Effectiveness of Gender Equality Policies in G20 Parliaments: A Fuzzy Logic Analysis

R. Arzu Kalemci¹, Ela Ozkan-Canbolat¹ and İpek Kalemci-Tuzun²
¹Department of Management, Faculty of Economics and Administrative Sciences, Çankaya University, Ankara, Türkiye,
²Department of Tourism Management, Faculty of Commercial Science, Başkent University, Ankara, Türkiye
arzukalemci@cankaya.edu.tr
elaozkan@karatekin.edu.tr
tuzun@baskent.edu.tr

Abstract: The institutional theory draws attention to the possibility of decoupling. Decoupling refers to complying with external pressures, organizations can maintain their internal practices without changing them. There is a relative increase in the number of women in parliament in almost all G20 countries on an annual basis. However even though the ratio of women’s seats in the national parliament has increased relatively in some countries, our knowledge is limited whether gender equality policies are effectively implemented. Based on the observation about the relative increase in the women seats in the G20 national parliaments, the current study examines whether there is decoupling. The study adopts the quantitative data collection method and analyses the fuzzy logic method. The findings of the study reveal that decoupling may exist in G20 countries even where the human development index is high.

Keywords: Institutional Theory, Decoupling, Gender Equality, Sustainable Development Goals, Fuzzy Logic.

1. Introduction

Gender equality has taken its place as the fifth of the seventeen Sustainable Development Goals (SDGs). Several indicators show the gender equality performance of countries. One of these is "women-held seats in the national parliament" (Sachs et al, 2019). There has been a steady increase in the proportion of women's seats in the national parliament, on an annual basis, in almost all G20 countries (UNDP, 2021) since the SDGs were adopted in 2015. Among the countries with the highest increase are France, Mexico, and the European Union Commission countries Austria, Romania, and Latvia. At this point, two types of assessment can be made. The first is that countries are relatively committed to the goal of gender equality and implementing gender equality policies. On the other hand, another evaluation can be made from the institutional perspective. According to institutional theory, organizations provide their legitimacy by adopting institutionalized structures and practices. The specified institutionalized structures and practices spread among organizations and make organizations isomorphic (DiMaggio and Powell, 1983). Thus, the relative increase in the number of women in parliament in G20 countries also supports the institutional theory’s claim of convergence regarding isomorphism. On the other hand, institutional theory draws attention to the possibility of decoupling. Decoupling refers that organizations can maintain their internal practices without changing them while adopting certain policies to comply with external pressures (Meyer and Rowan, 1977; Scott, 2001).

The current study aims to examine whether there is decoupling based on the observation of the relative increase in the women seats in the G20 national parliaments, which is one of the gender equality performance indicators of the SDGs. It is thought that examining the G20 countries is important in terms of understanding the developments in the world. G20 countries represent about 50 percent of the total performance gap for the SDGs. G20 countries have different contextual (cultural, social, economic) factors that may influence on the diffusion of international practices. Thus, in the current study, it is estimated that the human development index (HDI) of countries will play a role in the emergence of decoupling by bringing together social, cultural, and economic contexts. In this direction, the quantitative data collection method was adopted and analyzed with the fuzzy logic method in the study. Quantitative data is secondary type data, and the data source is an open data platform shared with the public by the Inter-Parliamentary Union (IPU) and the United Nations Development Program Human Development. The current study was executed as a project under the name of “Analysing Decoupling within the Scope of the Representation of Women in G20 Parliaments within the Framework of the Gender Equality Sustainable Development Goal” and supported by The Scientific and Technological Research Council of Turkey (TUBITAK) with a 221K111 project number code. One of the most important contributions of this study is to reveal how effectively gender equality is achieved. Another important contribution of this research is theoretical. Especially since there is almost no scientific interest at the field level.
in the subject of decoupling, which is relatively difficult to research methodologically, it is thought that examining the dimensions of decoupling will question the theory and thus shed light on future studies (Boxenbaum and Jonsson, 2017; Jabbouri et al, 2019).

2. Institutional Theory and Decoupling

Studies examining organizations with institutional theory draw attention to the social, cultural, and historical aspects of organizations. According to institutional theory, organizations provide legitimacy by adopting institutionalized structure practices formed through social construction (Berger and Luckman, 1967), and this legitimacy facilitates their survival (March and Olsen, 1984; Meyer and Scott, 1983). On the other hand, institutional theory draws attention to the fact that organizations separate their formal structures from their technical activities when their technical efficiency is threatened. This situation is referred to as decoupling in the institutional theory literature (Meyer and Rowan, 1977). In studies examining decoupling, two types of decoupling have been mentioned (Bromley and Powell, 2012; Wijen, 2014). The first of these is the policy-practice decoupling. The policy-practice decoupling refers to the ceremonial adaptation without fully implementing any policy that is based on what Meyer and Rowan (1977) stated. For example, institutions may introduce green policies to appear environmentally friendly to their external stakeholders but may not reflect these policies in their business processes and routines (Jabbouri et al, 2019; Wijen, 2014). On the other hand, another type of decoupling is called means-ends decoupling. Accordingly, institutions adopt and implement policies or practices, but may not achieve the desired results. Organizations may adopt green policies and they may reflect these policies in all their work routines, but still may not get the desired results. From this point of view, it is thought that the possibility that SDGs create convergence pressure on countries in terms of legitimacy and that this convergence is not reflected in internal processes should be evaluated. Most of the G20 countries have different contextual (cultural, social, economic) factors. In addition, some institutional theory-based studies suggest that decoupling is an act of interpretation shaped by contextual and institutionalized factors (Boxenbaum and Jonsson, 2017).

3. Methodology

The main discussion of the current study is based on the decoupling claim of the institutional theory. In the relevant literature, it has been stated that contextual factors can cause decoupling (Czarniawska and Joerges, 1996; Sahlin-Andersson, 1996). Contextual factors are often addressed as social, cultural, and economic. Most of the G20 countries have different contextual (cultural, social, economic) factors. It is thought that the Human Development Index (HDI) of countries will play a role in the emergence of decoupling by bringing together social, cultural, and economic contexts under one roof. For this reason, in the study, the effects of the dimensions of the human development index (a composite index measuring average achievement in three basic dimensions of human development—a long and healthy life, knowledge, and a decent standard of living) are examined while analysing the main factors that may affect the decoupling. Since the human development levels of countries are determined based on some indexes, a fuzzy set, which is formed by focusing on the details of the expressions they correspond to in daily life, has been determined as an alternative method. The main reason for choosing the fuzzy logic method used as an alternative to analysis with linear models in this project is to eliminate the problems encountered in linear modelling in social sciences. This method makes use of logical possibilities in solving difficult and complex questions and is considered an effective method for choosing the closest to the truth.

In the research, the interrelatedness interaction between the human development levels of the countries and their adoption of gender equality policies (not decoupling/decoupling) was examined. At this point, it has been thought that the HDI of countries may affect not decoupling or decoupling of gender equality policies. This research, as an alternative to analysing linear models, designs new and different rating combinations by going beyond the uncertainty in the process of constructing data sets and making inferences from inter-object relations using the fuzzy logic method. The HDI simplifies and reveals only some of the requirements of human development. Inequalities, poverty, human security, empowerment, etc. do not reflect such matters. The human development reporting office offers a broader perspective by covering some key issues such as human development, inequality, inequality between men and women, and poverty. In this context, a more comprehensive picture of a country’s level of human development will be evaluated by relating it to the decoupling that arises in the compliance of nations with gender equality policies.
3.1 Outcome and Condition Variables

In the open data platform shared with the public by IPU, questions regarding the existence and effectiveness of permanent women's committees/commissions/groups of national parliaments under the title of equality between men and women are the dependent (outcome) variable of this research, in other words, the decoupling/not decoupling variables. On the open data platform shared with the public by IPU, a 2021 data set was created for 43 countries for all the information regarding the existence and effectiveness of permanent women’s committees/commissions/groups of national parliaments under the title of equality between men and women. However, due to the need for “continuous variables” (fsQCA), some of these factors were excluded from the analysis. Thus, the 5 main dimensions as output variables are as follows:

* Number of gender equality commissions in parliaments,
* Number of committee chair; men or women,
* Number of members of gender equality commissions in parliaments (main party and opposition),
* Functionality of gender equality commissions in parliaments (the cumulative value of the sub-dimensions was taken).
* Commission’s relations with cooperation and coordination (the cumulative value of the sub-dimensions was taken; National Human Rights Institutions and National Institution(s) for the promotion of equality between men and women and Academic institutions, including human rights and gender equality research institutes).

HDI (cumulative sum of sub-dimensions) constitutes a cause/condition (independent) variable. HDI was first developed by Pakistani economist Mahbub ul Haq in 1990, the index has been included in the annual Development Report by the United Nations Development Program since 1993 (for details on how the HDI is calculated, see http://hdr.undp.org/sites/default/). Human Development Index (HDI); a composite index measuring average achievement in three basic dimensions of human development—a long and healthy life, knowledge, and a decent standard of living.

3.2 Data Analysis: Calibration Method of Variables

HDI configurations of nations; long and healthy life, knowledge-science, and good standard of living; are cause/conditions. The HDI is also considered a stand-alone configuration condition. Decoupling and not decoupling in nations’ gender equality policies were defined as separate outcome variables. The data on the existence and effectiveness of permanent women's committees/commissions/groups in the evaluations of countries in the context of gender equality formed the outcome variable. After obtaining data for conditions and outcomes, it was calibrated for use in fsQCA. The calibration part is the qualitative method part of the fsQCA. In this part, researchers determine the cross-over threshold value and minimum and maximum values for conditions and results. These values are left to the initiative and priorities of the researchers, considering the theoretical background of the research and the sample in which the research was conducted (Fiss, 2007; Schneider and Wagemann, 2010, 2012).

While analysing the variables in the study, secondary data of the G20 countries’ HDI and their sub-dimensions were examined. The smallest value from the data of the G20 countries is determined as the minimum value of the calibration process and the largest value was selected as the maximum value. While choosing the cross-threshold value, the median values were chosen considering that the different socio-economic values of 43 countries in total are represented by the variables. The median refers to the value that divides the series into two when we sort the population or sample data series from smallest to largest. If the data set is not symmetrical and shows skewness, the median is considered a more appropriate threshold value than the arithmetic mean.

The sample of the study consists of G20 countries and covers 43 countries as of 2021. HDI and sub-dimension values of these 43 countries and policy values of gender equality processes and practices include unexpected small or large values, and outliers, as they cover developed, developing, and medium-developed countries. In this context, the median values were chosen to evaluate these outliers within the appropriate sets while calibrating and determining the median value-threshold value. When calibrating variables, three important qualitative anchors were identified. In HDI data, the point at which full membership is reached (i.e. country with definitely high HDI), membership score is 1 and it is the maximum value. The point at which full membership is not reached; is non-membership (i.e. definitely not HDI high country), The membership score is 0, it is the minimum value. The maximum point of uncertainty (membership score 0.5, cross-threshold) is reached as to whether a country is "more" or "more" than the cluster of high HDI countries (Table 1).
Table 1: Calibration of condition and outcome variables (2021)

<table>
<thead>
<tr>
<th>Condition Variables</th>
<th>Maksimum</th>
<th>Cross-threshold</th>
<th>Minimum</th>
</tr>
</thead>
<tbody>
<tr>
<td>HDI</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of gender equality commissions in parliaments</td>
<td>4</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Number of committee chairs, women or men</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of members of gender equality commissions in parliaments (main party and opposition)</td>
<td>202</td>
<td>21</td>
<td>0</td>
</tr>
<tr>
<td>Functionality of gender equality commissions in parliaments</td>
<td>11</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>Commission's relations with cooperation and coordination</td>
<td>20</td>
<td>3</td>
<td>0</td>
</tr>
</tbody>
</table>

3.3 Truth Table Analysis

The basis of fsQCA (Fuzzy-set Comparative Qualitative Analysis) is Truth Table Analysis. This analysis contains sufficient causal combinations for the result. Truth table analysis lists all possible combinations of conditions (Schneider and Wagemann, 2010). This case has been evaluated in 2 parts. In the first part, the HDI is accepted as a stand-alone condition and since there is 1 configuration, all possible combinations are 2¹, i.e. 2. In the second part, the HDI three dimensions are accepted as conditions and since there are 3 configurations, all possible combinations are 2³, i.e. 8. The researchers set the consistency threshold as 0.75, which is expressed by the threshold as a value expected to produce robust results and took care to include at least one state with a strong membership. The analysis only reports resolutions for more than zero cases. (Fiss, 2011; Rihoux and Ragin, 2009; Schneider and Wagemann, 2012).

3.4 fsQCA-Fuzzy set Comparative Qualitative Analysis Solution Proposals

While the fsQCA application calculates complex solutions and parsimonious solutions regardless of the simplification of assumptions, the intermediate solution depends on the simplification of assumptions’ properties. Therefore, the viability of the midway solution depends on the quality of the counterfactual materials used in the minimization process. Considering the simplification/simplification of the assumptions, the intermediate solution is recommended as the main reference point for interpreting fsQCA results (Ragin, 2008). In this study, there are intermediate solution suggestions.

When more than one condition or combination of conditions is sufficient for an outcome to occur (i.e., equifinality), consideration of the extent of alternative causal combinations provides evidence for their relative empirical importance. Also, the raw coverage assessments of each combination complement each other with the unique coverage assessments, since in an analysis based on a theoretical set (solution terms) it is possible to divide the scope in similar ways (Ragin, 2008). To evaluate the empirical significance suggested by Ragin (2006), raw coverage and unique coverage values and solution coverage/total coverage and solution consistency/total consistency for all solution paths were checked. For solution proposals, the solution consistency value indicates the number of situations that can be exhibited by the condition/s and the result and is expected to be greater than 0.75 (Ragin, 2008). Ragin (2008) and Fiss (2011) draw attention to the fact that the consistency value should be perceived conceptually, not mathematically, and researchers should not focus on low consistency values. It is the result of solution/total coverage, which expresses how many cases the outcome variable explains. This result explains that the causal pathway covers most of the results. A low unique coverage value (closer to 0 and generally <0.02) is not accepted in analyses (Ragin, 2006; Schneider and Wagemann, 2010). Schneider and Wagemann (2010) state that raw coverage determines the extent of overlap between causal/conditional sets of conditions and outcome sets. Unique coverage shows checking for overlapping descriptions by partitioning the raw coverage.

3.5 Solution Suggestion for Situations Where There is no Result Variable (negation/~)

Unlike most statistical procedures, fsQCA interrelates conditions and outcomes through set theoretical relations that are asymmetric. Asymmetric causality (Lieberson, 1985) is evaluating the potential of QCA for social science research. According to Ragin (2006), although the interaction between variables is assumed the absence of...
results (negation) is not usually a part of the assumptions to be determined but these analyses should be done. In the study, while the compliance of nations with gender equality policies is evaluated within the scope of human development, fsQCA presented an alternative method for situations where the absence of outcome variable (negation/~). One of the main aims of this study is “to reveal whether there is decoupling in the gender equality policies adopted by the G20 countries and to reveal the contextual factors affecting this decoupling” and this method is explained more effectively than the results of linear analysis. In this section, the interaction of the human development index and its sub-dimensions in cases where the policy of gender equality cannot be achieved and has no effect (negation) is expressed. In other words, within the scope of human development, the situation of not decoupling (negation-absence of outcome phenomena) and decoupling that emerged in the gender equality policy of the countries were both examined.

In summary, within the scope of this study, secondary data from 43 countries obtained from the Inter-Parliamentary Union (IPU, 2021) and the United Nations Development Program Human Development Reports (UNDP, 2021) platform constituted the sample of the research. In the title of gender equality, data from 43 countries regarding the existence and effectiveness of permanent women’s committees/commissions/groups of national parliaments were examined and 5 main dimensions were determined as output variables. The Human Development Index (HDI) (cumulative sum of sub-dimensions) and its 3 sub-dimensions constitute the cause/condition (independent) variables of a long and healthy life, knowledge, and a good standard of living. The effect of HDI on not decoupling and decoupling in determining the gender equality for 5 output variables determined as output variables. In summary, decoupling and likeness (not decoupling-likeness) in this context, a total of 10 analyses (as decoupling and the absence of decoupling-likeness), were conducted in the context of understanding the HDI effect for each output variable.

4. Results

A total of 7 assumptions for 2021 were analysed with fsQCA (Fuzzy Logic Comparative Analysis). In the analysis, the HDI effect was examined for both decoupling and not decoupling in the adoption of women’s policies. For each assumption, 1 analysis was made and countries with relevant characteristics were determined. Assumptions are as follows:

A1: Number of gender equality commissions in parliaments interrelated with G20’s HDI. (policy 1)
A2: Committee chairwoman numbers interrelated with G20’s HDI. (policy 2)
A3: Members of gender equality commissions in parliaments (main party and opposition) interrelated with G20’s HDI. (policy 3)
A4: Functionality of gender equality commissions in parliaments interrelated with G20’s HDI. (policy 4)
A5: Functionality of the gender equality commission’s relations with cooperation and coordination interrelated with G20’s HDI. (policy 5)

<table>
<thead>
<tr>
<th>Intermediate solutions</th>
<th>Raw coverage</th>
<th>Unique coverage</th>
<th>Consistency</th>
</tr>
</thead>
<tbody>
<tr>
<td>f_gender equality policy 1= f (HDI)</td>
<td>0.67</td>
<td>0.67</td>
<td>0.66</td>
</tr>
<tr>
<td>intermediate solutions: 0.67; solution consistency: 0.66</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f_gender equality policy 2= f (HDI)</td>
<td>0.74</td>
<td>0.74</td>
<td>0.75</td>
</tr>
<tr>
<td>intermediate solutions: 0.74; solution consistency: 0.75</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f_gender equality policy 3= f (HDI)</td>
<td>0.74</td>
<td>0.74</td>
<td>0.55</td>
</tr>
<tr>
<td>intermediate solutions: 0.74; solution consistency: 0.55</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f_gender equality policy 4= f (HDI)</td>
<td>0.75</td>
<td>0.75</td>
<td>0.76</td>
</tr>
<tr>
<td>intermediate solutions: 0.75; solution consistency: 0.76</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f_gender equality policy 5= f (HDI)</td>
<td>0.72</td>
<td>0.72</td>
<td>0.60</td>
</tr>
<tr>
<td>intermediate solutions: 0.72; solution consistency: 0.60</td>
<td></td>
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</tbody>
</table>

Figure 1: Solutions and pathways for the outcome conditions.
Figure 1 shows the determined results of G20 countries' gender policies and their interrelatedness with HDI. Considering several gender equality commissions in parliaments, no significant results were found. When the committee chairwoman’s numbers were analysed, it was found that the decoupling policies increased in countries with high HDI. These countries were found as follows, Australia, China, Denmark, Ireland, Sweden, Germany, Finland, Netherlands, Canada, Belgium, Luxembourg, United Kingdom, South Korea, Japan, USA, Malta, Slovenia, Austria, Spain, and France. When members of gender equality commissions in parliaments (main party and opposition) are evaluated, the decoupling is found to be significant in 2021 for countries with high HDI. These countries were found as follows, Ireland, Germany, Sweden, Australia, Denmark, Finland, United Kingdom, Belgium, Canada, USA, Austria, Japan, Slovenia, South Korea, Luxembourg, Spain, and France. When the functionality of gender equality commissions in parliaments is evaluated, not decoupling is found to be significant in 2021 for countries with high HDI. These countries are Australia, China, Denmark, Ireland, Sweden, Germany, Finland, Netherlands, Canada, Belgium, Luxembourg, United Kingdom, South Korea, Japan, USA, Malta, Slovenia, Austria, Spain, and France. In the cooperation and coordination of the commission in the parliament, it was found that there is a decoupling in the high HDI of the countries. These countries are Ireland, Germany, Sweden, Australia, Netherlands, Denmark, Finland, United Kingdom, Belgium, Canada, USA, Japan, Slovenia, South Korea, Luxembourg, Spain, France, and Malta. As a result, it was found that out of 5 different gender equality factors, G20 countries chose decoupling policies in 3 factors, and as the HDI increased, these countries' adoption of these policies became more common.

**5. In Conclusion**

The current study makes a significant contribution by evaluating the effectiveness of internal processes and providing a proactive approach to the effective realization of SDG 5, even if there is an increase in the number of women seats in G20's parliaments. There have been studies on decoupling in the organizational literature (e.g., Edelman et al, 1992; Brunsson and Olsen, 1993), but questions such as what the factors affecting decoupling are, when they occur, and what happens as a result of decoupling remain mostly unanswered (Boxenbaum and Jonsson, 2017). Decoupling has been studied at the empirical and theoretical level in the relevant literature (e.g., Granqvist et al, 2013; Gondo and Amis, 2013), but the number of studies that emphasize the institutional consequences of decoupling is quite low (Boxenbaum and Jonsson, 2017). This research opens an important area of discussion in the relevant literature by showing that, contrary to expectations, decoupling exists in contexts where HDI is high. In other words, it points to the invisible part of the iceberg. On the other hand, the relevant literature states that decoupling occurs more in loosely coupled organizational fields (Boxenbaum and Jonsson, 2017; Greenwood and Hinings, 1996). The general characteristics of these loosely coupled organizational fields include uncertainty, conflicting expectations, high costs of compliance, and weak monitoring mechanisms. When it comes to gender equality in the political field, we may conclude that the current study is congruent in this respect. On the other hand, the current study contributes to the decoupling study by showing even the countries that have high HDI may also have decoupling in the implementation of their gender equality policies. This may be the complacency of being well or having inadequate control monitoring mechanisms. In future studies, the source of the decoupling can be investigated by examining the control mechanisms related to decoupling especially in contexts where HDI is high. The main limitation of the study is that data for some countries are missing. When country data are updated, the study can be re-examined with current data.

**References**


