a status group of accessing the highest positions of power. The odds ratio coefficient is even higher for the other groups of higher rank. They have three times more chance of climbing the power ladder than commoners or those without a status group. For the model excluding network variables, the status group effect is the strongest (standardized coefficients).

Therefore, in spite of being formally abolished since the late 19<sup>th</sup> century, the Malagasy elites with status groups still remain in the highest positions of power at the top of the Malagasy elite ladder today, nearly six decades after independence. Membership of the *Andriana nobility* appears to be a decisive factor for access to the upper echelons of power. However, status group is no longer significant when considering elite dynamics within each separate field. Combining these two results suggests that noble descent may well facilitate the upward shift from one sphere of power to the next.

The elites’ point of view about the importance of the status groups or castes sheds further light on the pre-eminence of background in Malagasy society. The elites, who said that status groups were still important to society, all other things being equal, seem to manage more easily to climb the power ladder. Those who are aware of this prevailing symbolic ranking system in Madagascar may

have more ability to analyse how Madagascar functions and hence, be more resourceful. But they can also use this information (or belief) and their membership of or connections with members of this high-ranking status group as an instrument to access the highest positions of power. This hierarchical system is not only in the elites' minds, it has a real effect which might be related to what is called a "performative belief". Interestingly, when focusing on each sphere of power separately, this "belief" is observed to be significant for the political sphere only. The belief that status group is important to society increases the chance of reaching a higher rung on the power ladder in this field by 96%.

Alongside status group, the father's socio-professional status is also significant, albeit to a lesser extent. The children of senior executives have more chance than the children of lower status fathers of reaching higher positions. If we restrict the analysis to the movement within each sphere, the father's occupation does not have any observable effect, all other things being equal, in the bureaucratic and civil society fields. Parents' social status seems to matter mainly to access the upper scale of power in the political field.

Regarding the other social affiliation dimensions, empirical evidence does not reveal any specific or convincing correlation with access to high levels of power. Regarding religion or ethnic affiliation, coefficients are not significant when all spheres are taken together. However, specific effects can be identified in the political and civil society fields. Membership of a non-*Merina* ethnic group constitutes a clear advantage to access high levels of power in the political sphere. Conversely, having a coastal ethnic group origin (non-*Merina* and non-*Betsileo*) makes for less chance compared to *Merina* origin of reaching high-ranking positions within the civil society field (see also Razafindrakoto, Roubaud and Wachsberger, 2020).

To sum up, some ethnic groups seem to have privileged access to high-ranking positions in specific fields of power (mainly political). But the main and predominant effect is related to social reproduction. In particular, the analysis provides original insights into the importance of castes. More

generally, to quote Bourdieu, transmission of social, cultural and symbolic capital is at work to explain access to high levels of power. Therefore, children of disadvantaged class or group origins have to make much more of an effort than children of more advantaged origins in order to attain similar high-ranking positions. The bureaucratic field is where the meritocratic process seems to operate the most frequently.

### ***The role of social networks***

The role of social networks with its embedded valuable *resource* for status attainment is widely acknowledged. But our aim is to provide new insights into the elites' world. To what extent can the social networks the elites build among themselves be instrumental and help them reach (or keep) high-ranking positions of power? What are the main characteristics of an "efficient" network in this (size or reach of the network, quality or members' status positions, members' diversity, or strength of ties)?

For each variable, which characterize the elites' network considered separately (size, quality and diversity; Table 5), all of them are positively and significantly correlated with the level of power. When looking at the standardized coefficients, the magnitude of the network effect is comparatively quite large overall. Regarding the reach of the elite's network, the more his/her network has connections among the elites, the higher the position of power attained. Although the odd ratio for this variable is rather high (with a one standard deviation increase in the number of relations, the chances of accessing higher positions rise by 33%), it is no more significant in the full model. In the fully-specified model (column 6), one additional point in the network's average level of power increases the chance of attaining a higher scale of power by 53%. Therefore, the qualitative characteristics of the network matter more than its quantitative nature: the number of connections among elites is not as important as connections with elites in high-status positions.

Regarding the diversity of the network members, or more precisely the number of spheres (9) represented in the network, the coefficient is less significant, but the effect still holds in the full

model. One additional sphere in the network increases the chances of holding the power ladder by 16%. If we consider standardized coefficients, the effect of the number of spheres in the network is as important as the average level of power of the network members. With a one standard deviation increase in the number of spheres, the chances of accessing higher positions rise by 36.1%, compared to 32.8% for the network's level of power. The straddling strategies or the positive impact of controlling or influencing different spheres of power is effective. However, the diversity of spheres in the network (the straddling effect) is no more significant when the four fields are considered separately. It is the proportion of connections in the same sphere which is more important (see Table A3 in the appendix). This is particularly the case in the political and civil society spheres, the two main competing fields where connections seem to have crossed influence on access to power in other spheres.

Finally, turning to the strength of ties, the coefficients of the three variables considered (without the other network variables: column 5) are significant. Having at least one family member among the elites seems to be an advantage in reaching high status positions. Weak ties in the hyper-elites' network also appear to have an influence. But the percentage of kinship ties in the network also plays a significant negative role. When holding the number of connections constant (full model), the more there are connections among family members, the less the network can help climb the power ladder. Therefore, kinship ties play a role, but are not sufficient. Access to high-ranking positions is significantly improved by the mobilization of high-status persons outside the family circle. This result is in line with the idea that weak ties have a stronger effect (Granovetter 1973).

#### *Network and family background matter*

The observed effect of family background in access to upper scales of power could stem from the networks that higher status families have developed within the elite world. However, a more direct effect seems to prevail: the role of family background on the likelihood of reaching the upper rungs of the power ladder remains significant irrespective of whether or not the use of networks is

controlled for. Since network building, and especially connections to elites with a high level of power, is linked to social background, the question could be asked as to whether this type of network with these elites' connections is specific to the elite group (with barriers of entry for non-elites) or if the public at large can also develop such networks. If we assume that homophily prevails, it is difficult for ordinary citizens to connect with elites. The resources embedded in their social network are very low and the opportunity for the latter to build the needed social capital to access high levels of power is limited.

To go further in the discussion of these different results, in line with research focused on how elites contribute to economic inequality (Brezis and Temin, 2008; Khan S.R., 2012), this study puts forward elites role in the country's trajectory. First, the majority of elites are from the old aristocracy. Second, alongside this poor social fluidity is the elites' straddling of the different spheres of power: the vast majority simultaneously hold positions in different spheres of influence. The elites have made use of networks and a specific process of reproduction to exclude certain groups and keep control of power over the years. Therefore, the elites in Madagascar form an extremely airtight world disconnected from the vast majority of the population. Consequently, it is not surprising if they are more inclined to serve their own interests than to promote development and reduce inequalities. The concentration of power in the hands of privileged elite and the subsequent widening of inequalities are sources of chronic socio-political instability in the country.

## **VI. CONCLUSION**

This paper shows the relevance of survey data collected on hyper-elites in Madagascar. Using an original and pragmatic methodology, our statistical survey managed to capture this specific group at the upper tail of the distribution of power. Our approach consisted in collecting information on their pathways and their social networks. The consistency of the data is confirmed by the fact that it sheds light on the strategies used by the hyper-elite class to reach and keep their highest position on the

power ladder in Madagascar. First and foremost, connections between elites and the global network they build among themselves can be viewed as means to access and retain the highest level of power in different spheres in Madagascar. The empirical evidence suggests that four types of network effects are at play. The first channels through the peers' level of power in the network. The second is related to network diversity, especially the number of spheres covered by the network. Family ties also matter, but they must be combined with weak ties in the network. Fourth, family background remains a decisive factor in explaining access to top positions, both directly and indirectly. Our results support the view that castes and fathers' occupation matter. The identification of this hyper-elite strategy of network building to "keep themselves to themselves" and the importance attached to status group and the father's socio-economic status is a quite original insight. Given the importance and the "bonding" nature of the social capital at the disposal of the hyper-elites, it is therefore not surprising if social mobility is limited in Madagascar.

These results are consistent with the huge gap between urban and rural areas (and between the capital city and the rest of the country), a specific characteristic of Madagascar. The great majority of the elites live in Antananarivo while vertical organisations which can narrow the urban-rural divide are quasi-inexistent (Razafindrakoto et al., 2020). In many African countries, vertical organisations structured into patron–client networks, based on close relationships that elites maintain with their home village, enable an informal redistribution of wealth from rents. But this pattern is not applicable to Madagascar. For example, unlike other developing countries, those who take office in Madagascar have never sought to develop or particularly support their home regions. Although the country clearly displays some forms of clientelism, their reach is limited in time (to a given period) and space (to a very small number of people). The persistence of hierarchical structures and geographical divides stems from the low spatial and social mobility, two self-reinforcing phenomena.

Our paper calls for follow-up developments. We underline three we consider to be promising. A first extension would be to investigate in which respect the mechanisms described here hold in other

contexts, or if they are specific to Madagascar. To address this question, comparable original data on elites in another African country would be necessary. It raises the question of the actual possibility of implementing an equivalent elite survey in another country, given the demanding preconditions it requires (trust, credibility, etc.). A second avenue of research (following the previous one) is to explore if elite social network can be used to measure the degree of openness of “social orders” (as it was conceptualised by North, Wallis and Weingast (2009)). Since elite networks reveals to what extent this small privileged group have control over institutions and different spheres of power, it gives the means to undertake in-depth empirical analysis and to operationalize the notion of *limited* or *open access orders* (LAO & OAO). A third avenue would be to better understand the role of networks in connecting elites and the population. At this stage, research remains focused on elite circles (elites themselves and their elite networks). Consequently, we do not address the following important questions: if and how can a member of the common people become an hyper-elite, and what kind of network is helpful? Again, this is quite demanding in terms of data as it calls for an *ad-hoc* survey to be conducted or designed covering both elites and the public at large.



## References

- Acemoglu, D., Robinson, J.A.: *Why Nations Fail: The Origins of Power, Prosperity, and Poverty*. Crown Publishers, New York (2012)
- Amsden, H., A., DiCaprio, A., and Robinson, J.A. (eds.): *The Role of Elites in Economic Development*. Oxford University Press, Oxford (2012)
- Anand, S., Segal, P.: Who Are the Global Top 1%?. *World Development*, 95, 111-126 (2017).
- Augé, A.: Les solidarités des élites politiques au Gabon : entre logique ethnocommunautaire et réseaux sociaux. *Cahiers Internationaux de Sociologie*, 2(123), 245-268 (2007)
- Banerjee, A., Chandrasekhar, A.G., Duflo, E., Jackson, M.O.: Gossip: Identifying Central Individuals in a Social Network. NBER Working Paper No. 20422 August (2014)
- Bayart, J.-F.: *The state in Africa: the politics of the belly*. Longman, London (1993)
- Berrou, J.-P., Combarrous, F.: Testing Lin's Social Capital Theory in an Informal African Urban Economy. *Journal of Development Studies*, 47(8), 1216-40 (2011)
- Bian, Y.: Guanxi and the Allocation of Urban Jobs in China. *The China Quarterly*, 140, 971-999 (1994)
- Bourguignon, F., Verdier T.: The Simple Analysis of Elite Behavior under Limited State Capacity. In Amsden, A.H., DiCaprio, A., Robinson, J.A. (eds.) *The Role of Elites in Economic Development*. Oxford University Press, Oxford, pp. 251-280 (2012)
- Boucher, V., Fortin, B.: *Some Challenges in the Empirics in the Effects of Networks*. In Y. Bramoullé, A. Galeotti, B.W. Rogers (eds.) *The Oxford Handbook of the Economics of Networks*, Oxford University Press, Oxford, pp. 277-303 (2016)
- Bourdieu, P.: The social space and the genesis of groups. *Theory and Society*, 14(6), 723-44 (1985)
- Bourdieu, P.: Champ du pouvoir et division du travail de domination. Texte manuscrit inédit ayant servi de support de cours au Collège de France, 1985-1986. *Actes de la recherche en sciences sociales*, 5(190), 126-139 (2011)
- Brezis, E. S., Temin, P.: Elites and Economic Outcomes, in S. N. Durlauf and L. E. Blume (eds), *New Palgrave Dictionary of Economics*, Macmillan, Basingstoke (2008).

- Burt, R. S.: *Structural Holes. The Social Structure of Competition*. Harvard University Press, Cambridge (1992)
- Caeyers, B., Dercon, S.: Political Connections and Social Networks in Targeted Transfer Programmes: Evidence from Rural Ethiopia. *Economic Development and Cultural Change*, 60(4), 639-675 (2012)
- Cohen, A.: *The Politics of Elite Culture: Explorations in the Dramaturgy of Power in a Modern African Society*, University of California Press, Berkeley (1981)
- Datcher Lounsbury, L.: Some Contacts Are More Equal than Others: Informal Networks, Job Tenure, and Wages. *Journal of Labor Economics*, 24(2), 299-318 (2006)
- DiCaprio, A.: "The Role of Elites in Economic Development", In Amsden, H., A., DiCaprio, A., Robinson, A. J., (eds.) *The Role of Elites in Economic Development*, introduction, Oxford University Press, Oxford, pp.1-15 (2012)
- Fafchamps, M., Quinn, S.: Networks and Manufacturing Firms in Africa: Results from a Randomized Field Experiment. *The World Bank Economic Review*, 32(3), 656–675 (2018)
- Fernandez, R., Weinberg, N.: Sifting and Sorting: Personal Contacts and Hiring in a Retail Bank. *The American Sociological Review*, 62(6), 883-902 (1997)
- Field, J.: *Social capital*. Routledge, London (2003)
- Granovetter, M.: *The Strength of Weak Ties*. *The American Journal of Sociology*, 78(6), 1360-80 (1973)
- Granovetter, M.: *Getting a Job: A Study of Contacts and Careers*. 2<sup>nd</sup> edition, University of Chicago Press Chicago, Chicago (1995)
- Herrera, J., Razafindrakoto, M., Roubaud, F.: Les sciences sociales au service du débat démocratique au Sud : enjeux, supports, retombées. Résultats d'expériences dans le champ de l'économie et de la statistique. In Vidal, L. (ed.) *Les savoirs des sciences sociales : débats, controverses, partages*, IRD Editions, Marseille, pp.95-123 (2015)

- Kashwan, P., MacLean, L.M., García-López, G. A.: Rethinking power and institutions in the shadows of neoliberalism (An introduction to a special issue of World Development), *World Development*, 120, 133-146 (2019)
- Khan, M. H.: Political Settlements and the Governance of Growth-Enhancing Institutions. SOAS Working Paper, University of London, [http://eprints.soas.ac.uk/9968/1/Political\\_Settlements\\_internet.pdf](http://eprints.soas.ac.uk/9968/1/Political_Settlements_internet.pdf) (2010)
- Khan, M. H.: The political economy of inclusive growth. In de Melo, L., Dutz, M.A. Promoting inclusive Growth: Challenges and Policies, OECD and the World Bank, OECD Publishing, Chapter 1, Paris pp.15-53 (2012)
- Khan, S.R.: The sociology of elites. *Annual Review of Sociology*, 38, 361–377 (2012)
- Knorringa, P., Van Staveren, I.: Social Capital for Industrial Development: Operationalizing the Concept, Vienna: UNIDO (2006)
- Kramarz, F., Thesmar, D.: Social Networks in the Boardroom. *Journal of the European Economic Association*, 11, 780–807 (2013)
- Lee, S., Brinton, M.C.: Elite Education and Social Capital: The Case of South Korea. *Sociology of Education*, 69(3), 177-192 (1996)
- Lin, N.: Social Networks and Status Attainment. *Annual Review of Sociology*, 25(1), 467-487 (1999)
- Lin, N.: Social Capital: A Theory of Social Structure and Action. Cambridge University Press, New York (2001)
- Lin, N., Cook, K., Burt, R.S. (eds.): Social Capital: Theory and Research. Aldine De Gruyter, New York, (2001.)
- Maclean, M., Harvey, C., Kling, G.: Pathways to Power: Class, Hyper-Agency and the French Corporate Elite, *Organization Studies*, 35(6), 825-855 (2014)
- Marsden, P.V., Campbell, K.E.: Recruitment and Selection Processes: The Organizational Side of Job Search. In Breiger, R. L., (ed.) *Social Mobility and Social Structure*, Cambridge University Press, New York, pp.59-79 (1990)

- Medard, J.F.: Le « big man » en Afrique : Esquisse d'analyse du politicien entrepreneur. *L'année sociologique*, 42, 167-192 (1992)
- Miller, R. A.: Elite formation in Africa: class, culture and coherence. *Journal of Modern African Studies*, 12(4), 521-42 (1974)
- Miller, R. A.: The Party-State and Bureaucratic/Political Relations in Africa. *Comparative Political Studies*, 8(3), 293-317 (1975)
- North, D., Wallis, J., Weingast, B.: *Violence and Social Orders. A Conceptual Framework for Interpreting Recorded Human History*. Cambridge University Press, Cambridge (2009)
- North, D, Wallis, J., Webb, S., Weingast, B. (eds.): *In the Shadow of Violence. Politics, Economics, and the Problem of Development*. Cambridge University Press, Cambridge and New York (2012)
- Pellizzari, M.: Do Friends and Relatives Really Help in Getting a Good Job? *Industrial & Labor Relations Review*, 63(3), 494-510 (2010)
- Piketty, T.: Top Income Shares in the Long Run: An Overview, *Journal of the European Economic Association*, Vol. 3, Issue 2-3, 382-392 (2005)
- Randrianja, S., Ellis, S.: *Madagascar. A short History*. University of Chicago Press, Chicago (2009)
- Razafindrakoto, M., Roubaud, F., Wachsberger, J.M.: L'île mystérieuse : une approche d'économie politique de la trajectoire longue de Madagascar. *Canadian Journal of Development Studies*, 36(3), 397-415 (2015)
- Razafindrakoto, M., Roubaud, F., Wachsberger, J.M.: *Puzzle and Paradox. A Political Economy of Madagascar*. Cambridge University Press, Cambridge (2020)
- Rijkers, B., Arouri, H., Baghdadi, L.: Are Politically Connected Firms More Likely to Evade Taxes? Evidence from Tunisia. *The World Bank Economic Review*, 30, Issue Supplement 1, S166-S175, (2017)
- Simon, J. C., Warner, J.T.: Matchmaker, Matchmaker: The Effect of Old Boy Networks on Job Match Quality, Earnings, and Tenure. *Journal of Labor Economics*, 10(3), 306-30 (1992)

- Tassier, T., Menczer, F.: Social Network Structure, Segregation, and Equality in a Labor Market with Referral Hiring. *Journal of Economic Behavior & Organization*, 66(3-4), 514-28 (2008)
- Useem, M.: The Social Organization of the American Business Elite and Participation of Corporation Directors in the Governance of American Institutions. *Boston University American Sociological Review*, 44(4), 553-72 (1979)
- Van Campenhoudt, L.: Le conflit, au cœur du lien social. In Vrancken D., Dubois C., Schoenars, F. (eds.) *Penser la négociation. Mélanges en hommage à OlgierdKuty, De Boeck, Bruxelles*, pp.249-256. (2008)
- Watts, D. J.: *Small Worlds*. Princeton, Princeton University Press (1999)
- Weber, M.: *Economy and Society*. Bedminster Press Incorporated, New York (1968 [1923])
- Williams, G., Filippakou, O.: UK Elite Formation in the 20<sup>th</sup> Century. *Higher Education*, 59(1), 1-20 (2010)
- Xu, G.: The Costs of Patronage: Evidence from the British Empire. *American Economic Review*, 108(11), 3170-98 (2018)

---

<sup>1</sup> see for example Amsden, DiCaprio, and Robinson (2012), Brezis and Temin (2008), Kashwan et al. (2019), Khan S.R. (2012).

<sup>2</sup> Institutions can be defined whether by concepts of inclusive versus extractive institutions (Acemoglu and Robinson 2012), social orders (North et al. 2009 & 2012) or political settlements (Khan M.H. 2010 & 2012).

<sup>3</sup> Use of the term “caste” for Madagascar has often been debated. Some researchers prefer to talk about “pseudo-castes” whereas others prefer the term “status groups”. We consider the two terms as synonyms.

<sup>4</sup> See Bourguignon and Verdier (2012); Amsden, DiCaprio, and Robinson (2012).

<sup>5</sup> This universe in principle excludes three groups: local elites, diaspora elites and international elites who influence Madagascar from the outside. However, for the Malagasy diaspora, for those who have kept business

---

or political interests in the country, they are considered in the survey sample if they are commuting between their country of residence and Madagascar.

<sup>6</sup> These figures are much higher than usually observed in egocentric network surveys. But we cannot know if it is due to the quality of the survey or to the very nature of hyper-elites' characteristics.

<sup>7</sup> We consider the number of years of education completed after high school graduation. We distinguish two categories (less than 4 years; and 4 years or more).

<sup>8</sup> This variable includes three categories: 1 = Noble (*Andriana* or equivalent); 2 = Other groups of higher rank; 3 = Commoner (*Hova* or equivalent), other lower caste and no caste. *Andriana* and *Hova* are the historical terms used to design Merina aristocracy and commoners. Other ethnic groups use other denomination for the equivalent categories.

<sup>9</sup> The variable is divided into three categories, reflecting the two main ethnic groups of Madagascar and non-Malagasy groups: 1 = *Merina*; 2 = *Betsileo*; 3 = Other ethnic groups. *Merina* and *Betsileo* are the two major ethnic groups originated from the Central Highlands. The other groups are originated from the Coasts (commonly called "Côtiers").

<sup>10</sup> The five categories are: 1 = Catholic (ECAR); 2 = Anglican (EEM); 3 = Lutheran (FLM); 4 = Calvinist (FJKM); 5 = None of the previous four (non FFKM).

<sup>11</sup> It indicates the socio-professional category of the interviewee's father aggregated into 3 categories: 1 = low status; 2 = medium status; 3 = high status.

<sup>12</sup> We focus in this paper on the potential network (and not the mobilized network).

<sup>13</sup> The average number of elite ties at the date of the survey was 15.8 (Razafindrakoto et al., 2020).

<sup>14</sup> When we talk about the role of social networks to explain access to positions of power, it does not necessarily mean a causal effect. Basically, we are interested in the correlation phenomenon. In general, the issue of causality is difficult to address. In our case, we considered the network formed before the access to the highest position of power. But even with this precaution, it is not sufficient to claim for causality. In fact, although built anterior to the current position, our estimation may be plagued by omitted variables biases. For instance, more ambitious people may at the same time build instrumental networks and independently act by other means to climb the ladder and get more powerful positions.

---

<sup>15</sup> We did not introduce this variable in the final model presented here, since we consider it as a channel through which some explanatory variables (like family background) may have an impact. As a matter of fact, when this variable is included in the model, the significant effects of the caste variables are reduced or even disappear.

**Table 1 - Main technical characteristics of the ELIMAD Survey**

<b>Spheres</b>	<b>Type of power</b>	<b>Type of position</b>	<b>Sample size*</b>	<b>Among which (<i>examples</i>):</b>	<b>Trajectory</b>	<b>Network</b>
<b>Government</b>	<i>Executive, judiciary</i>	<i>Minister, DG, SG, Advisor</i>	313	117 Ministers, PMs	604	2,885
<b>Public Institutions</b>	<i>Executive, judiciary</i>	<i>Director General, Director</i>	613	229 Directors General	1,579	2,446
<b>Electoral Functions</b>	<i>Politics</i>	<i>President (Republic), NA Deputy, Senator, Mayor main cities</i>	185	130 NA Deputies & Senators	286	1,144
<b>Political parties</b>	<i>Politics</i>	<i>President, member of political bureau, top managers</i>	332	97 Presidents, Vice-Presidents, founders/ General Secretaries	502	1,649
<b>Armed Forces</b>	<i>Military</i>	<i>Generals, amirals, colonels</i>	145	71 Generals	389	1,717
<b>Enterprises</b>	<i>Economics</i>	<i>CEO, Board of Directors (DFA, DHR, etc.)</i>	508	353 CEO/BoD, /Administrators including 68 of the 100 largest enterprises	1,062	2,178
<b>Churches</b>	<i>Religious</i>	<i>Members of ecclesial hierarchy</i>	272	47 High clergy (President ; Vice-P, founder, Archbishops, Bishops)	419	1,190
<b>Civil Society</b>	<i>"Citizenry"</i>	<i>NGO, media, employers groups, unions, associations, Opinion leaders</i>	533	281 President/Admin/DG NGO & Assos. 44 Pres./Admin./DG NGO Platform	1,133	1,516
<b>International Organizations</b>	<i>Foreign</i>	<i>Donors, international NGOs</i>	357	159 President, DG, Administrators of international organizations	671	1,453
<b>Total</b>	<b>All</b>	<b>-</b>	<b>1,000</b>	<b>-</b>	<b>6,645</b>	<b>16,178</b>

**Sources:** ELIMAD 2012-2014, DIAL-COEF Ressources; Authors' calculations.

Notes: The column 'sample size' reports the number of individuals in each sphere. But the same individual may belong to different spheres at the same time: they can hold various positions in different spheres at the time of the survey. The total sample size (which does not correspond to the sum) is exactly 1000 persons.



**Table 2 – Elites’ socio-economic profiles and power**

	Mean	Std. Dev.	Min	Max	Obs	Mean for the population
<i>Basic individual characteristics</i>						
<b>Age</b>	51.62	11.123	24	86	970	32*
<b>Female</b>	20.5%	0.404	0	1	1,000	50%
<b>Place of residence</b>					949	
Antananarivo	72.4%	0.450	0	1	681	10%
<b>Level of education after baccalaureate degree</b>					1,000	
6 years and +	39%	0.488	0	1	390	)
4-5 years	38%	0.485	0	1	378	)3%
2-3 years	16%	0.370	0	1	164	)
0 or less	5%	0.226	0	1	68	97%
<b>Study abroad</b>	47%	0.499	0	1	1,000	
<i>Social affiliation</i>						
<b>Status group (SG)</b>					863	
Noble	59.7%	0.500	0	1	515	1.5%
Other groups of higher rank	4.2%	0.186	0	1	36	2.6%
Commoner, without caste	36.1%	0.464	0	1	312	95.9%
<b>Believe SG is important to society</b>	50%	0.500	0	1	1,000	15.9%
<b>Ethnic group (EG)</b>					978	
Merina	65.3%	0.481	0	1	639	32.4%
Betsileo	10.9%	0.309	0	1	107	19.0%
Other	23.7%	0.422	0	1	232	48.6%
<b>Religion</b>					984	
Catholic (ECAR)	38.7%	0.486	0	1	381	30.6%
Calvinist (FJKM)	37.8%	0.484	0	1	372	19.6%
Lutheran (FLM)	10.7%	0.307	0	1	105	13.0%
Anglican (EEM)	1.7%	0.129	0	1	17	1.0%
Other (No FFKM)	11.1%	0.312	0	1	109	35.8%
<b>Father's status</b>					966	
High	41.3%	0.490	0	1	399	
Medium	21.6%	0.407	0	1	209	
Low	37.1%	0.480	0	1	358	
<i>Power</i>						
<b>Max level of power</b>	3.27	0.905	1	4	1,000	
4 (Maximum)	53.3%	0.499	0	1	533	
3	24.3%	0.429	0	1	243	
2	18.0%	0.384	0	1	180	
1 (Minimum)	4.4%	0.205	0	1	44	

Sources: ELIMAD 2012-2014, DIAL-COEF Ressources; ENEMPSI 2012, INSTAT ; Authors’ calculations.

Note : \*for employed workers.

**Table 3 - Elites' main network characteristics**

	Mean	Std. Dev.	Min	Max	Obs
<b>Potential Network (PN)</b>					
Number of relations	7.97	6.939	0	37	1,000
Power of relations	2.89	0.621	1	4	891
Number of spheres in network	3.79	2.380	0	9	1,000
Weak ties	28.4%	0.439	0	1	1,000
Kinship ties	51.5%	0.500	0	1	1,000
% of kinship ties	24.5%	30.6	0	1	898
<b>Mobilized Network (MN)</b>					
Number of mobilized relations	6.40	5.787	0	35	1,000
Power of mobilized relations	2.87	0.681	1	4	835
Number of spheres in mobilized network	3.71	2.316	0	10	1,000
Mobilized weak tie	19.1%	0.393	0	1	1,000
Mobilized kinship tie	46.4%	0.499	0	1	1,000
% of mobilized kinship ties	25.6%	0.333	0	1	846

**Sources:** ELIMAD 2012-2014, DIAL-COEF Ressources; Authors' calculations.

**Table 4 - Elite network characteristics by field**

	Fields			
	Political	Economic	Bureaucratic	Civil society (and other)
<b>Potential Network (PN)</b>				
Number of relations	8.64	7.36***	7.95	8.12
Power of relations	3.01	2.99	2.94*	2.92**
Number of spheres in network	3.87	3.61	3.73	3.77
Weak ties	32.79%	30.95%	27.61%*	28.57%
Kinship ties	40.28%	46.82%**	40.03%	41.63%
% of kinship ties	14.05%	21.02%***	14.46%	17.21%**

**Sources:** ELIMAD 2012-2014, DIAL-COEF Ressources; Authors' calculations.

**Note:** Average difference tests for each sphere versus "Political": \*\*\*: p<1%; \*\*: p<5%; \*: p<10%.

**Table 5 - Egocentric potential network and scale of power, all fields taken together**  
(ordered logit)

Odds ratio	(0) Without education	(1) Simple	(2) Size	(3) Quality	(4) Diversity	(5) Weak link	(6) Full model
<b>Network</b>							
Number of relations			1.047*** (0.000)				0.986 (0.447)
Power of relations				1.719*** (0.000)			1.533*** (0.000)
Number of spheres in network					1.177*** (0.000)		1.161** (0.016)
Weak ties						1.419** (0.024)	1.258 (0.149)
Kinship ties						1.942*** (0.001)	1.572** (0.032)
% of kinship ties						0.986*** (0.000)	0.989*** (0.001)
<b>Family background</b>							
<b>Status group</b> (omitted: Commoners, lower status caste, no caste)							
Nobles	1.610** (0.002)	1.579*** (0.003)	1.498*** (0.008)	1.409** (0.033)	1.478** (0.010)	1.439** (0.024)	1.358* (0.062)
Other higher rank	3.024*** (0.004)	2.779*** (0.010)	2.664** (0.014)	2.706** (0.016)	2.646** (0.014)	2.689** (0.017)	2.645** (0.020)
Believe caste important to society	1.721** (0.000)	1.748*** (0.000)	1.745*** (0.000)	1.609*** (0.001)	1.713*** (0.000)	1.627*** (0.001)	1.591*** (0.001)
<b>Ethnic group</b> (omitted: Merina)							
Betsileo	0.943 (0.790)	0.966 (0.875)	0.978 (0.920)	0.893 (0.627)	0.966 (0.877)	1.002 (0.993)	0.931 (0.764)
Others	0.951 (0.769)	0.932 (0.681)	0.935 (0.696)	0.770 (0.157)	0.955 (0.789)	0.893 (0.539)	0.791 (0.212)
<b>Religion</b> (omitted: Catholic)							
Anglican	1.462 (0.485)	1.538 (0.431)	1.713 (0.323)	1.163 (0.806)	1.804 (0.279)	1.416 (0.539)	1.349 (0.624)
Lutheran	0.912 (0.689)	0.867 (0.541)	0.845 (0.471)	0.978 (0.929)	0.814 (0.379)	0.966 (0.888)	0.951 (0.840)
Calvinist	1.023 (0.881)	1.022 (0.886)	1.011 (0.943)	0.939 (0.699)	0.998 (0.988)	0.907 (0.551)	0.889 (0.475)
Non FFKM	1.136 (0.556)	1.139 (0.548)	1.187 (0.430)	1.182 (0.473)	1.192 (0.421)	1.158 (0.528)	1.206 (0.425)
<b>Father's occupation</b> (omitted: Low-ranking)							
High-ranking	1.359** (0.043)	1.302* (0.083)	1.317* (0.072)	1.208 (0.247)	1.336* (0.059)	1.317* (0.092)	1.282 (0.134)
Mid-ranking	1.084 (0.647)	1.045 (0.803)	1.029 (0.873)	0.961 (0.832)	0.996 (0.984)	0.997 (0.989)	0.926 (0.688)
<b>Sociodemographic variables</b>							
Age	1.051*** (0.000)	1.047*** (0.000)	1.047*** (0.000)	1.045*** (0.000)	1.047*** (0.000)	1.048*** (0.000)	1.046*** (0.000)

<b>Female</b>	0.641*** (0.005)	0.642*** (0.006)	0.643*** (0.006)	0.763 (0.112)	0.630*** (0.004)	0.799 (0.188)	0.773 (0.136)
<b>Place of residence</b> (omitted: outside Antananarivo)							
Antananarivo	0.857 (0.309)	0.788 (0.121)	0.772* (0.094)	0.788 (0.148)	0.767* (0.087)	0.700** (0.032)	0.755* (0.094)
<b>Level of education after baccalaureate degree</b> (omitted: 3 years or less)							
4 years or more		1.211 (0.216)	1.209 (0.224)	1.365* (0.058)	1.183 (0.283)	1.366* (0.058)	1.358* (0.066)
<b>Study abroad</b>		1.559*** (0.001)	1.529*** (0.002)	1.457*** (0.009)	1.527*** (0.002)	1.525*** (0.003)	1.459*** (0.009)
<i>N</i>	970	970	970	869	970	876	869
pseudo <i>R</i> <sup>2</sup>	0.058	0.064	0.074	0.072	0.080	0.077	0.092
<i>AIC</i>	2098.2	2087.8	2067.3	1828.5	2056.0	1837.4	1801.0

**Sources:** ELIMAD 2012-2014, DIAL-COEF Ressources; Authors' calculations.

**Note:** Exponentiated coefficients; *p*-values in parentheses. \* *p* < 0.10 ; \*\* *p* < 0.05 ; \*\*\* *p* < 0.01.

Non responses were isolated for each variable but corresponding coefficients are not presented.