Pro-Metrics

ORIGINAL ARTICLE

How do people understand inequality in Chile?
A study through attitude network analysis

Gonzalo Franetovic[I], Arturo Bertero[II]

[I] Department of Social and Political Sciences, University of Milan, Via Conservatorio 7, Milan, 20122, Italy.
     Corresponding author.
     Email: gonzalo.franetovic@unimi.it
     ORCID: 0000-0003-0337-0739
[II] Department of Social and Political Sciences, University of Milan, Via Conservatorio 7, Milan, 20122, Italy.

ABSTRACT

This article constitutes the first application of the attitude network approach to peoples' views on inequality. We adopt a network model in which nodes represent survey variables and edges their conditional associations. This allows us to conceptualize perceptions, beliefs, and judgments about inequality as a network of connected evaluative reactions. We analyze data from the 2019 ISSP Social Inequality Module for Chile, one of the most unequal countries in the world. Relying on a network approach, we systematically analyze the wide-ranging indicators measuring subjective inequality. Results show that conceptions regarding inequality, redistribution, taxation, and wages form a moderately connected unified belief system with a small-world structure. In addition, we stratify the sample by education, income, and social class, obtaining six attitude networks. We compare the structures of these networks, investigating differences in community membership, node centrality, and network connectivity, evidencing that people in lower social positions have a more multidimensional understanding of inequality. Our work contributes to social justice research by proposing an innovative conceptualization of these attitudes and providing evidence of their structural variation across different socioeconomic groups.

Keywords: attitudes toward inequality, social justice research, attitude networks, network analysis, Chile.

1. INTRODUCTION

RESEARCH on attitudes toward inequality has mainly been conducted, paradoxically, in developed countries with lower levels of disparities in the distribution of resources. However, in recent years, a significant amount of academic work has focused on understanding how people address inequality within Latin America, one of the regions with the highest global inequality indexes (Chancel *et al.*, 2022).

This literature has allowed us to understand the local particularities of the phenomenon and how various evidence in developed nations holds or not to the Latin American context. For instance, scholars highlighted a paradox in which legitimation of inequality is stronger in more unequal countries (Castillo, 2011), where people express higher support for meritocratic beliefs (Mijs, 2019). In particular, Chile is one of the countries with the highest inequality and income concentration in Latin America (UNDP,

2023). This country is characterized by marked social segregation patterns (Bargsted *et al.,* 2020), high mobility barriers between the elite and the rest of the population (Torche, 2005), and a liberal-productivist welfare regime, with strong divisions between state and market-dependent citizens (Martínez Franzoni, 2008). These factors make Chile a relevant case study, calling for investigating how people understand inequality since their support is required to maintain an unequal social order.

Attitudes toward inequality are a multidimensional concept comprising perceptions, beliefs, and judgments on the distribution of resources within a society (Janmaat, 2013). These topics have received copious empirical attention. Scholars have shown that these attitudes are socially patterned according to the individual position across the social structure (Lindh & McCall, 2020) and that these trends are moderated by intersubjective issues, such as personal social networks (Lindh *et al.,* 2021) and socializing institutions (Mijs, 2018). Moreover, subjective evaluations of redistribution, taxation, and wages, are essential to comprehend how people understand inequality. Indeed, beliefs about redistribution are closely related to people's perceptions of social disparities (Choi, 2019; Fatke, 2018; García-Sánchez *et al.,* 2020), while preferences for taxation are linked to distributional concerns (Alm & Torgler, 2006; Barnes, 2015; Franko *et al.,* 2013), and wage allocation constitute an important subfield in subjective inequality literature (Evans *et al.,* 2010; Frank *et al.,* 2015; Osberg & Smeeding, 2006).

However, social justice research currently has two shortcomings. First, there is a lack of a systematic examination of attitudes toward inequality since these perceptions, beliefs, and judgments are usually not studied simultaneously (Janmaat, 2013). Second, these dimensions interact and are co-determined (Trump, 2023), highlighting the necessity of studying them as part of an integrated belief system. Therefore, we provide the first contribution adopting an innovative network approach to the study of attitudes toward inequality. These attitudes are conceptualized and measured within this framework as a network of interacting evaluative reactions. Unlike standard social network analysis, this approach renders survey variables as nodes and their conditional associations as edges.

This article is structured as follows. First, we present a theoretical framework for a systematic inquiry of attitudes toward inequality and discuss the evidence that the literature shows for the Chilean case. Then, we describe the theory underlying the attitude network approach. Second, we expose the research design and the network estimation methods adopted in this research. Third, we present results regarding the network of attitudes toward inequality at the population level, and we compare the attitude networks of individuals with different education, household income, and social class. Finally, we discuss our results in light of the social justice and attitude network theories, stressing the limitations and contributions of our research.

2. THEORY
2.1. Attitudes toward inequality
2.1.1. What are attitudes toward inequality? A theoretical framework

The empirical study of people's attitudes toward inequality constitutes a broad field of research, developed by work in two main areas: principles justice research and rewards justice research (Wegener, 1999). The former seeks to understand the support towards general distributional norms, while the latter addresses individual evaluations on specific distributions (Castillo, 2012). However, the fact that both areas are closely related and the indicators used by the literature are varied makes it necessary to use a global framework to analyze and order the different aspects of how people understand inequality.

In this line, Janmaat's operationalization (2013) is of great importance, as it highlights the multidimensionality of attitudes toward inequality while systematizing the scientific production on the topic. The author argues that views on inequality vary in their *conception* and in their *dimension*. Conceptions of inequality involve individual perceptions, beliefs, and judgments. Perceptions correspond to subjective estimations about existing social inequalities; beliefs refer to normative ideas about how people think inequality should be; judgments represent evaluations on the desirability of a

AWARI
Vol. 4, 1-21, DOI: 10.47909/awari.42

How do people understand inequality in Chile?
A study through attitude network analysis

given distributional asset. Secondly, views on inequality are structured in two dimensions. Attitudes toward inequality either refer to the magnitude of inequality or to the moral principles that govern the distribution of resources in a society. Thus, this operationalization can be visualized as a typology with six cells, obtained by crossing the three types of conceptions and the two dimensions of the views on inequality (See Table 1).[1]

These notions have been widely addressed in social justice literature, often using other nomenclatures. For example, what under Jaanmat's scheme is classified as perceptions on principles regarding inequality refer to what other authors label as *stratification beliefs* (Kluegel & Smith, 1981) or *inequality beliefs* (Mijs, 2018). Although the term "beliefs" is used, in reality, they correspond to the determinants of inequality perceived by subjects, or explanations of inequality, traditionally differentiated between individualistic —factors linked to the individuals themselves, such as their hard work or education— and structuralist —societal determinants beyond individual control, such as race (Kluegel & Smith, 1986). Likewise, Janmaat's beliefs on principles are also known as *justice ideologies* (Wegener & Liebig, 1995). These include merit, need, equity or equality, among other principles (Deutsch, 1975). Researchers usually divide them into two major areas: egalitarianism, which calls for an equal distribution of resources, and individualism, where it is preferred that the distribution be guided by individual performance (Castillo, 2011).

2.1.2. Understanding attitudes toward inequality in Latin America and Chile

An important avenue of research on social justice focuses on identifying how individuals' positions across the social structure are related to variations in their attitudes toward inequality. Relying originally on the importance of economic self-interest and a rationally oriented social actor (Franko *et al.,* 2013; Meltzer & Richard, 1981), several studies evidenced attitudinal differences according to social positions

based on measures such as education (Bobzien, 2020), income (Finseraas, 2009; Szirmai, 1986), and social class (Lindh & McCall, 2020). Although there is a wide variety of results, the main trends found are that higher-ranked individuals are related to lower levels of perception of inequality (Bobzien & Kalleitner, 2020; Evans *et al.,* 1992; Evans & Kelley, 2017), a reduced belief in public redistribution (Alesina & Giuliano, 2011; Kim & Lee, 2018), and lesser concerns towards the actual distribution of resources (Hadler, 2005; Mijs, 2019). Differences that would also be explained by status-related variations in risk exposure (Rehm *et al.,* 2012), power resources (Korpi, 1989), reference groups (Evans *et al.,* 1992), and relative deprivation (Edmiston, 2018), among other mechanisms.

However, Latin America has placed itself as a scenario that questions the applicability and universality of the mainstream self-interest approach (Dion & Birchfield, 2010). Indeed, it has been found that unlike in developed countries (Finseraas, 2009; Gijsberts, 2002; Schmidt-Catran, 2016), in Latin America, attitudes toward inequality are not primarily determined by the objective socioeconomic position of individuals (Berens, 2015; Bucca, 2016; Franetovic & Castillo, 2021). Scholars have highlighted the relevance of social affinity and political attitudes in peoples' attitudes toward inequality across the region. For instance, Borges (2022) showed that the cultural diversity of Latin American countries decreases individuals' agreement with redistribution. In addition, Franetovic and Castillo (2021) evidenced that income-based differences in support for redistribution emerge only in certain scenarios of inequality and economic development, while trust in the political system stands out as a more important determinant of it. This behavior within the region adds to a broad literature that destabilizes the direct link between social positions and attitudes toward inequality, emphasizing the importance of cultural norms and normative values (Etzioni, 1988; Feldman & Zaller, 1992), as well as the availability of distributional information in social environments (Dawtry *et al.,* 2015; Lindh *et al.,* 2021; Mijs, 2018).

---

[1] Table 1 collocates the variables that are analyzed in this article in Jaanmat's typology. Note that this work did not include judgments on principles governing inequality and that this cell is empty even in Jaanmat's systematic review. This is due to the lack of survey questions and research dealing with this topic (Janmaat, 2013).

In particular, Chile is a country with vast research on attitudes toward inequality. Its high levels of economic disparities and its inclusion in 1998 in the International Social Survey Program (ISSP) have promoted significant academic work in the field. In this regard, it has been seen that in Chile a high perception of inequality, which is mainly expressed by individuals in higher social positions, especially in terms of education (Castillo, 2012). Also, people tend to hold egalitarian beliefs (Garretón & Cumsille, 2000; Méndez, 2016), coexisting simultaneously with individualistic values (Puga, 2010). These meritocratic orientations relate to individuals' perception of inequality (Castillo *et al.,* 2019) and a steady legitimization of wage inequalities throughout the last decades (Castillo, 2009, 2012).

Interestingly, compared to other countries, Chile has one of the lowest rates of judgments of income distribution as fair (Moya *et al.,* 2023), which differ by income and occupation but not so much by educational level (MacClure *et al.,* 2019). The belief in public redistribution in Chile is among the highest in Latin America (Franetovic & Castillo, 2021) and are not explained by people's political party preferences (Castillo *et al.,* 2013). In addition, most people critically judge the tax system (Atria, 2022), and the perception of tax regressivity and the agreement with tax progressivity are positively associated with the perception of inequality and the belief in public redistribution (Castillo & Olivos, 2014). However, most valuable contributions have focused on identifying trends and predictors. To date, no effort has incorporated a holistic approach capable of understanding how the wide range of attitudes toward inequality are related to each other in Chile and how these structures differ according to the position of individuals on the social ladder.

2.2. Attitudes networks

As anticipated above, attitudes toward inequality are usually measured through perceptions, beliefs, and judgments about the magnitude and principles of inequality (Janmaat, 2013). However, researchers tend to study these components unsystematically and in isolation. To overcome this limitation, we propose to study

attitudes toward inequality through the lens of the Causal Attitude Network [CAN] model (Dalege *et al.,* 2016). This framework conceptualizes and measures attitudes as networks of interacting evaluative reactions. These lower-order reactions are the individual survey items, thus the perceptions, beliefs, and judgments about inequality. These are graphically represented as nodes forming a network whose weighted, undirected edges can be estimated from real data (Dalege *et al.,* 2017). These edges are interpretable as regularized partial correlations between survey items (see Methods section). Importantly, this approach qualifies between-item correlations as indicative of direct causal influence between the components of attitudes toward inequality. This constitutes the main difference between the CAN and latent variable measurement approaches, as the latter assumes that between-item correlations are spurious, caused by an antecedent, unobservable variable (Dalege *et al.,* 2018).

This work shows that this innovative framework can improve our understanding of the *structure* of attitudes toward inequality in Chile, cumulating on the past research that focused on their *levels* instead. To do so, the remainder of this section discusses our research hypotheses. Social justice research has shown that attitudes toward inequality are empirically related to the ones towards redistribution (Choi, 2019; Fatke, 2018; García-Sánchez *et al.,* 2020), taxation (Alm & Torgler, 2006; Barnes, 2015; Franko *et al.,* 2013), and wages (Evans *et al.,* 2010; Frank *et al.,* 2015; Osberg & Smeeding, 2006). Since people understand inequality through perceptions, beliefs, and judgments about these topics, we hypothesize that:

H1: People's evaluative reactions towards inequality, redistribution, taxation, and wages will form a fully connected attitude network in Chile.

Furthermore, we want to investigate the dimensionality of attitudes toward inequality in Chile. This will give important insights into the associations between the selected evaluative reactions. The study of the dimensionality of these attitudes is not new to the social justice literature, where researchers tend to aggregate variables that tap the same dimension

AWARI
Vol. 4, 1-21, DOI: 10.47909/awari.42

How do people understand inequality in Chile?
A study through attitude network analysis

into mean indices (Kluegel & Smith, 1986), conforming at least implicitly to a latent variable measurement approach. There are two critical flaws in the traditional factor analytic strategy. First, with this operationalization, many variables referring to the same dimension are measured with a set of mean indexes, reducing the complexity of the concept. Second, analyses performed on the full sample neglect the population heterogeneity. Indeed, as specified in section 3.3, testing H1 requires estimating the attitude network at the population level. Yet, it is possible that estimating CAN on the full sample will hide structural differences characterizing the attitude networks of different social positions. To avoid the first shortcoming, we will perform Exploratory Graph Analysis [EGA] (Golino & Epskamp, 2017). EGA is a dimensionality assessment technique consisting of two steps. First, EGA estimates a partial correlation network from survey data. Second, it applies a community detection algorithm, and the number of clusters in the network is equated with the number of underlying dimensions of the construct (see Method section). We will fit EGA into subsamples with different socioeconomic conditions to avoid the second shortcoming. This will allow us to investigate differences in the dimensionality of attitudes toward inequality. Interestingly, assessing the dimensionality of a set of attitudes in different subgroups is a research design that is often adopted in cross-national research (Durvasula *et al.,* 1997; Steenkamp & Baumgartner, 1998), and that —to the best of our knowledge— was never applied in a single country, comparing individuals with different socioeconomic conditions. Considering that people's attitudes toward inequality are shaped by the distributional information available in their social environments (Dawtry *et al.,* 2015; Lindh *et al.,* 2021; Mijs, 2018) and that Chile is characterized by high social segregation and mobility barriers, notably between higher status individuals and the rest of the population (Torche, 2005), we expect that low socioeconomic groups will understand inequality in a more multidimensional way. Thus, we hypothesize that:

H2: The networks of attitudes toward inequality of people belonging to low social positions in Chile will present more dimensions than those of high ones.

Finally, stratifying the sample will allow us to focus on the structural characteristics of the attitudes toward inequality networks. We will report on the centrality of their nodes and their connectivity. This is rooted in previous research adopting a network approach to studying other sociopolitical attitudes. Indeed, scholars exploited the CAN model to retrieve the structure of attitudes toward post-national citizenship (Schlicht-Schmälzle *et al.,* 2018), job satisfaction (Carter *et al.,* 2020), preventive behaviors against COVID-19 (Chambon *et al.,* 2022), and bio-based plastic (Zwicker *et al.,* 2020). Among these contributions, those that examined node centrality showed that the most relevant nodes in the attitude network are important predictors of attitude change (Carter *et al.,* 2020; Chambon *et al.,* 2022; Zwicker *et al.,* 2020) since the change in the status of central —rather than peripheral nodes— trigger more extensive readjustment processes (Dalege *et al.,* 2017; Schlicht-Schmälzle *et al.,* 2018). Therefore, this paper will investigate the centrality metric.

Additionally, researchers who focused on the cohesiveness of attitude networks showed that their connectivity predicts attitude strength (Dalege *et al.,* 2019). Indeed, an attitude network is highly connected when respondents express coherent answers to the selected survey items and internally coherent attitudes are also associated with attitude networks that are stable over time (ibid.). Therefore, this paper investigates the cohesion of attitudes networks. Scholars have shown that the levels of attitudes toward inequality vary across different conditions of income, education, and social class (Bobzien, 2020; Franko *et al.,* 2013; Lindh & McCall, 2020). Yet, whether differences in levels are mirrored in differences in structure is still unclear since no research has examined this topic until now. Therefore, we investigate the two structural features of attitude networks forecasting:

H3: Structural differences in centrality and connectivity will emerge between the networks of attitudes toward inequality of people belonging to low and high social positions in Chile.

3. METHODS
3.1. Data

We use data from the ISSP 2019 – Social Inequality V module (ISSP Research Group, 2022). This survey includes questions measuring perceptions, beliefs, and judgments about the magnitude and principles regarding inequality and related topics, such as redistribution, taxation, and wages. The data is representative of the Chilean population aged 18 years or older. Listwise deletion reduces the original sample from 1,347 to 1,040 individuals.

3.2. Variables

Table 1 shows the list of selected variables and their collocation in Janmaat's typology, whereas Table 2 reports the survey questions

and their descriptive statistics. The analyses feature two perceptions about the magnitude of inequality (ineq_p) and progressive taxation (reg_p). Moreover, we include an item measuring respondents' normative beliefs on the magnitude of the appropriate tax progressivity levels (prog_b). Finally, we include three variables addressing judgments on the size of existing inequality (ineq_j), political failure in redistribution (redis_f), and political disinterest in implementing redistributive policies (redis_d). We also analyze principles about inequality. We use ten variables tapping respondents' perceptions of the principles that explain inequality in Chile (family-sex). We include two variables regarding public and private redistribution (redis_p, redis_m) and four concerning beliefs on criteria that should determine pay allocation (resp-merit).

	Magnitude	Principles
Perceptions	1. Perception of large income inequality (ineq_p) 2. Perception of tax regressivity (reg_p)	3. Importance of wealthy family (family) 4. Importance of parental education (edupar) 5. Importance of education (edu) 6. Importance of hard work (work) 7. Importance of knowing right people (people) 8. Importance of political connections (connec) 9. Importance of giving bribes (bribes) 10. Importance of race (race) 11. Importance of religion (relig) 12. Importance of sex (sex)
Beliefs	13. Belief in progressive taxation (prog_b)	14. Belief in public redistribution (redis_p) 15. Belief in market redistribution (redis_m) 16. Pay criteria: Responsibility (resp) 17. Pay criteria: Training (train) 18. Pay criteria: Need (need) 19. Pay criteria: Merit (merit)
Judgments	20. Judgment of unfair distribution (ineq_j) 21. Judgment of political disinterest in redistribution (redis_d) 22. Judgment of failure of public redistribution (redis_f)	

Table 1. Selected variables and their collocation in Janmaat's typology. Note: Variable names in parentheses.

Variable	Question	n	Mean	SD	Min	Max
ineq_p	To what extent do you agree or disagree with the following statement: Differences in income in Chile are too large. *	1,040	4.119	0.935	1	5
reg_p	Generally, how would you describe taxes in Chile today for those with high incomes?	1,040	3.453	1.077	1	5
prog_b	Do you think people with high incomes should pay a larger share of their income in taxes than those with low incomes, the same share, or a smaller share? *	1,040	3.927	0.884	1	5
ineq_j	How fair or unfair do you think the income distribution is in Chile?	1,040	3.259	0.679	1	4

AWARI
Vol. 4, 1-21, DOI: 10.47909/awari.42

How do people understand inequality in Chile?
A study through attitude network analysis

Variable	Question	n	Mean	SD	Min	Max
redis_d	Most politicians in Chile do not care about reducing the differences in income between people with high incomes and people with low incomes. *	1,040	3.902	1.014	1	5
redis_f	How successful do you think the government in Chile is nowadays in reducing the differences in income between people with high incomes and people with low incomes?	1,040	3.446	1.255	1	5
family	How important is coming from a wealthy family for getting ahead in life? *	1,040	2.792	1.135	1	5
edupar	How important is having well-educated parents for getting ahead in life? *	1,040	3.213	1.074	1	5
edu	How important is having a good education yourself for getting ahead in life? *	1,040	3.833	0.883	1	5
work	How important is hard work for getting ahead in life? *	1,040	3.837	0.974	1	5
people	How important is knowing the right people for getting ahead in life? *	1,040	3.438	0.977	1	5
connec	How important is having political connections for getting ahead in life? *	1,040	2.441	1.197	1	5
bribes	How important is giving bribes for getting ahead in life? *	1,040	1.838	1.031	1	5
race	How important is a person's race for getting ahead in life? *	1,040	2.033	1.116	1	5
relig	How important is a person's religion for getting ahead in life?*	1,040	1.887	1.047	1	5
sex	How important is being born a man or a woman for getting ahead in life? *	1,040	1.982	1.082	1	5
redis_p	It is the responsibility of the government to reduce the differences in income between people with high incomes and those with low incomes. *	1,040	3.963	0.902	1	5
redis_m	It is the responsibility of private companies to reduce the differences in pay between their employees with high pay and those with low pay. *	1,040	3.773	0.909	1	5
resp	How much responsibility goes with the job – how important do you think that ought to be in deciding pay? *	1,040	3.984	0.772	1	5
train	The number of years spent in education and training. – how important do you think that ought to be in deciding pay? *	1,040	3.857	0.811	1	5
need	Whether the person has children to support – how important do you think that ought to be in deciding pay? *	1,040	3.534	0.892	1	5
merit	How well he or she does the job – how important do you think that ought to be in deciding pay? *	1,040	3.998	0.743	1	5

Table 2. Selected variables and their descriptive statistics. Note: The original polarity of the variables marked with an asterisk was inverted. Higher values for each variable indicate higher magnitudes (e.g., high perception of inequality) or agreement on the importance of a principle (e.g., high importance of coming from a wealthy family for getting ahead in life).

3.3. Network methods

This paper is structured in two parts. In the first part of the article, we estimate the network of attitudes toward inequality from Chilean ISSP data. Since most of the selected variables are measured with a 1 to 5 scale, we select the Gaussian Graphical Model [GGM] as our network estimation tool (Epskamp *et al.,* 2018). As anticipated, this method translates the selected survey variables into network nodes and estimates their connections from the data. GGMs are a subclass of Pairwise Mar-

kov Random Fields [PMRF] (Lauritzen, 1996). Edges of a PMRF are weighted and undirected. Indeed, the edges of a GGM are interpretable as partial correlations (Epskamp *et al.,* 2018), which are the correlations existing between each pair of network nodes while controlling for each other variables in the model (Epskamp & Fried, 2018). The GGM also applies regularization for edge estimation to reduce the risk of including spurious edges in the model, increasing model parsimony and enhancing the interpretability of the network plot (Borsboom *et al.,* 2021). A common way to apply regularization

for network models is the combination of the graphical LASSO with the Extended Bayesian Information Criteria [EBIC] (Epskamp *et al.,* 2018). The graphical LASSO is an efficient and well-known regularization technique inducing sparsity in the network matrix by suppressing weak edges to exactly zero (Friedman *et al.,* 2008). The graphical LASSO relies on a tuning parameter, which directly regulates the level of edge shrinkage (Epskamp *et al.,* 2018). To find its optimal value, researchers usually rely on the minimization of the EBIC (Chen & Chen, 2008). This strategy has performed well in retrieving the network structure of variables surveyed in moderated-sized samples (Foygel & Drton, 2010).

Network estimation will retrieve the between-person structure of this attitude network in Chile, allowing us to test H1, which will be confirmed if all evaluative reactions form a fully connected network. Importantly, this first part gives us insights into how perceptions, beliefs, and judgments about inequality relate *at the population level*. Within the first part of the research, we are forced to assume that between-items associations are similar across individuals, as cross-sectional data impedes the estimation of a personalized attitude network (Borsboom *et al.,* 2021). This is a stringent assumption we want to relax through the second part of the research design, where we investigate differences between attitude networks of different population segments. More precisely, since social position has been shown to influence attitudes toward inequality (see Theory section), we want to explore the differences in the structures of the attitude networks of people with different education, household income, and objective social class.

The second part of the article investigates structural differences in the attitude networks of different population strata. Hence, we split the original sample according to the median values of three measures of social position. First, we build a sample with low (versus high) education. We set the threshold at eleven years of education, differentiating between incomplete secondary or less (N=373), and complete secondary or more (N=660). We repeat the same process for household income, setting the splitting thresholds at 448,000 CLP per month. We obtained two samples of 334 and

332 individuals. Finally, we compare manual (N=385) and non-manual workers (N=381). After this procedure, we obtained six samples to re-apply the GGM-based network estimation exposed in the previous paragraph. This gives us six different attitude networks, which we will statistically compare to investigate how low and high social groups understand inequality in Chile. To investigate their structural differences, we undertake two routes.

First, we observe variations at the community level, investigating if people from lower social positions have a more multidimensional understanding of attitudes toward inequality (H2). We apply EGA to the six attitude networks to observe these variations, comparing the number of dimensions retrieved in low versus high socioeconomic samples. EGA applies the Walktrap community detection algorithm (Pons & Latapy, 2005) to the GGM network. Finally, exploiting the "fundamental rule of network psychometrics" (Golino & Epskamp, 2017), the number of detected network clusters is equated to the number of dimensions underlying the construct of attitudes toward inequality (Christensen & Golino, 2021; Golino *et al.,* 2020). Simulation studies have shown that EGA performs equal to or better than other factor analytic techniques (Golino *et al.,* 2020).

Second, we study node centrality and network connectivity (H3). We perform a Network Comparison Test (Borkulo *et al.,* 2022) to isolate statistical differences in the Strength centrality values of the same nodes across different attitude networks. This will allow us to observe variations in the importance of single evaluative reactions within the six attitudes networks. The prominence of a node in a network is usually captured through the centrality metric (Borsboom *et al.,* 2021). Research has shown that the most suitable measure for studying attitude networks is Strength centrality (Bringmann *et al.,* 2019; Dablander & Hinne, 2019). Strength is the generalization of Degree centrality for weighted networks and is calculated by summing the absolute value of all edge weights with which a node is involved (Opsahl *et al.,* 2010). Since the edges of an attitude network represent the associations between the selected items, Strength centrality operationalizes the influence that each node is expected to exercise on each other. Then, we compare network connectivity to

AWARI
Vol. 4, 1-21, DOI: 10.47909/awari.42

How do people understand inequality in Chile?
A study through attitude network analysis

observe whether evaluative reactions are associated with the same intensity when stratifying the sample. We calculate the Weighted Average Shortest Path Length [ASPL] of the six attitude networks (Opsahl *et al.,* 2010).

4. RESULTS
4.1. Network of attitudes toward inequality

Figure 1 shows the network of attitudes toward inequality in Chile. Network nodes represent the selected ISSP survey variables. Network edges represent positive (blue) and negative (red) linear relationships estimated from the data. Edge width is indicative of the strength of each association. Nodes are colored according to community membership. Confirming H1, the 22 evaluative reactions form a fully connected network with no isolated nodes. This means that all the perceptions, beliefs, and judgments about magnitudes and principles concerning inequality, redistribution, taxation, and wages are part of a unified belief system in the Chilean population.
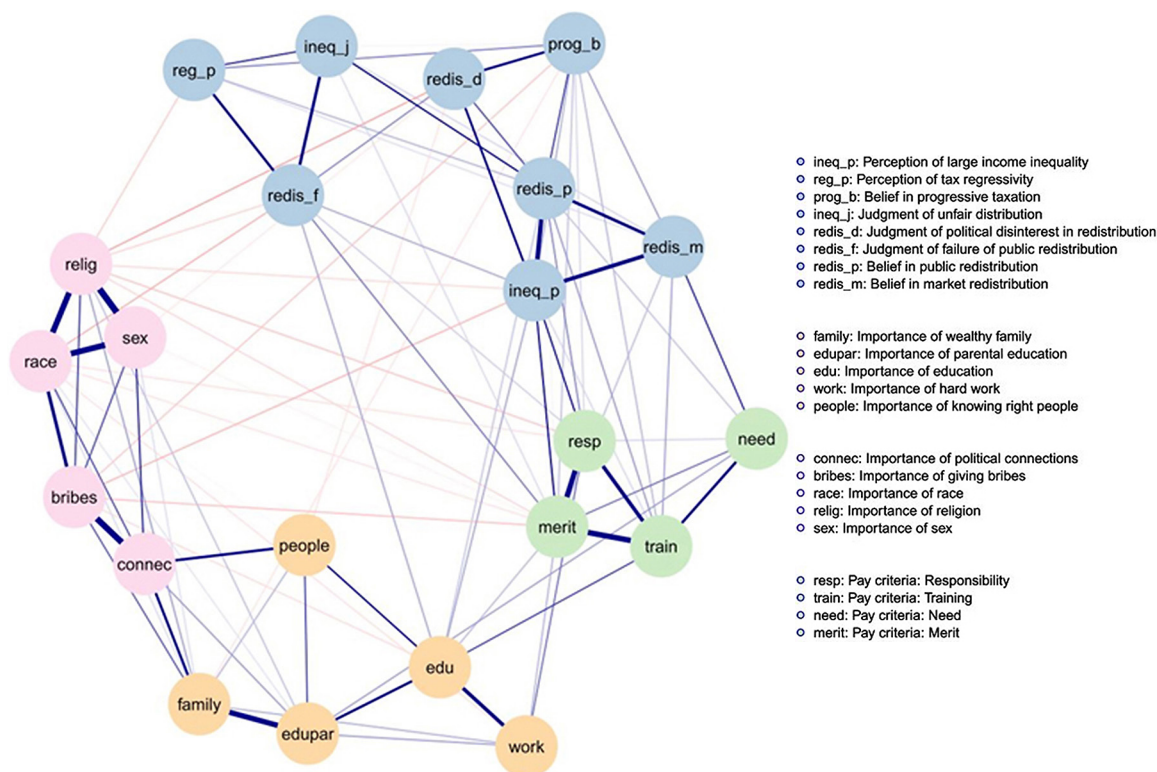

○ ineq_p: Perception of large income inequality
○ reg_p: Perception of tax regressivity
○ prog_b: Belief in progressive taxation
○ ineq_j: Judgment of unfair distribution
○ redis_d: Judgment of political disinterest in redistribution
○ redis_f: Judgment of failure of public redistribution
○ redis_p: Belief in public redistribution
○ redis_m: Belief in market redistribution

○ family: Importance of wealthy family
○ edupar: Importance of parental education
○ edu: Importance of education
○ work: Importance of hard work
○ people: Importance of knowing right people

○ connec: Importance of political connections
○ bribes: Importance of giving bribes
○ race: Importance of race
○ relig: Importance of religion
○ sex: Importance of sex

○ resp: Pay criteria: Responsibility
○ train: Pay criteria: Training
○ need: Pay criteria: Need
○ merit: Pay criteria: Merit

Figure 1. Network of attitudes toward inequality in Chile. Note: Nodes represent the 22 evaluative reactions. An edge is drawn when two variables are correlated after having controlled for the others. The absence of an edge between two variables means they are conditionally independent. Blue (red) edges represent positive (negative) associations; thicker edges represent stronger relationships. The color of the nodes corresponds to the detected communities in the network.

EGA shows that attitudes toward inequality in Chile are grouped into four communities. The first and largest of all, in blue, concentrates all the perceptions, beliefs, and judgments regarding the magnitude of inequality. It gathers the perceptions of large income inequality (*ineq_p*) and tax regressivity (*reg_p),* the belief in progressive taxation (*prog_b),* and the judgments about unfair distribution (*ineq_j),* political disinterest in redistribution (*redis_d),* and failure of public redistribution (*redis_f).* Additionally, this cluster comprises two beliefs on principles concerning public (*redis_p*) and market redistribution (*redis_m).*

The remaining three communities deal exclusively with conceptions regarding principles about inequality. The pink cluster brings together structuralist explanations of inequality. It includes the perceived importance of the role played by people's race *(race),* sex *(sex),* religion

(relig), bribes *(bribes),* and political connections *(connec)* in shaping inequalities. The orange one reunites individualistic explanations associated with individual or family actions: the importance of hard work *(work),* education *(edu),* parental education *(edupar),* coming from a wealthy family *(family),* and knowing the right people *(people).* The last and smallest community, in green, includes the totality of beliefs about the principles that should determine people's wages: responsibility *(resp),* training *(train),* need *(need),* and merit *(merit).*

This community structure reveals that the attitude network has high clustering, meaning that evaluative reactions gather in enclosed communities and interact mainly with neighboring variables. Moreover, this attitude network also has moderate connectivity (Weighted ASPL = 26.903). These features are usually associated with a small-world network. Compared to a random network, small-world structures are characterized by greater or equal connectivity values and higher clustering coefficients (Watts & Strogatz, 1998). We investigate the small-worldness of the attitude network with a formal test that compares its connectivity and clustering with those of a simulated random network of the same size (Humphries & Gurney, 2008). The test reveals a small-world index of 1.254, compatible with a small-world structure.

Most of the relationships between nodes are positive. Although there are negative associations, represented by red links, these tend to be of lower intensity than the positive ones. The associations between the nodes *relig* and *sex* (edge weight = 0.36), *connec* and *bribes* (0.34), *race* and *sex* (0.33) stand out as the strongest edges. All these links correspond to intra-community associations, i.e., occurring between nodes belonging to the same cluster. However, there are weaker associations that have the particularity of bridging different communities together. Among these inter-community links, the associations of *connec* with the nodes *family* (0.16) and *people* (0.16) stand out, connecting the communities of individualistic and structuralist explanations. In addition, the communities gathering conceptions on the magnitude of inequality (blue) and the one featuring principles on pay criteria (green) are linked mainly by the associations *ineq_p-merit* (0.10), *ineq_p-resp* (0.10), and *redis_m-need* (0.08).

Finally, we investigate the relative importance of each node in the network structure. This can be seen more clearly in Figure 2, which reports the Strength centrality for all the nodes in the network. The *nodes race, merit, ineq_p* and *relig* have the highest centrality. In the case of *race* and *relig,* this is explained by their triadic interaction with the node *sex.* The same occurs with *merit,* given the relevant
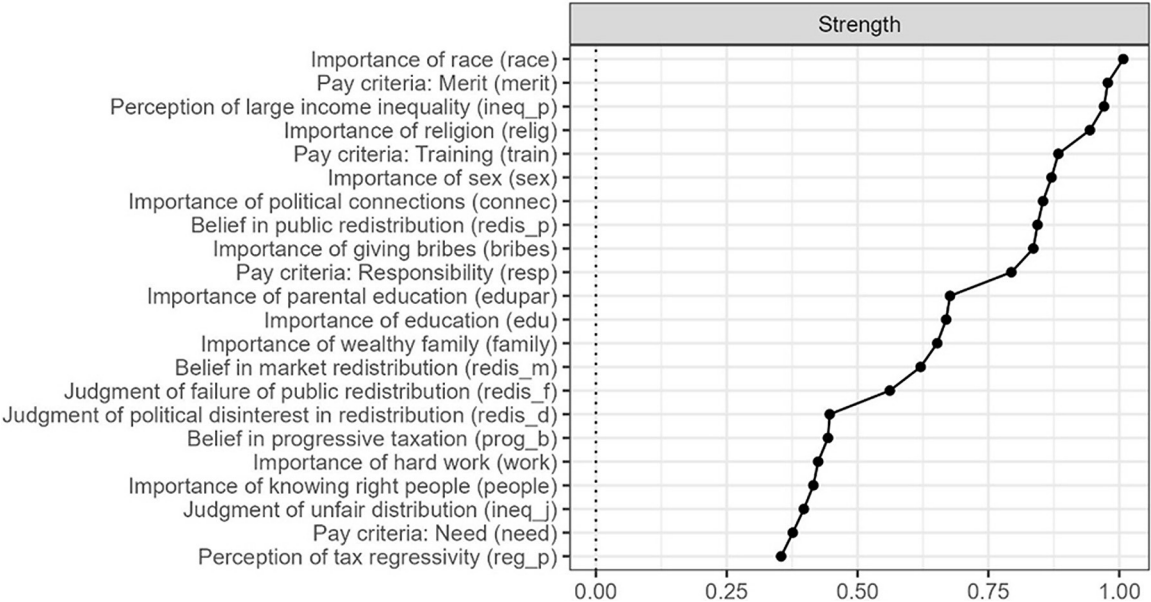

Figure 2. Strength centrality of network nodes.

AWARI
Vol. 4, 1-21, DOI: 10.47909/awari.42

How do people understand inequality in Chile?
A study through attitude network analysis

links between *merit, resp* and *train*. In the case of *ineq_p,* a different phenomenon occurs since its centrality is due to the multiplicity of its associations: of high intensity with nodes of its own community and of medium entity with variables of other communities. On the contrary, *reg_p, need, ineq_j* and *people* are the nodes with the lowest centrality in the network.

4.2. Comparing attitude networks across social positions

Six networks of attitudes toward inequality were estimated on six samples obtained splitting the original one by education, income, and social class. Each pair of attitude network layouts is obtained by averaging those of low and high social position samples.
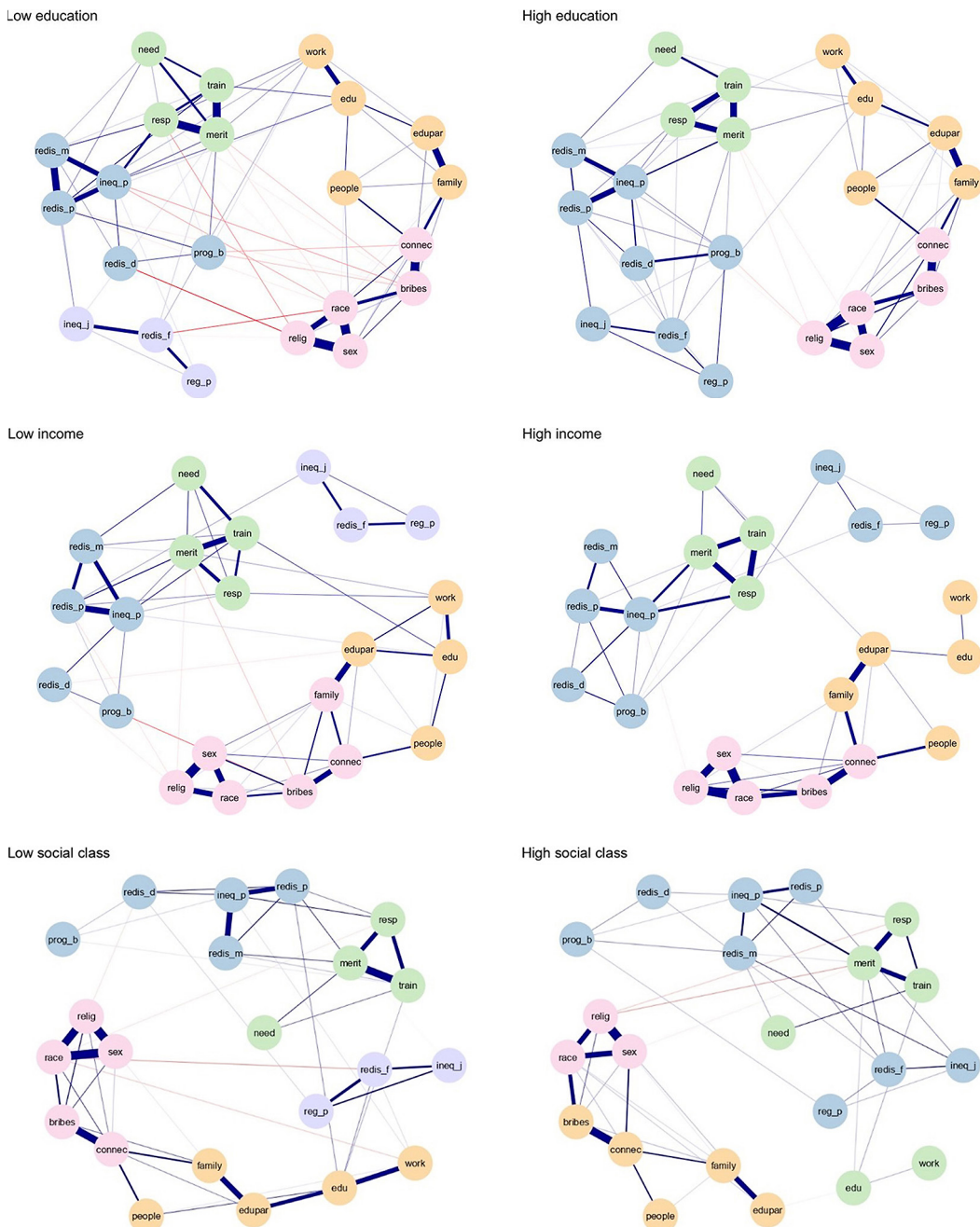

Figure 3. Networks of attitudes toward inequality across social positions.

This section presents results regarding differences between attitudes networks estimated on stratified samples. More specifically, we split the original data along three measures of social position: education, income, and social class. As these variables can influence the levels of attitudes toward inequality, we expect to find structural network differences in terms of their number of communities (H2), and their node centrality and connectivity (H3).

Figure 3 plots the result of six network estimations. All networks are fully connected. This further supports H1, since Chileans organize their attitudes toward inequality regardless of their socioeconomic conditions in a single belief system. The figure highlights an important pattern regarding the dimensionality of the attitudes in question. Indeed, EGA indicates that the attitude networks of people from lower social positions are systematically characterized by a greater number of network communities, thus, a more multidimensional comprehension of inequality. This confirms H2, as the attitude networks of people with low and high education show five and four clusters, respectively (top panel of Figure 3). In the attitude network of the low education sample, the perception of tax regressivity (reg_p) with the judgments of unfair distribution (ineq_j) and failure of public redistribution (redis_f) form a new violet cluster, gathering critical evaluations of the magnitude of Chilean inequalities. In the highly educated sample, these variables are instead part of the blue cluster. This is due to a combination of two factors. First, the partial correlations between these three items are stronger in the lower education sample. Second, in the attitude network of the most educated, these three nodes vigorously interact with the blue cluster, whereas in those of the less educated nodes of these communities weakly interact.

The pattern repeats for the income samples, where we find two attitude networks with five and four clusters. Here the main difference also lies in the membership of the nodes *ineq_j, redis_f,* and *reg_p*. These variables are more strongly correlated in the sample with low household income. Moreover, their judgment about the failure of public redistribution, and their perception of tax regressivity are almost uncorrelated with the other variables in the network. Indeed, the node *ineq_j bridges*

between the violet cluster and the rest of the network. More precisely, the judgment of unfair distribution (*ineq_j*) positively correlates with the belief in public redistribution (*redis_p*) in the low-income sample. The structure of the attitude network of the high-income sample differs in that these three items are only loosely correlated and in that the judgment about the failure of public redistribution (*redis_f*) is positively correlated with the perception of large income inequality (*ineq_p*).

Finally, the attitude network of manual workers displays five clusters, whereas the non-manual sample shows four communities. These are the networks differing the most in their community structure, as the composition of each cluster is different. In the lower-class sample, the blue cluster features five variables since the judgment of unfair distribution (*ineq_j*), those about the failure of public redistribution (*redis_f*), and the perception of tax regressivity (*reg_p*) form a separate cluster, the violet one. This mirrors the community structure of the attitude networks estimated on the low and high-education samples. Indeed, among the people with the lower class, these variables strongly interact. In contrast, their relationships in the other sample are looser, and their connections with the other nodes become stronger. Another difference is the community memberships of the nodes *edu* and *work*. In the high-class sample, these nodes are completely detached from the other explanations of inequality, belonging to the green cluster.

Conversely, these variables are linked to the other inequality beliefs in the lower-class sample. Finally, the pink cluster is smaller in the higher-class sample, as the nodes *bribes* and *connec* gravitate with the yellow one. This reveals that low-class individuals perceive more structural factors governing inequalities.

Node centrality is another aspect in which the six attitude networks can structurally differ. Therefore, we investigate the importance of each network node by comparing its values of Strength centrality scored in the network estimated on low and high social position samples. Figure 4 plots differences in the values of Strength centrality in z-scores to enhance comparability between different networks. The Network Comparison Test detects statistically significant differences by income and social
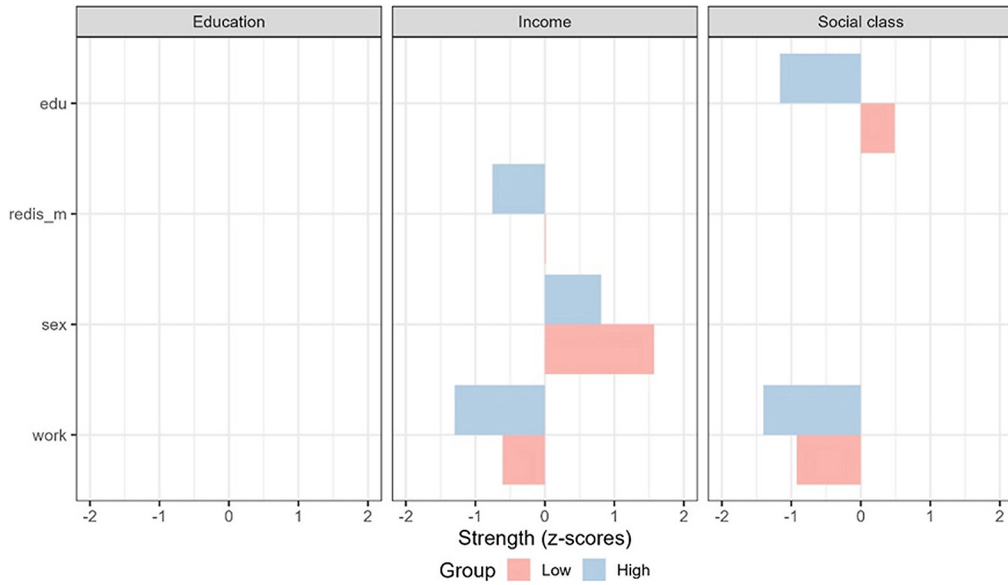
AWARI
Vol. 4, 1-21, DOI: 10.47909/awari.42

How do people understand inequality in Chile?
A study through attitude network analysis

Figure 4. Differences in nodes' Strength centrality.

class. Strength scores are higher in the low-income and low-social class samples. Indeed, the nodes *redis_m, sex,* and *work* have higher centrality values within the attitude network of the poorer. The nodes *edu* and *work* are more central in the attitude network of manual workers. These values are explained by their stronger connections in the attitude networks of individuals from lower social positions.

Moreover, it is essential to highlight that the centrality metric does not describe the endorsement of each item, but only its relative importance within its attitude network. This is clear if comparing these items' mean values and Strength centrality. For example, the mean value of the variable *edu* is equal to 3.803 in the lower social class sample and 3.890 in the higher class one. Although these nodes have comparable mean values, they widely differ in their centrality, as its Strength scores are 0.10 and 0.64 in the high and low samples, respectively.
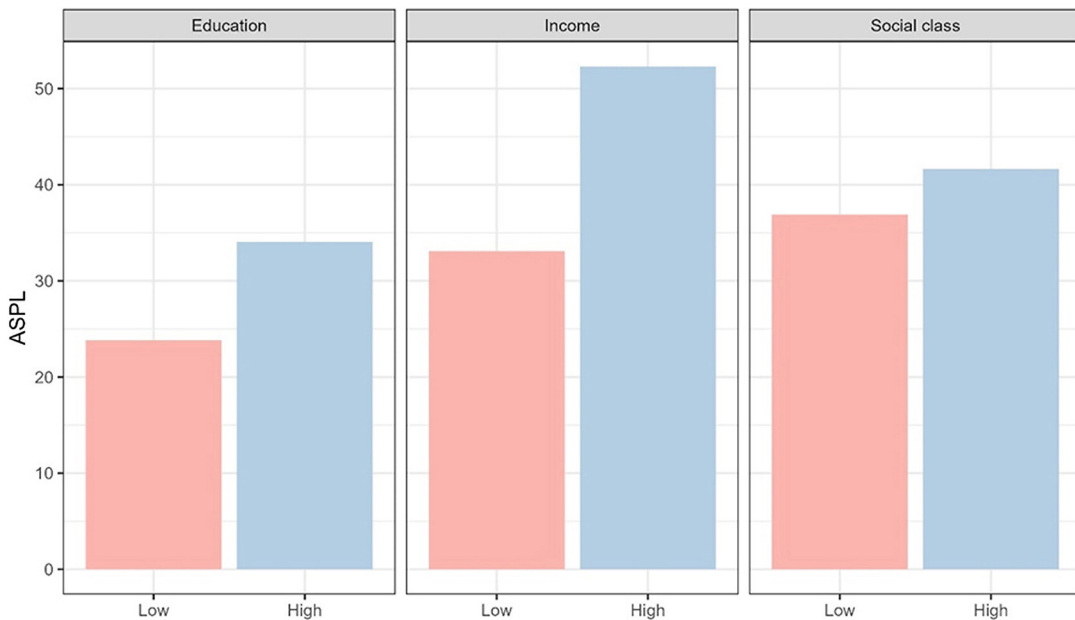

Figure 5. Differences in networks' connectivity.

Finally, we investigate network connectivity. Figure 5 plots the six values of the weighted ASPL. Being a measure of distance, lower values indicate higher connectivity. The attitude networks of lower social position groups systematically show higher connectivity. This difference is particularly striking regarding the stratification by income. These results are also intelligible from a closer inspection of Figure 3. The bottom panel of this figure shows that the attitude network estimated on the lower and higher class samples is not particularly different. Indeed, here, we find a comparable number of nodes bridging between network clusters. An intermediate situation occurs with the networks by education, with moderate differences in intra-community links. The gaps are even stronger for income networks. In the network of the high-income sample the explanations of existing inequality are almost completely detached from the other variables. Here only the connections *need-edupar* and *relig-ineq_p* bridge the four network clusters. These results confirm H3, since we find statistically significant differences in some nodes' Strength centrality while isolating important differences in the ASPLs of the six attitude networks.

5. DISCUSSION

Our paper aimed to describe the structure of the attitudes toward inequality in a highly unequal country such as Chile. We applied a network model to 22 ISSP survey variables to examine people's understanding of inequality. This approach allowed us to examine how perceptions, beliefs, and judgments about the magnitude and principles regarding inequality relate at the population level.

Results confirmed that all items form a fully connected attitude network. This validates what social justice literature has been establishing, where people's understandings of inequality include related topics such as redistribution, taxation, and wages (Choi, 2019; Franko *et al.*, 2013; Osberg & Smeeding, 2006). Hence, it is important to study them as elements of a unified belief system (Converse, 2006). Within this network, peoples' perception of large income inequality, their belief in merit as a fair pay allocation criterion,

and individuals' race and religion as explanations of disparities are central in the network. This means that these elements are pillars of the structure of peoples' understanding of inequality in Chile.

Moreover, the attitude network was organized in four communities. One cluster gathered structuralist explanations of inequality, such as race, religion, and sex. The second one featured individualist explanations according to which unequal outcomes are mostly due to factors influenced by individuals and their families, such as hard work and parental education. Moreover, a third cluster reunited beliefs about justice principles of wage allocations. Finally, we detected a fourth cluster, which grouped all conceptions regarding the magnitude of inequality. This community encompasses perception and judgment of income inequality, evaluations of the taxation system, and attitudes toward redistribution.

The structure, the associations between variables, and the communities detected in the network of attitudes toward inequality confirm and challenge various evidence on social justice research. First, our results support the dominant distinction between individualist and structuralist explanations of inequality (Kluegel & Smith, 1986). In Chile, people tend to differentiate personal-familial dispositions from structural factors such as race, religion, or sex discrimination. Second, we provide support for the idea of "dual consciousness" which has been seen in the international (Hunt, 1996; McCall, 2013; Mijs, 2018; Wegener & Liebig, 1995) and the Chilean context (Puga, 2010), since the majority and strongest relationships between these two clusters are positive. Chileans tend to hold individualistic and structuralist explanations of inequality simultaneously. Third, we show that both perceptions and judgments about income distribution are not strongly related to their inequality explanations. This dissonance with previous evidence showing structuralist explanations associated with a greater evaluation of the distribution as unfair (Schneider & Castillo, 2015), could be related to particularities of Chilean society, differences in the indicators used or a suppression of these associations due to the attitude network approach. Finally, our results confirm the importance of perceived inequality in shaping support for redistribution

AWARI
Vol. 4, 1-21, DOI: 10.47909/awari.42

How do people understand inequality in Chile?
A study through attitude network analysis

(Choi, 2019; Trump, 2023). Indeed, perception of large income inequality and beliefs in public and market redistribution are part of a strong, intra-community, positively associated triad. However, contrary to previous non-network, country-level evidence (Alesina & Angeletos, 2005) we reveal that, in Chile, belief in public redistribution is mainly influenced by assessments regarding magnitude rather than explanations of inequality.

In addition to high clustering, the network of attitudes toward inequality showed moderately high connectivity. In social network analysis, ASPL captures the extent to which network nodes are distant from each other. However, rather than measuring distances, the edges of an attitude network indicate symmetric influence between evaluative reactions. Therefore, the connectivity of an attitude network correlates with the strength of the attitude in question (Dalege *et al.,* 2019). Moreover, a structure combining high clustering and connectivity is usually described as a small-world network (Watts & Strogatz, 1998). Empirically, numerous attitude networks were observed to possess such a structure (Carter *et al.,* 2020; Schlicht-Schmälzle *et al.,* 2018; Turner-Zwinkels & Brandt, 2022), and the Chilean network of attitudes toward inequality follows this trend.

The stratification by socioeconomic conditions allowed us to relax the homogeneity assumption on which we based the first part of the research. Since social position measures such as education, income, and class influence the *levels* of attitudes toward inequality (Bobzien, 2020; Franko *et al.,* 2013; Lindh & McCall, 2020), we stratified the sample into six subgroups to observe variations in the *structure* of their attitude networks. Two patterns emerged comparing understandings of inequality by social position.

First, the attitude networks of lower groups were systematically characterized by a greater number of communities. Given that EGA equates the number of network clusters with the number of dimensions underlying a construct, this finding highlights that Chileans in lower social positions have a more multidimensional understanding of inequality. This pattern is due to an emerging community that groups critical evaluations of the magnitude of

inequalities. In the attitude networks of individuals from low social positions, the judgment of unfair distribution, the perception of tax regressivity, and the judgment of failure of public redistribution showed higher partial correlations with each other and were less related to the other variables of the other clusters. Social justice research has already highlighted the relevance of individuals' social environments in providing distributional information to individuals through personal social networks (Lindh *et al.,* 2021) and socializing institutions (Mijs, 2018), among others. Although the data do not allow us to test or control for these factors, the marked social barriers between high-status individuals and the rest of the population in Chile (Torche, 2005) may explain why lower social status groups have a greater capacity to construct a more multidimensional understanding of inequality. However, considering this is the first application of attitude networks to people's attitudes toward inequality, this is a tentative explanation. Therefore, new research must seek to explain this phenomenon in greater depth in Chile.

Second, we found structural differences regarding nodes' centrality and network connectivity. Indeed, the centrality of a subset of nodes was significantly higher in the networks of people with low income and from low social class. Moreover, we showed that networks of low social positions are more highly connected. These results are consistent with two other contributions adopting the CAN model to study sociopolitical attitudes. Indeed, attitudes toward post-national citizenship (Schlicht-Schmälzle *et al.,* 2018) also structurally differ between different population strata. Unfortunately, these authors only investigated variations in edge weights, thus making the comparison hard with our systematic investigation of differences in node centrality and network connectivity. Moreover, the fact that networks of lower social groups exhibit higher connectivity could indicate that individuals belonging to them may have higher attitude strength, as the ASPL of an attitude network was confirmed to predict attitude intensity and stability (Dalege *et al.,* 2019). This is an important research hypothesis left unanswered by our contribution, which needs to be tested by following studies.

This paper has four main limitations. First, due to data availability, we included items belonging to survey batteries. This entailed the occurrence of an instrument effect since we observed high partial correlations between items measured jointly. However, important associations occurred between items of different survey batteries, and items measured jointly were not always part of the same community. Second, the GGM model required the inclusion of items measured on a similar scale. Therefore, we excluded variables praised by the literature, such as the perception of inequality measured by a salary gap or a diagram-based indicator (Castillo *et al.,* 2022). Third, by splitting the sample according to median values of socioeconomic variables we effectively tested for a stepwise moderation. Thus, we cannot capture all the heterogeneity existing across the social structure. However, dividing the sample in more than two groups at the time would have hindered network estimation, which requires adequate sample sizes to be stable (Epskamp *et al.,* 2018). Finally, in our research design, the three indicators of social position (education, income, and social class) are hierarchically placed at the same level. This can be problematic since social class could be considered an antecedent variable, with education and income as intervening ones. Moreover, our strategy does not consent to study the interactions between these three variables and their joint effect on the structure of attitudes toward inequality. This is an additional field in which future research can improve.

This work provided two main contributions. By selecting a wide-ranging set of indicators, we introduced a holistic approach to studying how people understand inequality. As Janmaat (2013) highlighted, social justice literature was waiting for a systematic investigation of attitudes toward inequality. Moreover, by applying EGA to different socioeconomic groups, we uncovered a pattern in the dimensionality of these attitudes. Specifically, we showed that individuals from lower social positions have a more multidimensional comprehension of inequality in Chile.

Disclosure statement

The authors declare that there is no conflict of interest.

Supplemental material

This article is fully reproducible. The replication code is available at the link: https://github.com/gonzalofranetovic/understanding_inequality_chile_network. ●

REFERENCES

Alesina, A., & Angeletos, G.-M. (2005). Fairness and Redistribution. *American Economic Review, 95*(4), 960-980. https://doi.org/10.1257/0002828054825655

Alesina, A., & Giuliano, P. (2011). Preferences for redistribution. In *Handbook of Social Economics* (Vol. 1, pp. 93-131). Elsevier. https://doi.org/10.1016/b978-0-444-53187-2.00004-8

Alm, J., & Torgler, B. (2006). Culture differences and tax morale in the United States and in Europe. *Journal of Economic Psychology, 27*(2), 224-246. https://doi.org/10.1016/j.joep.2005.09.002

Atria, J. (2022). La sociología económica y fiscal de los impuestos: perspectivas y hallazgos para Chile. *Estudios Públicos, 165,* 7-38. https://doi.org/10.38178/07183089/0003210505

Bargsted, M., Espinoza, V., & Plaza, A. (2020). *Pautas de homofilia en Chile. 105,* 583-612. https://doi.org/10.5565/rev/papers.2617

Barnes, L. (2015). The size and shape of government: preferences over redistributive tax policy. *Socio-Economic Review, 13*(1), 55-78. https://doi.org/10.1093/ser/mwu007

Berens, S. (2015). Preferences on Redistribution in Fragmented Labor Markets in Latin America and the Caribbean. *Journal of Politics in Latin America, 7*(3), 117-156. https://doi.org/10.1177/1866802x1500700304

Bobzien, L. (2020). Polarized perceptions, polarized preferences? Understanding the relationship between inequality and preferences for redistribution. *Journal of European Social Policy, 30*(2), 206-224. https://doi.org/10.1177/0958928719879282

Bobzien, L., & Kalleitner, F. (2020). *Attitudes towards European financial solidarity during the Covid-19 pandemic: evidence from a net-contributor country.* https://doi.org/10.1080/14616696.2020.1836669/suppl_file/reus_a_1836669_sm3224.docx

AWARI
Vol. 4, 1-21, DOI: 10.47909/awari.42

How do people understand inequality in Chile?
A study through attitude network analysis

BORGES, F. A. (2022). It's Not Me, It's You: Self-Interest, Social Affinity, and Support for Redistribution in Latin America. *Latin American Politics and Society, 64*(3), 1-36. https://doi.org/10.1017/lap.2022.10

BORKULO, C. D. VAN, BORK, R. VAN, BOSCHLOO, L., KOSSAKOWSKI, J. J., TIO, P., SCHOEVERS, R. A., BORSBOOM, D., & WALDORP, L. J. (2022). Comparing Network Structures on Three Aspects: A Permutation Test. *Psychological Methods.* https://doi.org/10.1037/met0000476

BORSBOOM, D., DESERNO, M. K., RHEMTULLA, M., EPSKAMP, S., FRIED, E. I., MCNALLY, R. J., ROBINAUGH, D. J., PERUGINI, M., DALEGE, J., COSTANTINI, G., ISVORANU, A.-M., WYSOCKI, A. C., BORKULO, C. D. VAN, BORK, R. VAN, & WALDORP, L. J. (2021). Network analysis of multivariate data in psychological science. *Nature Reviews Methods Primers, 1*(1), 58. https://doi.org/10.1038/s43586-021-00055-w

BRINGMANN, L. F., ELMER, T., EPSKAMP, S., KRAUSE, R. W., SCHOCH, D., WICHERS, M., WIGMAN, J. T. W., & SNIPPE, E. (2019). What Do Centrality Measures Measure in Psychological Networks? *Journal of Abnormal Psychology, 128*(8), 892-903. https://doi.org/10.1037/abn0000446

BUCCA, M. (2016). Merit and blame in unequal societies: Explaining Latin Americans' beliefs about wealth and poverty. 44, 98-112. https://doi.org/10.1016/j.rssm.2016.02.005

CARTER, N. T., LOWERY, M. R., SMITH, R. W., CONLEY, K. M., HARRIS, A. M., LISTYG, B., MAUPIN, C. K., KING, R. T., & CARTER, D. R. (2020). Understanding Job Satisfaction in the Causal Attitude Network (CAN) Model. *Journal of Applied Psychology, 105*(9), 959-993. https://doi.org/10.1037/apl0000469

CASTILLO, J. C. (2009). ¿Cuál es la brecha salarial justa? Opinión pública y legitimación de la desigualdad en Chile. *Estudios Públicos, 113.* https://doi.org/10.38178/cep.vi113.449

CASTILLO, J. C. (2011). Legitimacy of Inequality in a Highly Unequal Context: Evidence from the Chilean Case. *Social Justice Research, 24*(4), 314-340. https://doi.org/10.1007/s11211-011-0144-5

CASTILLO, J. C. (2012). Is Inequality Becoming Just? Changes in Public Opinion about Economic Distribution in Chile. Bulletin of Latin American Research, 31(1), 1-18. https://doi.org/10.1111/j.1470-9856.2011.00605.x

CASTILLO, J. C., GARCÍA-CASTRO, J. D., & VENEGAS, M. (2022). *Perception of economic inequality: concepts, associated factors and prospects of a burgeoning research agenda (Percepción de desigualdad económica: conceptos, factores asociados y proyecciones de una agenda creciente de investigación). 37,* 180-207. https://doi.org/10.1080/02134748.2021.2009275

CASTILLO, J. C., MADERO-CABIB, I., & SALAMOVICH, A. (2013). Clivajes partidarios y cambios en preferencias distributivas en Chile. *Revista de Ciencia Política (Santiago), 33*(2), 469-488. https://doi.org/10.4067/s0718-090x2013000200003

CASTILLO, J. C., & OLIVOS, F. (2014). Redistribución e impuestos: Un análisis desde la opinión pública. In ["Jorge Atria"] (Ed.), *Tributación en Sociedad: Impuestos y Redistribución en el Chile del Siglo XXI.* (pp. 143-166). Uqbar. https://www.researchgate.net/profile/Francisco_Olivos/publication/268810509_Redistribucion_e_impuestos_un_analisis_desde_la_opinion_publica/links/547df1200cf241dc99925f23/Redistribucion-e-impuestos-un-analisis-desde-la-opinion-publica.pdf?origin=-publicati

CASTILLO, J. C., TORRES, A., ATRIA, J., & MALDONADO, L. (2019). Meritocracia y desigualdad económica: Percepciones, preferencias e implicancias. *Revista Internacional de Sociología, 77*(1), 117. https://doi.org/10.3989/ris.2019.77.1.17.114

CHAMBON, M., DALEGE, J., WALDORP, L. J., MAAS, H. L. J. V. DER, BORSBOOM, D., & HARREVELD, F. VAN. (2022). Tailored interventions into broad attitude networks towards the COVID-19 pandemic. *PLOS ONE, 17*(10), e0276439. https://doi.org/10.1371/journal.pone.0276439

CHANCEL, L., PIKETTY, T., SAEZ, E., & ZUCMAN, G. (2022). *World Inequality Report 2022.* Harvard University Press.

CHEN, J., & CHEN, Z. (2008). Extended Bayesian information criteria for model selection with large model spaces. *Biometrika, 95*(3), 759-771. https://doi.org/10.1093/biomet/asn034

CHOI, G. (2019). Revisiting the redistribution hypothesis with perceived inequality and redistributive preferences. *European Journal of Political Economy, 58,* 220-244. https://doi.org/10.1016/j.ejpoleco.2018.12.004

CHRISTENSEN, A. P., & GOLINO, H. (2021). Estimating the Stability of Psychological Dimensions via Bootstrap Exploratory Graph Analysis: A Monte Carlo Simulation and Tutorial. *Psych, 3*(3), 479-500. https://doi.org/10.3390/psych3030032

CONVERSE, P. E. (2006). The nature of belief systems in mass publics (1964). *Critical Review, 18*(1-3), 1-74. https://doi.org/10.1080/08913810608443650

DABLANDER, F., & HINNE, M. (2019). Node centrality measures are a poor substitute for causal inference. *Scientific Reports, 9*(1), 6846. https://doi.org/10.1038/s41598-019-43033-9

DALEGE, J., BORSBOOM, D., HARREVELD, F. VAN, BERG, H. VAN DEN, CONNER, M., & MAAS, H. L. J. VAN DER. (2016). Toward a Formalized Account of Attitudes: The Causal Attitude Network (CAN) Model. *Psychological Review, 123*(1), 2-22. https://doi.org/10.1037/a0039802

DALEGE, J., BORSBOOM, D., HARREVELD, F. VAN, & MAAS, H. L. J. VAN DER. (2017). Network Analysis on Attitudes. *Social Psychological and Personality Science, 8*(5), 528-537. https://doi.org/10.1177/1948550617709827

DALEGE, J., BORSBOOM, D., HARREVELD, F. VAN, & MAAS, H. L. J. VAN DER. (2018). The Attitudinal Entropy (AE) Framework as a General Theory of Individual Attitudes. *Psychological Inquiry, 29*(4), 175-193. https://doi.org/10.1080/1047840x.2018.1537246

DALEGE, J., BORSBOOM, D., HARREVELD, F. VAN, & MAAS, H. L. J. VAN DER. (2019). A Network Perspective on Attitude Strength: Testing the Connectivity Hypothesis. *Social Psychological and Personality Science, 10*(6), 746-756. https://doi.org/10.1177/1948550618781062

DAWTRY, R. J., SUTTON, R. M., & SIBLEY, C. G. (2015). Why Wealthier People Think People Are Wealthier, and Why It Matters. *Psychological Science, 26*(9), 1389-1400. https://doi.org/10.1177/0956797615586560

DEUTSCH, M. (1975). Equity, Equality, and Need: What Determines Which Value Will Be Used as the Basis of Distributive Justice? *Journal of Social Issues, 31*(3), 137-149. https://doi.org/10.1111/j.1540-4560.1975.tb01000.x

DION, M. L., & BIRCHFIELD, V. (2010). *Economic Development, Income Inequality, and Preferences for Redistribution. 54,* 315-334. https://doi.org/10.1111/j.1468-2478.2010.00589.x

DURVASULA, S., ANDREWS, J. C., & NETEMEYER, R. G. (1997). A Cross-Cultural Comparison of Consumer Ethnocentrism in the United States and Russia. *Journal of International Consumer Marketing, 9*(4), 73-93. https://doi.org/10.1300/j046v09n04_05

EDMISTON, D. (2018). The poor "sociological imagination" of the rich: Explaining attitudinal divergence towards welfare, inequality, and redistribution. *Social Policy & Administration, 52*(5), 983-997. https://doi.org/10.1111/spol.12366

EPSKAMP, S., & FRIED, E. I. (2018). A tutorial on regularized partial correlation networks. *Psychological Methods, 23*(4), 617-634. https://doi.org/10.1037/met0000167

EPSKAMP, S., WALDORP, L. J., MÕTTUS, R., & BORSBOOM, D. (2018). The Gaussian Graphical Model in Cross-Sectional and Time-Series Data. *Multivariate Behavioral Research, 53*(4), 453-480. https://doi.org/10.1080/00273171.2018.1454823

ETZIONI, A. (1988). *The moral dimension: Toward a new economics.* Free Press.

EVANS, M. D. R., & KELLEY, J. (2017). Communism, Capitalism, and Images of Class: Effects of Reference Groups, Reality, and Regime in 43 Nations and 110,000 Individuals, 1987-2009. *Cross-Cultural Research, 51*(4), 315-359. https://doi.org/10.1177/1069397116677963

EVANS, M. D. R., KELLEY, J., & KOLOSI, T. (1992). Images of Class: Public Perceptions in Hungary and Australia. *American Sociological Review, 57*(4), 461. https://doi.org/10.2307/2096095

EVANS, M. D. R., KELLEY, J., & PEOPLES, C. D. (2010). Justifications of Inequality: The Normative Basis of Pay Differentials in 31 Nations*. *Social Science Quarterly, 91*(5), 1405-1431. https://doi.org/10.1111/j.1540-6237.2010.00738.x

FATKE, M. (2018). Inequality Perceptions, Preferences Conducive to Redistribution, and the Conditioning Role of Social Position. *Societies, 8*(4), 99. https://doi.org/10.3390/soc8040099

FELDMAN, S., & ZALLER, J. (1992). The Political Culture of Ambivalence: Ideological Responses to the Welfare State. *American Journal of Political Science, 36*(1), 268. https://doi.org/10.2307/2111433

AWARI
Vol. 4, 1-21, DOI: 10.47909/awari.42

How do people understand inequality in Chile?
A study through attitude network analysis

Finseraas, H. (2009). *Income Inequality and Demand for Redistribution: A Multilevel Analysis of European Public Opinion. 32,* 94-119. https://doi.org/10.1111/j.1467-9477.2008.00211.x

Foygel, R., & Drton, M. (2010). Extended Bayesian Information Criteria for Gaussian Graphical Models. *ArXiv.* https://doi.org/10.48550/arxiv.1011.6640

Franetovic, G., & Castillo, J.-C. (2021). Preferences for Income Redistribution in Unequal Contexts: Changes in Latin America Between 2008 and 2018. *Frontiers in Sociology, 7,* 806458. https://doi.org/10.3389/fsoc.2022.806458

Frank, D. H., Wertenbroch, K., & Maddux, W. W. (2015). Performance pay or redistribution? Cultural differences in just-world beliefs and preferences for wage inequality. *Organizational Behavior and Human Decision Processes, 130,* 160-170. https://doi.org/10.1016/j.obhdp.2015.04.001

Franko, W., Tolbert, C. J., & Witko, C. (2013). Inequality, Self-Interest, and Public Support for "Robin Hood" Tax Policies. *Political Research Quarterly, 66*(4), 923-937. https://doi.org/10.1177/1065912913485441

García-Sánchez, E., Osborne, D., Willis, G. B., & Rodríguez-Bailón, R. (2020). Attitudes towards redistribution and the interplay between perceptions and beliefs about inequality. *British Journal of Social Psychology, 59*(1), 111-136. https://doi.org/10.1111/bjso.12326

Garretón, M. A., & Cumsille, G. (2000). Las percepciones de la desigualdad en Chile. *Proposiciones, 34,* 9.

Gijsberts, M. (2002). The Legitimation of Income Inequality in State-socialist and Market Societies. *Acta Sociologica, 45*(4), 269-285. https://doi.org/10.1177/000169930204500402

Golino, H. F., & Epskamp, S. (2017). Exploratory graph analysis: A new approach for estimating the number of dimensions in psychological research. *PLoS ONE, 12*(6), e0174035. https://doi.org/10.1371/journal.pone.0174035

Golino, H., Shi, D., Christensen, A. P., Garrido, L. E., Nieto, M. D., Sadana, R., Thiyagarajan, J. A., & Martinez-Molina, A. (2020). Investigating the performance of exploratory graph analysis and traditional techniques to identify the number of latent factors: A simulation and tutorial. *Psychological Methods, 25*(3), 292-320. https://doi.org/10.1037/met0000255

Hadler, M. (2005). *Why Do People Accept Different Income Ratios? 48,* 131-154. https://doi.org/10.1177/0001699305053768

Hunt, M. O. (1996). The Individual, Society, or Both? A Comparison of Black, Latino, and White Beliefs about the Causes of Poverty. *Social Forces, 75*(1), 293. https://doi.org/10.2307/2580766

ISSP Research Group. (2022). *International Social Survey Programme: Social Inequality V - ISSP 2019.* https://doi.org/10.4232/1.14009

Janmaat, J. G. (2013). Subjective Inequality: a Review of International Comparative Studies on People's Views about Inequality. *European Journal of Sociology, 54*(3), 357-389. https://doi.org/10.1017/s0003975613000209

Kim, H., & Lee, Y. (2018). Socioeconomic status, perceived inequality of opportunity, and attitudes toward redistribution. *The Social Science Journal, 55*(3), 300-312. https://doi.org/10.1016/j.soscij.2018.01.008

Kluegel, J. R., & Smith, E. R. (1981). Beliefs about Stratification. *Annual Review of Sociology, 7*(1), 29-56. https://doi.org/10.1146/annurev.so.07.080181.000333

Kluegel, J. R., & Smith, E. R. (1986). *Beliefs about inequality: Americans' views of what is and what ought to be.* Routledge.

Korpi, W. (1989). Power, Politics, and State Autonomy in the Development of Social Citizenship: Social Rights During Sickness in Eighteen OECD Countries Since 1930. *American Sociological Review, 54*(3), 309. https://doi.org/10.2307/2095608

Lindh, A., Andersson, A. B., & Volker, B. (2021). The Missing Link: Network Influences on Class Divides in Political Attitudes. *European Sociological Review, 37*(5), 695-712. https://doi.org/10.1093/esr/jcab010

Lindh, A., & McCall, L. (2020). Class Position and Political Opinion in Rich Democracies. Annual Review of Sociology, 46(1), 419-441. https://doi.org/10.1146/annurev-soc-121919-054609

Mac-Clure, O., Barozet, E., Ayala, C., & Moya, C. (2019). El Juicio Subjetivo sobre las Desigualdades Sociales: ¿Qué Principios de Justicia se Aplican?*. Dados, 62*(3), e20170247. https://doi.org/10.1590/001152582019185

Martínez Franzoni, J. (2008). *Welfare Regimes in Latin America: Capturing Constellations of Markets, Families, and Policies. 50,* 67-100. https://doi.org/10.1111/j.1548-2456.2008.00013.x

McCall, L. (2013). *The Undeserving Rich: American Beliefs about Inequality, Opportunity, and Redistribution.* 300. https://doi.org/10.1017/cbo9781139225687

Meltzer, A. H., & Richard, S. F. (1981). A Rational Theory of the Size of Government. *Journal of Political Economy, 89*(5), 914-927. https://doi.org/10.1086/261013

Méndez, C. D. G. (2016). Cultura democrática y percepciones de la desigualdad: México y Chile en perspectiva comparada. *Revista Mexicana de Ciencias Políticas y Sociales, 61*(227), 295-324. https://doi.org/10.1016/s0185-1918(16)30030-7

Mijs, J. J. B. (2018). Inequality Is a Problem of Inference: How People Solve the Social Puzzle of Unequal Outcomes. *Societies, 8*(3), 64. https://doi.org/10.3390/soc8030064

Mijs, J. J. B. (2019). The paradox of inequality: income inequality and belief in meritocracy go hand in hand. *Socio-Economic Review, 19*(1), 7-35. https://doi.org/10.1093/ser/mwy051

Moya, C., Adriaans, J., & Sauer, C. (2023). Unjust Income Inequality Prevails Across 29 Countries. *Socius: Sociological Research for a Dynamic World, 9,* 237802312311715. https://doi.org/10.1177/23780231231171581

Opsahl, T., Agneessens, F., & Skvoretz, J. (2010). Node centrality in weighted networks: Generalizing degree and shortest paths. *Social Networks, 32*(3), 245-251. https://doi.org/10.1016/j.socnet.2010.03.006

Osberg, L., & Smeeding, T. (2006). "Fair" Inequality? Attitudes toward Pay Differentials: The United States in Comparative Perspective. *American Sociological Review, 71*(3), 450-473. https://doi.org/10.1177/000312240607100305

Pons, P., & Latapy, M. (2005). Computer and Information Sciences - ISCIS 2005, 20th International Symposium, Istanbul, Turkey, October 26-28, 2005. Proceedings. *Lecture Notes in Computer Science,* 284-293. https://doi.org/10.1007/11569596_31

Puga, I. (2010). Lo Justo y lo Posible: Desigualdad, Legitimidad e Ideología en Chile. In *Desigualdad, legitimación y conflicto. Dimen-*siones políticas y culturales de la desigualdad en América Latina (pp. 139-160). UAH. http://docshare01.docshare.tips/files/24285/242854039.pdf

Rehm, P., Hacker, J. S., & Schlesinger, M. (2012). *Insecure Alliances: Risk, Inequality, and Support for the Welfare State. 106,* 386-406. https://doi.org/10.1017/s0003055412000147

Schlicht-Schmälzle, R., Chykina, V., & Schmälzle, R. (2018). An attitude network analysis of post-national citizenship identities. *PLoS ONE, 13*(12), e0208241. https://doi.org/10.1371/journal.pone.0208241

Schmidt-Catran, A. W. (2016). Economic inequality and public demand for redistribution: combining cross-sectional and longitudinal evidence. *Socio-Economic Review, 14*(1), 119-140. https://doi.org/10.1093/ser/mwu030

Schneider, S. M., & Castillo, J. C. (2015). Poverty Attributions and the Perceived Justice of Income Inequality. *Social Psychology Quarterly, 78*(3), 263-282. https://doi.org/10.1177/0190272515589298

Steenkamp, J. E. M., & Baumgartner, H. (1998). Assessing Measurement Invariance in Cross-National Consumer Research. *Journal of Consumer Research, 25*(1), 78-107. https://doi.org/10.1086/209528

Szirmai, A. (1986). *Inequality Observed: A Study of Attitudes Towards Income Inequality.* (Vol. 18). Febodruk. https://doi.org/10.2307/2073280

Torche, F. (2005). Unequal But Fluid: Social Mobility in Chile in Comparative Perspective. *American Sociological Review, 70*(3), 422-450. https://doi.org/10.1177/000312240507000304

Trump, K. (2023). Income inequality is unrelated to perceived inequality and support for redistribution. *Social Science Quarterly.* https://doi.org/10.1111/ssqu.13269

Turner-Zwinkels, F. M., & Brandt, M. J. (2022). Belief system networks can be used to predict where to expect dynamic constraint. *Journal of Experimental Social Psychology, 100,* 104279. https://doi.org/10.1016/j.jesp.2021.104279

UNDP. (2023). *Trapped: High Inequality and Low Growth in Latin America and the Caribbean.* 96-135. https://doi.org/10.18356/9789210057844c005

Watts, D. J., & Strogatz, S. H. (1998). Collective dynamics of 'small-world' networks.

AWARI
Vol. 4, 1-21, DOI: 10.47909/awari.42

How do people understand inequality in Chile?
A study through attitude network analysis

Nature, 393(6684), 440-442. https://doi.org/10.1038/30918

WEGENER, B. (1999). Belohnungs-und prinzipiengerechtigkeit. Die zwei Welten der empirischen Gerechtigkeitsforschung. *Politische Gerechtigkeit,* 167-214.

WEGENER, B., & LIEBIG, S. (1995). Dominant Ideologies and the Variation of Distributive Justice Norms: A Comparison of East and West Germany, and the United States. In *Social Justice and Political Change* (pp. 240-259). DE GRUYTER. https://doi.org/10.1515/9783110868944.239

ZWICKER, M. V., NOHLEN, H. U., DALEGE, J., GRUTER, G.-J. M., & HARREVELD, F. VAN. (2020). Applying an attitude network approach to consumer behaviour towards plastic. *Journal of Environmental Psychology, 69,* 101433. https://doi.org/10.1016/j.jenvp.2020.101433.