

AN EXPLORATORY ANALYSIS OF BRAZIL IN A COMPARATIVE EMPLOYMENT RELATIONS FRAMEWORK

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ABSTRACT:

The present study is an exploratory analysis using clustering algorithms to create a typology that classifies different countries within different industrial relations paradigms. Variables related to work, employment and labor from the ILO (International Labor Organization), World Bank (WB) and UNDP (United Nations Development Programme) databases are used in a cross-national study to situate Brazil in the current institutional human resource management and comparative/international industrial relations research fields. It is a way of exploring the field with very current data, and it aims to open the field for additional theoretical-methodological inquiries with future research questions at all levels of analysis from the micro(individual) to the macro(state).

KEYWORDS: Industrial relations, cluster analysis, international HRM, employment relations, comparative employment relations

1.0 Introduction

The research field known as industrial relations (IR) is an academic tradition widely known specially in the English language, and some scholars argue that the field came into being in the same historical context as economics, sociology and psychology (Townsend & Wilkinson, 2013). This means that intellectuals have been tackling questions in the field of IR for more than a century and this alone is a good reason to (re)consider what knowledge the field can bring to contemporary society and to disciplines such as human resource management (HRM).

There are always debates on how ample the definition of the IR field should be and it is important to note that the terms employment relations, labor relations and industrial relations are used interchangeably in this paper. These expressions are often used in academia in the U.S. and the United Kingdom where the first IR-centered academic programs emerged (Kaufman, 1993). The field of IR has a research tradition and is a construct very present in the scientific literature; however, there is the

discussion about the restricted versus the broad sense of IR. Before World War II, according to Kaufman (2014), the definition was broader and at the center was the relationship between employee and employer (*the employment relationship*). The IR field appeared as an alternative to the classical / neoclassical model of economics that theorized labor as a commodity and included studies on collective bargaining, trade unionism, human resources, and labor law. After the war, the field began to follow a narrower definition with a heavier focus on trade unionism and collective forms of workforce governance.

Many researchers prefer to adopt the expression employment relations because by eliminating the term ‘industrial’ the image associated with worker-machine-industry is diluted opening up a wider intellectual range; that is, the construct goes beyond traditional industry and collective actors such as unions that are usually associated with IR in its post-war development. Therefore, in this study we take on a wide view of the field, more in tandem with its origins, where industrial relations means not only the classic collective bargaining and union issues, but also envelops a variety of macro-sociological problems under this guise of ‘employment relations’ (Edwards, 1999; Kochan, 2006).

In this paper we are looking at two of the main schools of thought in the field that originated in the United Kingdom (UK) and in the United States of America (US) (Kaufman, 1993; Carvalho Neto, 2001). More specifically, we examine the frames of reference model created by Alan Fox (1974) and later reiterated by contemporary scholars such as Budd and Bhawe (2008) and Kaufman (2017). This provides us with a solid theoretical framework to try to classify different approaches to employment relations and make cross-national comparisons.

After taking a closer look at these theoretical models we will then investigate a series of variables related to work, employment and labor using the ILO (International Labor Organization), World Bank (WB) and UNDP (United Nations Development Programme) databases for various countries. We select variables that reflect aspects of the relationship between employer and worker considering *the employment relationship* as the main object under scrutiny. In these terms, the study intends to be of an exploratory nature and shed light on international HRM and IR with special attention to the institutional approaches to these fields.

In essence, this is an exploratory analysis using clustering algorithms to create a typology that situates different countries within different industrial relations paradigms. It is a method of exploring the field with very current data, and it can open the field for additional theoretical-methodological inquiries with future research questions at all levels of analysis from the micro(individual) to the macro(state). The first challenge is to see whether the data analyzed will reflect the theoretical models. Lastly, we are interested in how Brazil fits in this picture and how the country stands in contrast to

other nations in terms of employment relations. As such, this study is a great starting point to look at employment relations with a comparative and international lens.

2.0 Theoretical Background

A widely discussed model for research in IR is the conceptual framework of Alan Fox (1974), which was part of the Oxford School of IR. His work *Beyond Contract: Work, Power, and Trust Relations* has become a milestone in the field. Fox introduces three frames of reference for the IR field: the unitarist, pluralist, and radical views.

2.1 Unitarism

The unitarist view is based on the assumption that the interests of the worker and the employer are in harmony. This means that employers and workers have a common interest in the survival of the firm. In this view, conflict is an aberration and actors are naturally cooperative. Managers usually solve conflicts by eliminating their sources. This could be, for example, by dispensing or repressing individuals who cause disturbances in the natural order of the organization or by developing fair and equitable processes in regards to hiring or promotions (Abbott, 2006). Scientific management, the School of Human Relations and Human Resource Management (HRM) are all partisans of unitarism and some of the pioneers include Frederick Taylor, Hugo Munsterberg, Elton Mayo, and Kurt Lewin. The unitarist view is oftenly related to countries with a more neoliberal regime and a voluntarist employment relations system (Kaufman, 2017).

It is important to highlight here a historical perspective of human resources (HR or HRM) because it is perhaps the most contemporary area relevant to employment relations that identifies with unitarism. According to Kaufman (2017), HR addresses labor relations issues at the micro level of analysis and excludes the economic or macroeconomic policy dimension. The emphasis of HR is mainly on the harmonious team, management systems, cooperation, alignment of interests, bilateral communication and participatory management (Kaufman, 2017).

In the early twentieth century, interest in the scientific study of human capital was in vogue and was mirrored, for example, in Taylor's work and scientific management. At the end of the First World War, HR practitioners were divided into two camps: managerialists and reformists. The reformists adopted liberal values and supported progressive ideas of capitalist reforms where the HR role was to mediate between employer and employee interests and thus drank from the theoretical-methodological fountain of IR institutionalists to regulate labor relations and collective bargaining. They were part of a larger group of progressives from various disciplines who were convinced that modern industries

needed change, such as a department that promoted employee well-being. Managerialists, on the other hand, embraced the idea of scientific expertise and objectivity as central features of the profession. Thus, they assumed the existence of a harmony between the employee and the employer. Their purpose was to discover the source of the problem in firms and eradicate this evil to bring harmony back to the environment. They used scientific techniques to adjust workers borrowing from sources of social or industrial psychology, among other disciplines (Cornforth & Brown, 2007).

Over time, this division between reformers and managerialists solidified the difference between the psychological and political / economic approach of IR. Managers considered this micro-approach to be more objective, and industrial psychology became popular during the first major war and was seen as the solution to the labor-problem. The movement went beyond reform and further into a new science that concerned itself primarily with the psychological at the micro level of IR and evolved in the opposite direction of the macro that included political, economic as well as social and psychological issues. In the 1930s and 1940s this approach was dominant, and the field of management pushed reformist scholars into IR. In other words, the institutionalists and the HR researchers had a common pragmatic interest in solving the labor problem, but as a result the discord grew especially related to collective bargaining and unionism and the separation between the fields strengthened. On one hand, the HR types focused on the human element of the problem and the other on the IR types focused on the collective element of the problem (Cornforth & Brown, 2007).

2.2 Pluralism

The pluralist view is appropriated from social/political theory to oppose the unitarist view, which was drawn from absolutism or the idea of a unitary sovereign (Provis, 1996). Pluralists see the employee and employer as two distinct entities with different or plural values and goals. For example, the employer may want more flexibility and dedication from the employee who, on the other hand, wants a cleaner work environment or a higher salary. There is never perfect harmony in the employee-employer relationship, unlike unitarism, the view of the two parties never converges fully in a way that the two mold into a single stakeholder. Pluralism involves multiple stakeholders, each with conflicting interests, sometimes cooperating in teams, sometimes taking advantage of the situation for their own benefit (Kaufman, 2017). From this point of view, authority within the organization has diverse sources that are always in conflict. However, conflict is seen as necessary and healthy for the organization because it ends up bringing problems to the forefront, such as employee frustration; thus, management tends to explore innovative methods for finding solutions (Abbott, 2006). Variables such

as collective bargaining and trade union density can be associated with pluralist ideals, which are common in nations with a collectivist versus an individualist ethos (Townsend, & Wilkinson, 2013).

The field of IR traditionally identifies with this pluralistic worldview and considers groups with distinct interests, systems of governance and institutional power that generate balance and collective representations. Some pioneers of this view were Luxo Brentano, Sidney and Beatrice Webb, John Commons, W.L.M. King, Max Weber, and John Dunlop. In contrast to the Unitarian view, pluralism considers macro-level factors such as economic policy; however, the labor relations system is seen as a multilevel system of governance where employees are valued not only for the labor contribution and for the profit they add to the equation but also as a citizen and a human being with inalienable rights (Kaufman, 2017). One of the core values of pluralists is the rejection of the notion of labor as commodity, in contrast to concepts of neoclassical economics that presume the human as commodity (Budd & Bhave, 2008).

The pluralist view has become the mainstream view of IR and is linked to the idea of an employment relations system (ERS). The ERS is a theoretical construct that demonstrates the external and internal factors that shape the characteristics of labor relations in organizations at various levels (eg, national, regional or firm level). John Dunlop (1958) was the creator of the concept of industrial relations systems (ERS) and in his work defines the system as a set of relations between three actors: employers (and their representatives) workers (and their representatives) and the state (and their representatives). These relationships, according to Dunlop are interdependent and each actor can affect the elements and outcomes of the system as a whole. In addition to these main actors, four structural components make up the ERS: budget, technology, power relations, ideology. (Townsend, K., & Wilkinson, A., 2013). The ERS concept was influenced by Parsons' functionalism with a macro-sociological approach. The system is configurational; that is, there is an interdependence between the elements of the system (Chidi & Okpala, 2012). For example, a new technology can affect the productivity and demand of the type of employee being hired.

2.3 Radicalism

The third worldview elaborated by Fox (1974) is the radical or critical perspective, and is inspired by Marxist ideas. The radical perspective starts from the assumption that conflict is a consequence of capitalism and this is reflected in the work environment. The radical view then assumes that there is conflict in the relationships, but the conflict happens at the superstructural level. In contrast to the pluralistic view, that seeks order and equilibrium in the system, radicalism seeks to understand how conflict started in the environment (Abbott, 2006). The radical view recognizes that the interests of the

employee and employer are distinct and that, as in pluralism, conflict exists, but on the other hand, it considers that labor relations in a capitalist society and its institutions of work cannot strike a balance. Correcting this imbalance requires broader social and economic reform (Cradden, 2011). Radicalism in IR is a critique of the economic system, the lack of social efficiency, and the inequalities of capitalism with an emphasis on employee exploitation and not its reformation as the pluralists proposed. The root of this view comes from Marx and Engels with followers in the twentieth century including Michel Aglietta, Harry Braverman, Pierre Naville, Hyman and E.P. Thompson (Kaufman, 2017). The literature, as was the case of Fox later in his career, points to an approximation of the pluralist and radical views into a radical-pluralist view (Ackers, 2014).

Hyman, in the classic *Industrial Relations: A Marxist Introduction* (1975/1990), argues that the pluralist view defines labor relations only in terms of rules and institutions and that this implies that relations are all about stability and regulation; that is, the conflict is not accounted for in the analysis and the emphasis is on controlling the conflict versus understanding it as a process or how it formed. Hyman proposes a definition in the radical perspective that considers IR a study of the processes of control in labor relations (Chidi & Okpala, 2012). In this case, it is important to note that the most important of these processes are those involving organization and collective action (Hyman, 1975, p.12;

Hyman rejects the pluralistic view. He replaces the classical / neoclassical notion of equilibrium by dialectic. He proposes an alternative to Dunlop's pluralism (1958) and argues that the priority of pluralism is the stability of an institutional order for unions to be incorporated into the system as influential actors and for disputes and conflicts to be settled in peaceful ways. In the pluralistic system, the economic needs of workers and employees must be balanced. With institutionalization the equilibrium is established and generates less conflicts and readjustments.

The essence of the employee-employer relationship in capitalism, in the Marxist view, is domination, control, and exploitation of labor to generate and accumulate capital. Hyman defines IR as the process of controlling labor relations. He argues that employers are always trying to tighten control over work to get greater worker-effort so that the value of the product is more than the value of labor. (Hyman, 1975/1990).

3.0 Methods and Techniques

Multivariate statistics can be used to provide information, in an organized and more precise way, that help us better understand contemporary employment relations at the international level. This information can help managers and governments, for example, while planning activities or making

decisions related to policies. Multivariate statistical analyses are performed when the relationship between multiple variables is being investigated as opposed to a single variable or only two variables in the case of univariate or bivariate analyses (Alencar et al., 2013). According to Hair et al. (2009), multivariate analysis is a set of techniques in constant expansion especially due to the developments in computing, and include techniques such as Principal Component Analysis (PCA), Structural Equation Modeling (SEM), Multiple Regression (MRA) to name a few.

One can consider that the human being has been defining and describing space by observing similarities for a long time; however, this concept evolved as methodology in 1960 when algorithms and computers were used to facilitate the classification coining the term numerical taxonomy. This concept can be defined as forming groups or clusters by studying the characteristics of the data and their similarities by using numerical processes usually based on a Similarity Matrix. This matrix is reduced as similar groups are constructed. Some of the advantages of this process are that it allows the researcher to integrate data from a variety of sources, by automating the classification process it can increase efficiency of the data analyses, it also allows an easier integration to other data processing systems since the data is numeric and hence graphs, maps and other useful documents can be easily generated, and the process of organizing the numbers in many ways forces the researchers to use better described data which eventually leads to less errors (Alencar et al., 2013).

In the first steps the objectives are defined and the variables are introduced. In our case the objective is to create a classification of countries based on the similarities found in attributes related to work, employment and labor. This study analyzes 15 countries and 11 variables as described in Table 1.

The variables are quantitative/continuous and are dimensionless/standardized. The next steps involve making a few key decisions for the analysis. This involves choosing the partitioning technique that will be used, for example. If the objectives do not entail the creation of a specific number of groups (which is our case) most of the times the Hierarchical Technique is suggested. Once this decision regarding the partition is made, the distance measurement is defined which means that either a Coefficient of Similarity or a Coefficient of Dissimilarity is chosen. After this step, different algorithms are then applied to create preliminary groups and this is repeated until the researcher finds it adequate. It is important that elements pertaining to the same group show similar behavior. Graphics such as dendograms or scatter plots can help illustrate these spatial relations.

The criteria to measure the distance from one object to the other, or to quantify the similarity between these objects are a fundamental concept when performing a Cluster Analysis. As posited by Sneath & Sokal (1973), to create a cluster is to establish a minimum distance or high correlation within

a standard. To construct a cluster from a set of elements it is necessary to utilize a criterion of proximity or a type of measurement that enables a comparison between components in the group. This shows us, for instance, if A is more similar to B as opposed to C. Therefore, it is necessary to define what is referred to as the coefficient of similarity/dissimilarity to quantify the distance between the objects being analyzed. This coefficient is like a correlation coefficient. When it comes to similarity, the larger the coefficient the closer the proximity or more similar the objects are, and the opposite relation is true for the coefficient of dissimilarity; that is, the larger the coefficient of dissimilarity the further away or less similar are the objects.

The Euclidean Distance is the most widely used Coefficient of Dissimilarity and is used to show the distance between objects. It is the geometric distance between two points in space and can be mathematically expressed as:

$$d_{(A)(B)} = \sqrt{\sum_{i=1}^p (x_{i(A)} - x_{i(B)})^2}$$

Where:

$d_{(A)(B)}$, is the Euclidean distance and
 $x_{i(A)}$ and $x_{i(B)}$ are the points considered

This formula facilitates a simple way of calculating the distance between objects and it is not affected when other objects are inserted in the dataset used in the analysis. It is important, nevertheless, to make sure the data is standardized and errors due to scale are avoided. Other measurement options are available but in this study the decision was to perform the analysis with the most popular technique due to the exploratory nature of the research.

There are three main clustering techniques as summarized by Alencar et al., which comprise of:

- **Hierarchical Techniques:** If we permit clusters to have subclusters, then we obtain a hierarchical clustering, which is a set of nested clusters that are organized as a tree. Each node (cluster) in the tree (except for the leaf nodes) is the union of its children (subclusters), and the root of the tree is the cluster containing all the objects.

- **Partitional Techniques:** A partitional clustering is simply a division of the set of data objects into non-overlapping subsets (clusters) such that each data object is in exactly one subset.
- **Overlapping Techniques:** There are many situations in which a point could reasonably be placed in more than one cluster, and these situations are better addressed by non-exclusive clustering. In the most general sense, an overlapping or non-exclusive clustering is used to reflect the fact that an object can simultaneously belong to a group or class.

Our current study focuses on the Hierarchical Technique and what follows is a brief description of our findings.

4.0 Findings

With the advent of big data and the availability of large datasets from organizations such as the World Bank, ILO, UNDP the use of multivariate techniques becomes imminent to start exploring data related to work, labor, and employment across nations. We collected data from the databases of these three organizations to perform a multivariate analysis and created a classification of 15 countries in terms of data related to employment relations for the year 2014. The variables and countries are listed in Table 1.

Table 1. List of Variables and Countries

Variables	Countries
1. Unemployment, total (% of total labor force) (national estimate)	1. Australia
2. GNI per capita, PPP GNI per capita, PPP (current international \$)	2. Austria
3. Labor force, female (% of total labor force)	3. Brazil
4. Government expenditure on education, total (% of GDP)	4. Canada
5. Public health expenditure as a percent of General Government Expenditure	5. Chile
6. Mean weekly hours actually worked per employed person	6. Croatia
7. Trade union density rate	7. Denmark
8. Life expectancy at birth	8. France
9. Expected years of schooling	9. Italy
10. HDI (human development index)	10. Japan
11. Collective bargaining rate	11. South Korea
	12. South Africa
	13. Sweden
	14. United Kingdom
	15. United States

Elaborated by the authors.

The countries and variables were chosen based on the readiness of the data and were in line with discussions present in the comparative IR literature. Variables such as trade union density and collective bargaining rate are traditional IR variables as indicated on the ILO site. These indicators are important elements when considering social dialogues that promote better wages and social justice at the workplace (ILO, 2018) These can be important elements to observe when considering how decent work can be in each country. A high trade union density, for example, could indicate a bias towards the worker side of the relationship. It is important to note that trade union data in this database excludes union members that are not in paid employment (e.g., self-employed, unemployed, etc.); that is, not in the formal employment relationship. The collective bargaining rate is the number of employees covered by a collective agreement divided by the total number of wage and salary-earners (OECD, 2018). Collective agreements can mean that pay and working conditions of workers are defined by one or more collective agreements, for example. Thus, the rate indicates the extent to which the terms of employment are influenced by collective negotiation (ILO, 2018b).

In our case, the variables are the attributes and the objects/individuals are countries. Clustering is an analytical technique to create significant groups these individuals or objects. In other words, a sample is classified in mutually exclusive groups based on the similarities of attributes. To classify is to organize data by creating groups that have similar characteristics. It is used in many academic fields, and by dividing data in classes or groups a specific phenomenon can be better understood and its interpretations and representations can be facilitated. (Alencar et al., 2013).

Values for each of the 11 variables and each of the 15 countries were organized in a spreadsheet using Excel and then imported into the statistics software MiniTab18. A Cluster Analysis was performed by the software using hierarchical and partitioning techniques (Alencar et al., 2013). The following dendrogram presents the spatial relations that were found between the 15 countries and the 11 variables grouped based on similarities. The following clusters were created:

- Group 1: Australia, Canada, United Kingdom, United States;
- Group 2: Austria, France, Croatia, Italy;
- Group 3: Chile, Korea, Japan;
- Group 4: Denmark, Sweden;
- Group 5: Brazil, South Africa;

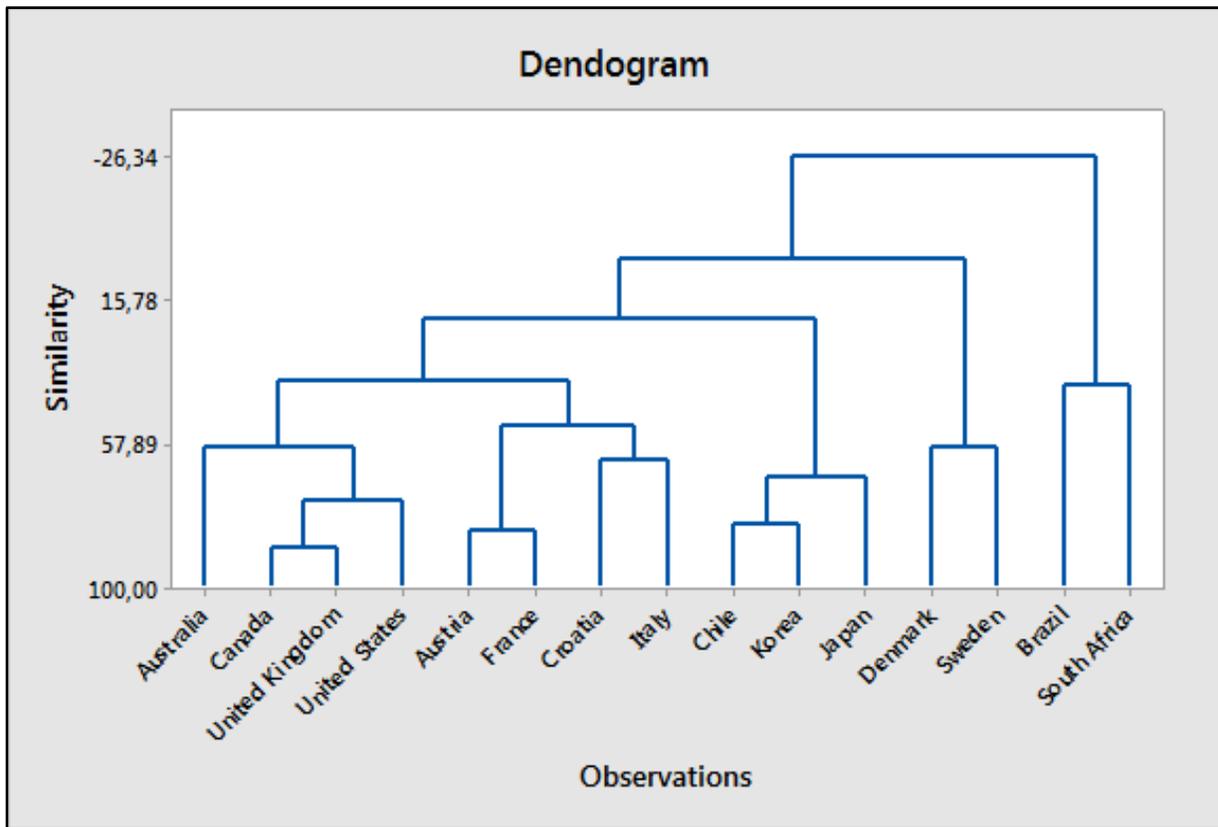


Figure 1. Elaborated by the authors.

We can relate these clusters with the frames of reference model. On one end we can consider Australia, Canada, United Kingdom and the United States countries that have voluntarist systems of employment relations and this is more in line with the unitarist worldview (Budd & Bhav, 2008). It can be observed through the dendrogram (Figure 1) that they express more similarities in relation to the variables used. On the other extreme we have Denmark and Sweden followed by Brazil and South Africa, which are considered to have employment relation systems that are more regulated and closer to radical-pluralistic worldviews. The countries in between can be said to represent a spectrum going from more voluntarist to more regulatory or more unitarist to more radical-pluralist (from left to right on the x axis). The closer to Group 1 the more unitarist, and the closer to Group 5 the closer to the radicalist-pluralist paradigm.

What becomes evident is that the cluster analysis method can be useful in an exploratory study of the employment relationship at the international level. The idea is that this study can be replicated with a greater amount of variables and a greater amount of countries to reinforce the paradigms and theoretical perspectives of the field. In future studies, these cluster analyses can be reinforced with other statistical techniques such PCA (Principal Component Analysis) to obtain further knowledge of the correlations between different variables that characterize the employment relationship. Are

societies converging or diverging in these aspects? Can we look at variations in different time periods? Are the insights from industrial relations or institutional HR important to inform policies if not only political debate? This type of theoretical scaffolding can be a strategy to use insights of the IR field by also applying them to other disciplines. The ultimate goal is to use these multivariate techniques to further explore the relations between labor, employment and work between countries and especially to situate Brazil in the discussion.

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