

**Comparing Methods for Studying Women in Politics:
Statistical, Case Study, and Qualitative-Comparative Techniques**

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Abstract:

Although research in political science gravitates towards one of two poles, large-*n* statistical analyses or small-*n* case studies, recent work in comparative methods has developed new techniques for studying medium-*n* populations. Using the example of women in politics research, this paper explores how choices to utilize particular methods may influence the conclusions drawn by various studies of the same phenomenon. It begins by noting that, in recent years, statistical and case study research has increasingly reached conflicting findings in terms of the factors explaining cross-national variations in the percentage of women elected to national parliaments. To reconcile these conclusions, the paper undertakes a medium-*n* analysis using qualitative comparative techniques and finds that this method offers much greater leverage in clarifying patterns around the globe.

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Research in political science tends to gravitate towards one of two poles: large-*n* statistical analyses or small-*n* case studies. This distribution reflects a traditional divide in the social sciences between quantitative and qualitative methods. Although both of these approaches encompass a range of different techniques, quantitative investigations incorporate many cases, analyze relations between variables, infer causality from statistical significance, and generally undertake ‘thin’ analyses of individual cases. Qualitative methods, in contrast, typically focus on a few cases, view variables in the context of the whole, detect causality through process-tracing, and engage in ‘thick’ description (Brady and Collier 2004; Mahoney and Goertz 2006). With the help of these standard tools, research on women in politics has largely converged on explanations for cross-national variations in the percentage of women elected to national parliaments, employing both quantitative (Caul 1999; Matland 1998; Reynolds 1999) and qualitative (Lovenduski and Norris 1993; Nelson and Chowdhury 1994) lenses. Nonetheless, over the last several years, this implicit consensus has been increasingly challenged by new case evidence, stemming from dramatic shifts in patterns of female representation around the globe. More specifically, in 1987, the nine countries in the world with the highest proportions of women came from two recognizable groups, the Nordic region and the Communist Bloc (United Nations Office at Vienna 1992, 12). By 2007, however, this group had grown much more diverse to include one African country, four Nordic countries, two continental European countries, one Latin American country, and one Communist country (Inter-Parliamentary Union 2007). Case experts have responded to these developments by observing more and more ‘exceptions’ to the conventional wisdom (Bruhn 2003; Russell et al 2002). In contrast, few statistical researchers have tested the factors that might explain these rapid – and varied – shifts in women’s access to political office.

These growing contradictions between quantitative and qualitative findings – and, more generally, between research and the ‘real world’ – suggest a need to rethink how conditions may

combine to produce differing levels of female political representation. Interestingly, a closer look at the existing literature reveals some intuitions as to how to devise an alternative approach. Despite their universalizing claims, for example, many large-*n* studies do not in fact analyze global trends (but see Matland 1998; Paxton 1997). Rather, most scholars generalize on the basis of region-specific samples (Caul 1999; Escobar-Lemmon and Taylor-Robinson 2006; Rosenbluth et al 2006; Yoon 2004). Along similar lines, most small-*n* studies offer detailed insights into individual cases. However, they almost always situate their findings in relation to other analyses conducted on similar and distinct regions of the world (Bruhn 2003; Dahlerup and Freidenvall 2005). While rarely theorized as such, these tendencies point to the potential of medium-*n* solutions for identifying conditions that might lead to higher and lower levels of female representation. In particular, they suggest that different factors may be relevant in explaining variations in distinct groups of cases. Consequently, research on this topic is likely to benefit from more explicit attempts to investigate trends across specific populations, defined – according to carefully delineated criteria – as cases that can justifiably be compared.

Recent work in comparative methods has developed new techniques for analyzing medium-*n* populations (Cronqvist and Berg-Schlosser 2005; Ragin 2000). Known broadly as qualitative comparative analysis (QCA), this approach seeks to bridge quantitative and qualitative methods by formalizing comparisons in a way that incorporates information from a larger sample but still retains the integrity of individual cases. In addition to acknowledging equifinality, or the notion that there may be multiple causal paths to the same outcome, these techniques focus centrally on the task of mapping causal configurations, arguing that the effects of individual conditions may depend on the presence or absence of other conditions. According to this approach, the same factor may produce distinct results across cases, due to the various ways in which it might combine with other conditions. At the same time, different factors may lead to similar outcomes, if particular

combinations of conditions turn out to be causally equivalent at some more abstract level (Ragin 2000). Combined, these innovations provide one possible means for sorting through apparent contradictions between large-*n* and small-*n* research findings to achieve a middle ground between covering laws and idiographic descriptions. Accepting the validity of this method, however, hinges upon a willingness to move beyond assumptions of causal homogeneity (variables work the same way in all cases) and causal competition (variables exert independent effects on outcomes), common in most political science research, to consider instead the possibilities of causal heterogeneity (conditions may not work the same way in all instances) and causal combination (effects of particular conditions depend on the presence and absence of other conditions) (Ragin 1987; Ragin 2000).

With these three alternatives in mind, this article explores how choices to utilize particular methods influence the conclusions drawn by various studies, and thus shape how scholars understand a wide range of political phenomena. Using women in politics research as an example, it outlines and evaluates the methodological trade-offs involved in analyzing common trends across many cases (the large-*n* solution), unique trajectories across a few cases (the small-*n* solution), and causal diversity and equifinality across a middle range of cases (the medium-*n* solution). In the first two sections, the article surveys previous large-*n* and small-*n* research, respectively, and notes that each literature has generated disparate – although sometimes overlapping – conclusions regarding the factors that might explain cross-national variations in women’s political representation. Seeking to make sense of these conflicting findings, the third section draws on this literature to conduct a QCA analysis of two medium-*n* populations of cases – the ‘West’ and Sub-Saharan Africa – that are internally comparable but externally dissimilar. In both instances, the investigation reveals that multiple combinations of factors may lead to higher and lower numbers of women elected to national parliaments, corroborating at once the intuition that there may be multiple paths to the

same outcome, as well as the argument that the causal effects of certain factors may depend on the presence or absence of other conditions. Perhaps more crucially, these patterns approximate empirical developments much more closely than traditional methods. Attention to causal diversity and causal combination thus appears not only to improve the accuracy of scholarly analyses, but also to resolve apparent contradictions across statistical and case study techniques. Consequently, although medium-*n* populations and methods are typically overlooked by large-*n* and small-*n* researchers, they may in fact offer the greatest leverage for comparing and explaining political outcomes in countries around the world.

The Large-*n* Solution: Statistical Methods

Quantitative methods are rooted in the view that large samples of cases yield the best empirical generalizations. Their proponents argue that a higher *n* reduces selection bias that enables researchers to make stronger predictions, based on probabilistic relationships between a given set of independent and dependent variables (Lieberson 1997). Applying statistical findings to analyze a particular case, therefore, requires that scholars assume causal competition and causal homogeneity (Ragin 2000). Despite their widespread use in social science, many of these tenets have come under increasing attack in recent years. One group of criticisms raises concerns about measurement and equivalency by noting that an increase in sample size increases the chances that concepts do not translate evenly across contexts, biasing statistical results and undermining arguments about random assignment (Collier and Levitsky 1997). A second set questions the ‘variables paradigm’ central to quantitative analysis by pointing out that it treats individual causal factors as independent from other potential factors, ignores narrative order in causal explanation on the assumption that sequence is not important, and promotes a worldview in which variables – and not people – do the acting (Abbott 1992; Somer 1996). A third group, finally, challenges the views on causality implied by

statistical analysis by observing that methodological restrictions permit only one causal narrative, reduce causality to correlation, stress immediate and linear causal effects, and present findings in a counterfactual format although the way data is collected frequently does not allow for such an interpretation (Dogan 1994).

Research that employs statistics to investigate women's political representation reflects both the strengths and weaknesses of quantitative methods. Examining large numbers of cases, these scholars present largely consistent insights into the factors that might explain cross-national variations. Through repeated testing, they find that the proportion of women in national parliaments tends to be higher in countries with proportional representation (PR) electoral systems – as opposed to countries with majoritarian electoral arrangements (Caul 1999; McAllister and Studlar 2002; Salmond 2006) – because these systems often have higher district magnitudes, which open the way for women to be included as the total number of members elected per district increases (Engstrom 1987; Welch and Studlar 1990), and closed party lists, which enable parties to place women in electable positions on party slates (Caul 1999; Siaroff 2000). Recent work also points to the importance of PR in enabling the effective implementation of gender quota policies aimed at increasing the number of female candidates (Escobar-Lemmon and Taylor-Robinson 2006; Tripp and Kang forthcoming; Yoon 2004). A wide range of studies also observe strong correlations with women's overall rates of education and labor force participation (McDonagh 2002; Rosenbluth et al 2006), as well as levels of national socioeconomic development (Matland 1998; Reynolds 1999), whose effects they attribute to modernization processes that enable women to move into higher social and economic roles that lead to greater influence in politics (Inglehart and Norris 2003; Rule 1987). Lastly, they discover close connections with cultural attitudes towards equality, noting that the number of women in politics is typically higher in Protestant countries (Kaiser 2001; Reynolds 1999; Siaroff 2000) and in countries where citizens are more open to women in leadership positions

(Inglehart and Norris 2003; Paxton and Kunovich 2003). These scholars thus make claims to generality that follow from having examined a large number of cases: framing their insights in predictive terms, they identify the relative weight of each factor and presume that the insights generated by one sample will transfer easily to another.

Despite the care taken to increase sample size, however, a closer look at the actual range of cases examined in this literature suggests that these findings are more likely to be specific to the countries included in particular datasets. First, the conventional wisdom outlined above derives almost exclusively from studies of advanced Western democracies (Krook 2005). While some research confirms these findings in non-Western cases (Paxton 1997; Yoon 2004), other work discovers that these same factors appear to play little or no role in developing countries (Matland 1998; Oakes and Almquist 1993) or in advanced non-Western countries (Hickman 1997). Second, most large-*n* studies gauge the causal impact of variables at single moments of time, setting aside the possibility that temporal context may be crucial for causal explanation. For example, most work identifies the electoral system as one of – if not the most – important factors explaining cross-national variations. Before 1970, however, women’s representation was roughly the same in PR and majoritarian systems (Kaiser 2001; Matland 1998; Sainsbury 1993), with differences emerging only after women inside parties began mobilizing for change (Kittilson 2006; Lovenduski and Norris 1993). Third, the ‘universal’ formulas presented in this research – phrased in counterfactual terms – are undermined by a wealth of counter-evidence. To use the same example, most countries with high levels of female representation do have some form of PR electoral arrangement. But, not all states with PR have large numbers of women in politics (McAllister and Studlar 2002). Further, some countries with majoritarian systems have witnessed dramatic increases in recent years, including in the single-member district aspect of mixed electoral systems (Mackay et al 2003; Moser 2003). These patterns call the claims of statistical analyses – at least as they have been applied in

women in politics research – into question, as they undermine the assertion that a higher n reduces selection bias and thus leads to more generalizable insights.

The Small- n Solution: Case Study Methods

Qualitative methods, in contrast, reflect the belief that intensive study of small numbers of cases generates more modest generalizations but better knowledge of individual cases. Advocates recognize that a smaller n calls for more careful attention to case selection, but point out that the large number of case-specific observations provides researchers with a greater range of evidence for evaluating causal relationships (George and Bennett 2005; Rueschemeyer 2003). Tracing these causal processes in a given case requires that scholars consider the possibilities of causal combination and causal heterogeneity (Abbott 1992). Although case studies vary in type and purpose (Eckstein 1975), they have also been subject to greater challenge in recent years. One set of criticisms – and by far the most vocal – addresses questions of measurement and equivalency by drawing attention to the hazards of selection bias when researchers choose cases with similar outcomes and opt for historical materials that confirm rather than challenge their theoretical expectations (Geddes 1990; but see Dion 1998). A second group focuses on the problem of data in small- n analysis by arguing that case studies provide too few observations to infer causal relations or, alternatively, that case studies present too many variables to gain any effective leverage on causal effects (Kiser and Hechter 1991). A third set, finally, criticizes the notion of causality underlying case study analysis by noting that several prominent approaches in this vein assume deterministic and not probabilistic relations between variables and thus open the way for one negative case to undermine all research findings (Lieberson 1991).

Case studies on women's access to political office expose many of the advantages and disadvantages of qualitative methods. Focused on small numbers of cases, they present more

tempered conclusions regarding the factors shaping patterns of political representation. Tracing events over time, they explore the impact of the electoral system by observing how it influences women's strategies, as well as elite reactions, concerning the nomination of more female candidates. Although many still find that PR provides greater opportunities for women (Kolinsky 1991; Matland 1995), some point out that women's representation has increased in some cases without a change in the electoral system (Sainsbury 1993), while it has remained relatively stable in others even as the electoral system has undergone reform (Beckwith 1992). They point out that low district magnitudes and open party lists do not always block access to women, but instead create various – often unforeseen – opportunities for women in certain circumstances to run for and win elected office (Haavio-Mannila 1979; Schmidt and Saunders 2004). In terms of women's education and labor force participation, some case studies corroborate the findings of statistical analyses by noting how practices of sex segregation channel women into female-dominated, low-paying occupations, which prevent them from achieving the higher socioeconomic standing associated with the eligibility pool for elective office (Darcy, Welch, and Clark 1994). Other work reveals, however, that social and economic developments may evolve separately from changes in the political arena (Krook 2005), as many developed countries continue to see low numbers of women in parliament (Kuusipalo 1999), at the same time that some developing countries have witnessed dramatic increases in recent years (Bruhn 2003; Goetz and Hassim 2003). Finally, while a few case studies verify that egalitarian political cultures favor women's representation (Bystydzienski 1995), others observe that women can assume prominent political positions in countries with strongly patriarchal religious and cultural norms. In these instances, they find, women typically accede to political office as a result of family connections or as a form of political patronage by powerful male leaders (Katzenstein 1978). Taken as a whole, therefore, this research offers few universal insights, preferring instead to focus on the

complexity of each individual case in order to grasp how various conditions combine to produce specific outcomes, regardless of whether or not these are relevant for analyzing other cases.

The presence of similar and different patterns across cases, however, indicates that the insights from one case can be used to inform another. Although all case studies are implicitly comparative – because to know what is unique about one case is to know what is typical across many cases – few scholars of women in politics consider explicitly how their approaches to case selection and data analysis may influence the types of conclusions they generate. First, many apply geographical, rather than theoretical, criteria for situating their case studies by comparing their findings to broader developments within the same country or world region (Bauer and Britton 2006; Lovenduski and Norris 1993; Matland and Montgomery 2003). While often justified with reference to common historical and cultural traditions, this strategy limits the potential for cross-regional research by overlooking the global dimensions of many aspects of gender and politics, and thus distorting the extent of similarities and differences across individual cases (Krook 2005). Second, all case study scholars focus on certain countries to the exclusion of others, but rarely acknowledge this fact when making broad inferences regarding obstacles to women’s political representation. On the basis of evidence from the United States, for example, various researchers argue that prescribed gender roles shape expectations about the suitability of women’s political engagement and create private sphere responsibilities for women that prevent them from pursuing public office (Lawless and Fox 2005). Studies of other countries, however, find that women’s private roles can serve as a powerful argument for political inclusion (Bouta et al 2005; Skjeie 1992), revealing that privileging within-case observations over cross-case observations can lead to falsely universalizing conclusions. Third, most researchers analyze events that have already happened, generally because they aim to explain a particular outcome and thus must go back in time to identify the relevant causal conditions. While this strategy offers considerable leverage in accounting for counter-intuitive results

– for example, the election of high numbers of women in countries where women otherwise suffer from a low social and economic status (Britton 2005; Bruhn 2003) – it presents little insight into how these findings might be used to inform other cases, especially in terms of events that have not yet occurred. Although small-*n* research on women in politics does not seek to predict how patterns will develop in other countries, its focus on modest generalizations does require some comparisons in order to establish the scope conditions of its conclusions, thus calling into question its claims – on its own – to produce better knowledge of individual cases.

The Medium-*n* Solution: Qualitative-Comparative Methods

Enduring debates on the relative merits of quantitative and qualitative methods in political science have led some scholars to consider alternative approaches that might strike a balance between large-*n* statistical analyses and small-*n* case studies. Recent efforts to devise medium-*n* methods are often traced back to Charles Ragin (1987), who proposed using Boolean algebra – developed in mathematics to analyze set-theoretic relationships – to identify, simplify, and compare causal configurations. To engage in QCA, researchers begin by assuming maximum causal complexity and use their existing knowledge of cases to construct a ‘truth table’ that records the presence and absence of conditions and outcomes, which they sort into various combinations of input values and associated output values. Applying the principles of Boolean algebra, they then reduce this complexity to determine whether conditions exist in relationships of logical ‘and’ or logical ‘or,’ whether they join together with other conditions in causal combinations, and whether some redundancies can be minimized and some conditions and combinations subsumed into others. The result is a relatively parsimonious explanation that accounts for multiple causal paths, establishes necessary and sufficient conditions, and retains the integrity of individual cases while incorporating information from a much broader sample of cases (Ragin 1987). Some criticize QCA,

however, on the grounds that it treats all variables as dichotomous,¹ exhibits a high degree of sensitivity to coding, ignores the relative strengths of independent variables, and is logical in nature and thus exposed to greater distortion in selection bias and data problems than statistical techniques (Liebersson 2004).

Medium-*n* techniques have never been applied to research on women's political representation, but the review of quantitative and qualitative approaches above suggests that new methods might provide greater insight into the puzzling patterns that have emerged in recent years. To explore the potential of these methods, this article focuses on two sets of countries – 'the West' and Sub-Saharan Africa – that are positioned on opposite sides of the developmental divide. The goal of the study is to undertake comparisons of each population of cases separately, on the grounds that the countries within each group share features that make them comparable in some way (for example, similar levels of democracy, historical backgrounds, and economic challenges), to map and compare the configurations of conditions leading to high and low levels of female representation. The analysis begins with the main conclusions of large-*n* and small-*n* studies on each set of cases, which are used to identify factors that may affect women's access to political office. This exercise pinpoints slightly different conditions in each region: electoral systems, quota policies, women's status, women's movements, and left parties in the West, and electoral systems, quota policies, women's status, levels of national development, and presence of post-conflict situations in Sub-Saharan Africa. It also generates two distinct cut-offs for high and low levels of representation: a 30% threshold for the West and a 17% threshold for Sub-Saharan Africa. While not uniform, these coding decisions attempt to contextualize the significance of conditions and outcomes within each

¹ This particular objection has been overcome by new versions of QCA including fuzzy-set QCA or fs/QCA (Ragin 2000) and Multi-Value QCA or MVQCA (Cronqvist 2005; Cronqvist 2007). Software is available for free on-line at <http://www.u.arizona.edu/~cragin/fsQCA/software.shtml> for fs/QCA and <http://www.tosmana.net> for MVQCA.

population, and thus permit more meaningful analysis of the developments at work within each set of cases.

A QCA Analysis of 'The West'

Most of the conventional wisdom on women's representation derives from statistical and case study analyses of the West. As such, these cases are an appropriate place to start in probing the utility of medium-*n* techniques to explore whether they offer greater insight into trends across this particular group of cases. This population is defined to include eighteen countries in Western Europe² and four countries elsewhere in the world, namely the United States, Canada, Australia, and New Zealand. The five most common factors emerging from the literature on these cases are the electoral system, gender quotas, women's status, women's movements, and left parties. To gauge how these conditions might act in combination with others to produce higher and lower levels of female representation, raw data is assembled for all twenty-two countries (see Table 1). Following the categories put forward by International IDEA (2005), each *electoral system* is classified as proportional, mixed, or majority, on the grounds that most research discovers significant variations across these types in terms of the proportion of women in parliament. The presence of *quotas* is recorded as yes or no, using data from the Global Database of Quotas for Women (2007). A qualification is added, however, that these policies be decreed by national legislation or by a major

² Malta and Cyprus are dropped from the analysis, despite their recent membership in the European Union, due to their small size. The countries of Eastern Europe are also excluded, as they share a history as former Communist bloc countries that is quite distinct from the experiences in Western Europe.

political party, as scholars find that quotas in small parties often fail to have much effect on the overall number of women in parliament (Dahlerup 2006; Krook 2005).³

Capturing distinctions in *women's status* is more difficult, as all Western countries have gender development indexes categorized as high by the United Nations Development Programme (UNDP) (2007, 283-286). Therefore, an alternative indicator is devised to capture qualitative distinctions in women's opportunities across these countries, drawing on the three models of welfare states – social democratic, conservative, and liberal – that more than twenty years of research has shown to play a crucial role in shaping women's position in society. These models differ with regard to how they use state policy to change or reinforce current patterns of gender stratification: social democratic welfare states encourage women to combine motherhood and paid employment, while conservative welfare states promote women's traditional status in the family, and liberal welfare states adopt strict policies of non-intervention that often reinforce existing inequalities (Esping-Andersen 1999). *Women's movements* are notoriously difficult to define and measure (Beckwith 2005), but they are classified here according to their degree of autonomy from the state and political parties, following Weldon (2002, 77). This measure is admittedly imperfect, given that in some countries – for reasons of culture and history – the main locus of women's movement activity is inside the political parties (Sainsbury 2004). However, because debates over autonomy versus integration have been a central concern in feminist organizing, this choice enables a look into whether women's groups have a stronger impact on the number of women in parliament when they mobilize outside or inside the existing party system.

The role of *left parties* is established using data from Swank (2007) to record the percentage of seats held by left-libertarian parties in 2002, the most recent elections for which data is available. The

³ This qualification eliminates Luxembourg among the countries with quotas, despite the fact that the Greens have a 50% quota policy.

logic behind this choice is that while leftist parties tend to be associated with higher proportions of women, this relationship typically springs from competition between ‘new’ left and ‘old’ left parties. More specifically, while new left parties typically take the first steps to nominate more women, these efforts often do not have a broader impact on women’s representation until they lead established left parties to promote female candidates as well (Caul 1999; Kolinsky 1991). However, the latter are not likely to change their policies unless they anticipate losing votes to the former. For the lack of a better measure, therefore, the ability of left-libertarian parties to win seats in parliament – or not – presents a reasonable proxy for capturing the presence or absence of this dynamic. *Outcomes*, finally, are registered using information from the Inter-Parliamentary Union (2007) regarding the proportion of women in the single or lower house of parliament.

The data is next imported into the QCA software known as TOSMANA, or the Tool for Small-*N* Analysis (Cronqvist 2007). Each condition is dichotomized using the software’s ‘thresholdsetter,’ which plots the distribution of values to suggest the most appropriate cut-off points.⁴ Although TOSMANA can analyze multiple values, the use of additional thresholds increases the number of possible configurations, requiring more and more logical reductions in order to come up with minimal formulas.⁵ While some scholars may prefer this option, the five factors chosen for this analysis can all be dichotomized without sacrificing the larger meaning of each condition. Transformed into a ‘truth table’ (see Table 2), electoral systems are divided into proportional and non-proportional systems, with mixed systems placed in the latter category, and assigned the values of ‘1’ and ‘0’ respectively. Women’s status is coded in a similar way, marking ‘1’

⁴ The ‘thresholdsetter’ function of TOSMANA presents a visual representation of these distributions, allowing the analyst to see whether cases tend to form distinct groupings.

⁵ Logical remainders are cases that do not actually exist, but following certain suppositions, can be incorporated into the analysis in order to perform additional reductions.

for social democratic and '0' for non-social democratic. The measures for quotas and women's movements are already dichotomous, and as such, yes and autonomous are translated as '1' and no and non-autonomous as '0.' The strength of new left parties is more complicated, but the distribution of values across the sample suggests a 7% cut-off point. This percentage coincides roughly with the electoral thresholds in place in many Western countries, which require parties to win a certain proportion of votes before they can gain seats in parliament. Thus, countries where left-libertarian parties occupy more than 7% of all seats are assigned '1,' while those where they hold less than 7% of all seats are coded '0.' The same technique is used to dichotomize outcomes according to a 30% threshold, which interestingly, also matches a distinction made by scholars, activists, politicians, and international organizations to treat 30% as the measure of 'high female representation' (Dahlerup 1988). As such, '1' is applied to cases where women's representation is higher than 30%, while '0' is assigned to cases where women's representation is lower than 30%.

The subsequent QCA analysis reveals multiple paths to both high and low levels of female representation in the West. When the analysis includes only actually existing cases, high representation results from five distinct combinations of conditions: PR electoral systems, women's high status, non-autonomous women's movements, and weak new left parties (Finland, Sweden); PR electoral systems, women's high status, autonomous women's movements, and strong new left parties (Denmark, Iceland, Norway); PR electoral systems, quotas, women's low status, and autonomous women's movements (Belgium, the Netherlands, Spain); PR electoral systems, quotas, women's low status, and strong new left parties (Austria, Belgium, Netherlands); and non-PR electoral systems, women's low status, autonomous women's movements, and strong new left parties (Germany, New Zealand).⁶ These combinations are annotated by the following equation, where upper-case letters denote '1' conditions and outcomes and lower-case letters '0' conditions

⁶ The same countries may be characterized by multiple combinations.

and outcomes, and plus signs are read as logical ‘or’ and multiplication signs as logical ‘and’ (cf. Ragin 1987):

$$\text{OUTCOME} = \text{PR} * \text{WS} * \text{wm} * 1 + \text{PR} * \text{WS} * \text{WM} * \text{L} + \text{PR} * \text{QU} * \text{ws} * \text{WM} + \text{PR} * \text{QU} * \text{ws} * \text{L} + \text{pr} * \text{ws} * \text{WM} * \text{L}$$

Perhaps the most striking feature of this equation is that four of the five conditions analyzed can take opposite values, yet still result in high levels of female representation due to the presence and absence of other conditions. The only exception is quotas, but they appear in only two formulas in conjunction with other factors, and are thus neither necessary nor sufficient for the outcome under investigation.

When logical remainders are incorporated, two possible formulas emerge:⁷ high representation follows from women’s high status (Denmark, Finland, Iceland, Norway, Sweden), PR electoral systems and autonomous women’s movements (Belgium, Denmark, Iceland, Netherlands, Norway, Spain), quotas and strong new left parties (Austria, Belgium, Germany, Iceland, Netherlands, Norway), and non-PR electoral systems and strong new left parties (Germany, New Zealand), *or* from women’s high status, PR electoral systems and autonomous women’s movements, quotas and strong new left parties, and autonomous women’s movements and strong new left parties (Belgium, Denmark, Germany, Iceland, Netherlands, New Zealand, Norway). These combinations are represented by the following equations:

$$\text{OUTCOME (L)} = \text{WS} + \text{PR} * \text{WM} + \text{QU} * \text{L} + \text{pr} * \text{L}$$

$$\text{OUTCOME (L)} = \text{WS} + \text{PR} * \text{WM} + \text{QU} * \text{L} + \text{WM} * \text{L}$$

These solutions are identical but for their fourth terms, which suggest that strong left parties may combine with either non-PR electoral systems or autonomous women’s movements to produce high levels of female representation.

⁷ When the data support it, the software reports more than one logically consistent conclusion.

The other terms are equally if not more intriguing. First, women's high status is a sufficient condition for high representation. A second look at the original data reveals that all countries with social democratic welfare states also have high numbers of women in politics. The direction of causality is not entirely clear, as social democratic welfare policies may increase the number of female representatives, creating a more auspicious environment for women to be recruited as political candidates, but the number of female office-holders may also increase the passage of women-friendly public policies, enabling a greater number of other women to contemplate running for political office. Whatever the causal link, the fact that all of these cases are located in the Nordic region corroborates – at the very least – the intuitions of scholars who have explored the possibility of 'Scandinavian exceptionalism' in their quantitative (Kaiser 2001) and qualitative analyses (Bergqvist 1999; Bystydzienski 1995).

Second, PR electoral systems and quota policies do not on their own lead to higher levels of female representation: PR systems must combine with autonomous women's movements, while quotas must operate in conjunction with strong new left parties. The first pattern squares with the observation in some statistical (Kittilson 2006) and case study work (Sainsbury 1993) that differences between PR and non-PR electoral systems started to emerge only after women began to mobilize for the increased selection of female candidates. The second captures the dynamic outlined above with regard to left-wing parties: in many cases in Western Europe, women's representation often rose dramatically following the emergence of new left parties, but only when it inspired established left parties to appeal to female voters by adopting gender quota policies. Third, contrary to the many studies that point to the electoral system as one of the most important factors – if not *the* most important factor – in explaining cross-national variations, equation 1 suggests that PR *and* non-PR electoral systems may lead to high levels of female representation, depending on how they combine with other conditions. This pattern makes sense of conflicting findings across the case study

literature in particular, which notes that adopting PR does not always translate into gains for women (Beckwith 1992), at the same time that facing a non-PR system does not always prevent upward changes in women's representation (Russell et al 2002).

Turning to the configurations that generate low levels of representation, it becomes apparent that some of the same factor values are involved but produce different results. Looking at existing cases, low representation results from three distinct combinations of conditions: quotas, women's low status, non-autonomous women's movements, and weak new left parties (Greece, Italy, Portugal, Switzerland); non-PR electoral systems, women's low status, autonomous women's movements, and weak new left parties (Australia, Canada, France, Ireland, United Kingdom, United States); and PR electoral systems, no quotas, women's low status, non-autonomous women's movements, and strong new left parties (Luxembourg). The equation is:

$$\text{outcome} = \text{QU} * \text{ws} * \text{wm} * \text{I} + \text{pr} * \text{ws} * \text{WM} * \text{I} + \text{PR} * \text{qu} * \text{ws} * \text{wm} * \text{L}$$

As in the initial solution above, these configurations indicate that four of the five conditions can take opposite values, yet still result in low female representation. The only exception is women's low status which, because it appears in all three formulas, suggests it is a necessary although not sufficient condition for low numbers of women in political office. Another interesting pattern to observe here is that, despite statistical evidence to the contrary, the presence of PR, quotas, autonomous women's movements, and strong new left parties still lead in some circumstances to low levels of female representation, depending on how they combine with other features of the political context.

The inclusion of logical remainders, however, shifts some of these findings somewhat, and presents three sets of equations to account for low levels of female representation. The first identifies non-PR electoral systems and weak new left parties (Australia, Canada, France, Ireland, Italy, UK, US); women's low status, non-autonomous women's movements, and weak new left

parties (Greece, Italy, Portugal, Switzerland); and PR electoral systems, no quotas, and women's low status (Luxembourg). The second points to non-PR electoral systems and weak new left parties; women's low status, non-autonomous women's movements, and weak new left parties; and no quotas, women's low status, and non-autonomous women's movements (Luxembourg). The third, finally, combines non-PR electoral systems and weak new left parties; women's low status, non-autonomous women's movements, and weak new left parties; and no quotas, non-autonomous women's movements, and strong new left parties (Luxembourg). These three equations are thus identical but for their final terms:

$$\text{outcome (L)} = \text{pr}^*l + \text{ws}^*\text{wm}^*l + \text{PR}^*\text{qu}^*\text{ws}$$

$$\text{outcome (L)} = \text{pr}^*l + \text{ws}^*\text{wm}^*l + \text{qu}^*\text{ws}^*\text{wm}$$

$$\text{outcome (L)} = \text{pr}^*l + \text{ws}^*\text{wm}^*l + \text{qu}^*\text{wm}^*L$$

Across all three equations, the case of Luxembourg is the only one characterized by a different combination of conditions from the rest. Traditional quantitative analyses might therefore discount the experience of this case, on the grounds that it is an outlier to more general trends. Qualitative researchers, in contrast, might choose to focus on it in order to understand why it appears to be distinct from others with similar outcomes. In QCA, however, all cases are equally important to the final solution, regardless of the frequency of each combination, as the goal is to capture as accurately as possible the degree of causal diversity at work within a particular population. In this instance, including Luxembourg in the analysis adds an important nuance to arguments associating negative values on these various factors with reasons for low numbers of women in politics. As the first and third solutions reveal, the country still has a relatively few women in parliament, despite the presence of a PR electoral system and strong set of new left parties, because of the lack of quotas and women's low status (solution 1) or the lack of quotas and a non-autonomous women's movement (solution 2). Taken together, all four sets of equations point to the

utility of exploring causal diversity and causal combination in efforts to explain why some countries elect more women to parliament than others, as well as to account for why scholars employing different kinds of methods reach conflicting conclusions regarding the relative role of these factors.

A QCA Analysis of Sub-Saharan Africa

Research on women in politics in Sub-Saharan Africa is much more recent, but thus far, appears to pose a strong challenge to findings emerging from studies focused on the West. For this reason, a medium-*n* analysis presents a crucial opportunity to establish the factors shaping women's access to political office in this region of the world. In order to construct a meaningful population of cases, the Sub-Saharan African countries included in this analysis are limited to the twenty-six that are democracies, as defined by the Freedom House (2005) indicators of 'free' and 'partly free.' Of the five factors that are typically signaled as important in the existing statistical and case study literature, three are the same as in the West: the electoral system, quotas, and women's status (Yoon 2004). However, two are more specific to economic and political conditions of Africa, namely levels of national development and presence of post-conflict situations (Bauer and Britton 2006; Tripp 2007). Similar to the analysis of the West, the raw data on Sub-Saharan Africa (see Table 3) is put together by categorizing each *electoral system* as proportional, mixed, or majority. The presence of *quotas* is recorded as yes or no, but given the greater diversity of quota measures across Africa, quotas are coded as yes only when they are adopted by a major political party, or when they involve a constitutional or legislative requirement of at least 25%.⁸

The measure for *women's status*, however, is constructed using a different indicator than for the West: rather than welfare state type, the data collected refers to the combined gross enrollment

⁸ This requirement eliminates Djibouti among the countries with quotas, despite the fact that it adopted a 10% reserved seat provision in 2002.

ratio for female students in primary, secondary, and tertiary schools, according to the UNDP (2006, 363-366). The logic behind this choice is that it captures – however imperfectly – the extent to which societies enable and women choose to pursue some degree of education, which reflects and can in turn improve women’s broader economic and political prospects. It contrasts, importantly, with a proxy that has been used in other studies, namely the prevalence of female genital mutilation (FGM). While Yoon (2004) finds this to be a strong negative predictor of women’s representation, it has been rejected by other scholars on the grounds that a focus on FGM ignores other structural features of gender oppression, differences in the sizes of groups that practice FGM, and beliefs among many Africans that FGM is an initiation rite rather than a patriarchal practice *per se*. Levels of female education, on the other hand, is a less controversial – and many would argue, more accurate – measure of female empowerment.⁹

Level of national development is determined with reference to the human development index (HDI) devised by the UNDP (2006, 283-286), which combines statistics on life expectancy at birth, adult literacy rate, gross enrollment in education, and gross domestic product (GDP) per capita. This measure offers greater nuance than GDP alone, which measures levels of wealth rather than levels of development *per se*. As such, it enables a better test of the argument that development influences opportunities, as well as general societal attitudes, regarding women’s participation in electoral politics (Inglehart and Norris 2003). *Post-confliction situation* is indicated as conflicts ended since 1985 as listed by the World Bank (2005) and the UNDP (2005). This factor has received growing attention in recent years, as more and more research has uncovered connections between the end of war and changes in women’s access to political office (Bauer and Britton 2006; Hughes 2007). Crucially, however, this link holds only for countries whose conflicts ended after 1986, as new international norms promoting women in politics – combined with greater possibilities of

⁹ I would like to thank Aili Mari Tripp for several discussions on how to best operationalize ‘women’s status’ in Africa.

transnational learning among women's groups – have brought guarantees for women's representation into focus (Krook 2006; Tripp 2007). *Outcomes*, finally, are noted using data from the Inter-Parliamentary Union (2007) to list the proportion of women in the single or lower house of parliament.

This information is next entered into TOSMANA, where the thresholdsetter is again used to dichotomize each condition, on the evaluation that doing so does not compromise their larger meaning. In the truth table (see Table 4), proportional, mixed, and majority electoral systems are divided into proportional and non-proportional systems, assigned the values of '1' and '0.' The measures for quotas and post-conflict situations are already dichotomous, so yes is translated as '1' and no as '0' in both instances. Given the continuous nature of the indicators for women's status, development, and outcomes, distributions are analyzed to see whether particular groupings emerge. For women's status, cases clearly gather at different parts of the spectrum, suggesting a 60% threshold. Consequently, countries with more than 60% female enrollment are coded as '1' while those with lower than 60% enrollment are coded as '0.' Given similar clustering in the case of national development, the value of '1' is assigned to countries with indexes above 0.40 and '0' to those with indexes below 0.40. Lastly, in terms of outcomes, the distributions point to a 17% threshold. Outcomes are subsequently dichotomized as '1' where women's representation is higher than 17% and '0' where women's representation is lower than 17%. Although it is distinct from the 30% marker applied to the West, this 17% threshold can be justified on the grounds that it captures more faithfully the meaning of high and low representation within this particular population of cases. Moreover, this figure coincides closely with the average proportion of women in parliament around the world, which stands at 17.3% (Inter-Parliamentary Union 2007). As such, it reflects a global distinction at the same time that it remains sensitive to trends within this particular region of the world.

As was the case with the West, the resulting QCA analysis discerns multiple paths to both high and low levels of female representation in Sub-Saharan Africa. When the program analyzes actually existing cases, high representation results from four configurations of conditions: quotas, women’s low status, low levels of development, and post-conflict situations (Burundi, Ethiopia, Mozambique); quotas, women’s high status, high levels of development, and post-conflict situations (Namibia, South Africa, Uganda); non-PR electoral systems, women’s high status, high levels of development, and post-conflict situations (Lesotho, Uganda); and non-PR electoral systems, quotas, women’s low status, high levels of development, and non-post-conflict situations (Senegal, Tanzania). These combinations are represented by the following equation:

$$\text{OUT} = \text{QU}*\text{ws}*\text{de}*PC + \text{QU}*\text{WS}*DE*PC + \text{pr}*\text{WS}*DE*PC + \text{pr}*\text{QU}*\text{ws}*DE*\text{pc}$$

Three things stand out among these findings. First, three of the five conditions – women’s status, levels of development, and post-conflict situations – may take either value yet still produce high numbers of women in politics. Second, three of the four equations involve the presence of quota policies, signaling the importance of these measures in Africa. Third, the electoral system – to the degree that it plays a role in these countries – is more favorable to women’s representation when it does *not* entail PR, a finding which directly contradicts much of the established literature.

These findings change slightly with the inclusion of logical remainders, which reduce the formulas to quotas and post-conflict situations (Burundi, Ethiopia, Mozambique, Namibia, South Africa, Uganda); women’s high status and post-conflict situations (Lesotho, Namibia, South Africa, Uganda); and quotas, women’s low status, and high levels of development (Senegal, Tanzania). The equation is:

$$\text{OUTCOME (L)} = \text{QU}*PC + \text{WS}*PC + \text{QU}*\text{ws}*DE$$

Confirming the insights from the longer solution, these configurations indicate that no factors are necessary or sufficient conditions for high levels of female representation in Sub-Saharan Africa. In

this context, the electoral system is notable by its absence: none of the combinations finds PR or the lack of PR to have any effect in shaping women's access to political office. What is more striking, however, is the fact that all the configurations point to the role of both contingent and stable factors, largely in line with the core insights of the quantitative and qualitative literature on Africa. The first configuration, for example, highlights the importance of quotas in post-conflict situations. As many scholars have noted, post-conflict transitions have provided numerous opportunities for the introduction of quota measures, as countries have been subject to greater intervention by international actors (Krook 2006) and/or look to the experiences of their neighbors (Powley 2003) in their efforts to rebuild their societies. The second combination, in turn, corroborates the work of researchers who argue – on the basis of evidence gathered from many countries (Tripp 2007), as well as from in-depth fieldwork on single cases (Bauer and Britton 2006; Britton 2005; Goetz and Hassim 2003) – that post-conflict situations only translate into gains for women when women themselves organize to ensure the inclusion of their demands in new constitutions. The third configuration, finally, suggests that in the absence of women's high status, quotas combined with high levels of development may still lead to greater numbers of women in politics. Together, therefore, these solutions paint a complex – yet relatively parsimonious – picture of the agents and structures behind recent improvements in women's access to political office in Africa.

Conditions leading to low levels of representation are similarly diverse. Looking only at existing cases, the analysis reveals that low levels of female representation stem from five possible combinations: non-PR electoral systems, quotas, low levels of development, and non-post-conflict situations (Malawi, Mali, Niger); non-PR electoral systems, no quotas, women's low status, and high levels of development (Congo, Djibouti, Gambia, Ghana, Kenya, Madagascar, Nigeria, Zambia); no quotas, women's low status, high levels of development, and non-post-conflict situations (Benin, Gambia, Ghana, Kenya, Madagascar, Nigeria, Zambia); non-PR electoral systems, women's high

status, high levels of development, and non-post-conflict situations (Botswana and Gabon); and PR electoral system, no quotas, women's low status, low levels of development, and post-conflict situations (Burkina Faso, Guinea-Bissau, Sierra Leone). The resulting equation reads:

$$\text{outcome} = \text{pr} * \text{QU} * \text{de} * \text{pc} + \text{pr} * \text{qu} * \text{ws} * \text{DE} + \text{qu} * \text{ws} * \text{DE} * \text{pc} + \text{pr} * \text{WS} * \text{DE} * \text{pc} + \text{PR} * \text{qu} * \text{ws} * \text{de} * \text{PC}$$

This solution – more than any others so far – highlights the crucial role of causal combination: all five factors may take either value, yet still generate low levels of female representation, depending on the presence or absence of other factors. Further, the equation strengthens the case for causal diversity when viewed in conjunction with the analysis above, as the exact same factors may lead to entirely opposite results.

Incorporating logical cases reduces this solution to three pairs of configurations: no quotas and women's low status (Benin, Burkina Faso, Congo, Djibouti, Gambia, Ghana, Guinea-Bissau, Kenya, Madagascar, Nigeria, Sierra Leone, Zambia); women's high status and non-post-conflict situations (Botswana, Gabon, Malawi); and low levels of development and non-post-conflict situations (Malawi, Mali, Niger). These combinations are represented by the following equation:

$$\text{outcome (L)} = \text{qu} * \text{ws} + \text{WS} * \text{pc} + \text{de} * \text{pc}$$

Again, the electoral system is notable by its absence, as none of the combinations finds PR or the lack of PR to have any effect in preventing women's access to political office. In addition, three other aspects of this solution stand out for further consideration. First, when women's high status intersects with a non-post-conflict situation, as it does here, it produces low numbers of women in politics. However, when it combines a post-conflict situation, as in the analysis above, it leads to high levels of female representation. This pattern finds interesting parallels in research that emphasizes the crucial role of 'windows of opportunity' for policy change (cf. Kingdon 1984). It also provides an important corrective to the belief that changes in women's status will automatically

translate into greater numbers of women in elected office. Second, the first and third configurations – no quotas and women’s low status, and low levels of development and non-post-conflict situations – speak to the possibility of ‘vicious cycles,’ whereby the lack of favorable structural conditions combined with few opportunities for dramatic change prevent major breakthroughs in women’s representation. Third, across this solution, women’s status takes both values yet still leads to low numbers of women in politics in both instances. This suggests, again, that the role of women’s status in shaping women’s access to political office depends centrally on other conditions, whether these are more fluid or stable aspects of the political environment. All four sets of equations, therefore, reinforce the need to take the possibility of causal diversity and causal combination into account in order to establish the many ways in which factors may come together to produce higher and lower levels of female representation, and to formalize the intuitions of quantitative and qualitative researchers on Africa who, up until this point, have largely agreed with each other but disagreed with many of the conclusions reached by scholars of the West.

Conclusions

This article began from the observation that most political scientists tend towards either large-*n* statistical analyses or small-*n* case studies. In terms of research on women in politics, this divide initially produced complementary findings regarding cross-national variations in women’s political representation, but recently has produced an increasing number of conflicting findings. After outlining how and why this might be the case, the article then investigated the potential of medium-*n* techniques to reconcile these contradictions by exploring the possibility of causal diversity and combination in the West and Sub-Saharan Africa. Treating each as a separate universe of cases, the analysis drew on statistical and case study work to identify factors that might shape women’s access to parliament in each region: electoral systems, quota policies, women’s status, women’s

movements, and left parties in the West, and electoral systems, quota policies, women's status, levels of national development, and presence of post-conflict situations in Sub-Saharan Africa. Analyzing distributions, it also imposed two distinct measures of high representation: 30% in the West and 17% in Sub-Saharan Africa. While conditions and outcomes were not consistent across samples, the choice of these measures and indicators sought to recognize the common and unique features shaping patterns of political representation within each particular region.

Using TOSMANA, a QCA analysis was then run on each sample to assess: (1) the role of single factors, (2) the presence of causal configurations, and (3) the possibility of equifinality. The analysis revealed, first, that no factors on their own accounted for levels of female representation. The exception was women's status in the West, but this relationship emerged only after logical remainders were included in the analysis for high representation. In contrast, both values with regard to women's status were associated with high and low numbers of women in politics in Sub-Saharan Africa. Second, apart from this instance, all of the conditions relevant to both sets of outcomes worked in combination with other factors. In both populations, the solutions revealed that the causal effects of one factor did indeed depend upon the presence or absence of other factors. In the West, for example, non-PR electoral systems combined with strong new left parties fostered high levels of representation, but non-PR electoral systems combined with weak or non-existent new left parties produced low levels. Similarly, in Sub-Saharan Africa, women's high status and post-conflict situations led to high numbers of women in politics, but women's high status and non-post-conflict situations resulted in low numbers. Third, all four sets of outcomes were the product of multiple configurations of conditions. This corroborates one of the core intuitions of QCA, namely that distinct groups of factors may lead to similar outcomes, if they are causally equivalent in some way. Crucially, however, the analysis revealed the converse to be true as well: in both populations, some of the same factors – non-PR electoral systems in the West and women's high and low status in Sub-

Saharan Africa – in fact produced opposite outcomes. At a technical level, therefore, these findings lend support to the distinct theoretical assumptions underlying medium-*n* analysis.

Two questions remain, however. First, what are the methodological limits of this analysis? As noted above, critics argue that QCA is not an ideal mode of research because it treats all variables as dichotomous and exhibits high sensitivity to coding decisions. For these reasons, they contend, QCA does not solve but rather intensifies problems of selection bias, leading to misguided conclusions. Well aware of these objections, a number of steps were taken in this analysis to correct or offset these potential difficulties. Most importantly, the relevant populations, as well as the conditions to be analyzed, were constituted through an iterative dialogue with existing statistical and case study research. As such, choices to dichotomize conditions – as well as the resulting coding scheme – were rooted in the expertise of a wide range of scholars. The validity of the analysis, further, can be seen in the fact that its conclusions go far in making sense of the growing body of conflicting findings that have emerged in recent years. This relates to the second question, namely: how do the findings of the QCA analysis conducted in this article compare with developments in the ‘real world?’ Intriguingly, the study highlights – and largely resolves – some of the major issues signaled in the latest debates over factors shaping cross-national variations in women’s political representation. Crucially, for example, it solves some of the puzzling aspects surrounding the rapid and varied shifts that have occurred since 1987, by calling attention to the dynamic and more stable features of political contexts that may open the way for greater numbers of women to be elected. All of this suggests that medium-*n* techniques may offer greater explanatory leverage by focusing on smaller populations of cases than large-*n* analyses and fewer conditions than small-*n* studies. In recognizing the potential for causal diversity and causal combination, this approach may in turn foster greater understanding of the prospects for change across a broad range of political phenomena.

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Table 1. Raw Data Table for ‘The West’

Country	Electoral System	Quotas	Women’s Status	Women’s Movement	Left Party Strength	% Women in National Parliament
Sweden	PR	Yes	Soc Dem	Non	5	47.3
Finland	PR	No	Soc Dem	Non	5	42.0
Norway	PR	Yes	Soc Dem	Autonomous	14	37.9
Denmark	PR	No	Soc Dem	Autonomous	7	36.9
Netherlands	PR	Yes	Conservative	Autonomous	7	36.7
Spain	PR	Yes	Conservative	Autonomous	0	36.0
Belgium	PR	Yes	Conservative	Autonomous	13	34.7
Austria	PR	Yes	Conservative	Non	8	32.2
New Zealand	Mixed	No	Liberal	Autonomous	9	32.2
Iceland	PR	Yes	Soc Dem	Autonomous	9	31.7
Germany	Mixed	Yes	Conservative	Autonomous	7	31.6
Switzerland	PR	Yes	Conservative	Non	4	25.0
Australia	Majority	Yes	Liberal	Autonomous	0	24.7
Luxembourg	PR	No	Conservative	Non	7	23.3
Portugal	PR	Yes	Conservative	Non	0	21.3
Canada	Majority	No	Liberal	Autonomous	0	20.8
United Kingdom	Majority	Yes	Liberal	Autonomous	0	19.7
France	Majority	Yes	Conservative	Autonomous	0	18.5
Italy	Mixed	Yes	Conservative	Non	3	17.3
United States	Majority	No	Liberal	Autonomous	0	16.3
Greece	PR	Yes	Conservative	Non	0	13.0
Ireland	Majority	Yes	Liberal	Autonomous	2	13.3

Table 2. Dichotomized Truth Table for ‘The West’

Country	Electoral System	Quotas	Women’s Status	Women’s Movement	Left Party Strength	% Women in National Parliament
Sweden	1	1	1	0	0	1
Finland	1	0	1	0	0	1
Norway	1	1	1	1	1	1
Denmark	1	0	1	1	1	1
Netherlands	1	1	0	1	1	1
Spain	1	1	0	1	0	1
Belgium	1	1	0	1	1	1
Austria	1	1	0	0	1	1
New Zealand	0	0	0	1	1	1
Iceland	1	1	1	1	1	1
Germany	0	1	0	1	1	1
Switzerland	1	1	0	0	0	0
Australia	0	1	0	1	0	0
Luxembourg	1	0	0	0	1	0
Portugal	1	1	0	0	0	0
Canada	0	0	0	1	0	0
United Kingdom	0	1	0	1	0	0
France	0	1	0	1	0	0
Italy	0	1	0	0	0	0
United States	0	0	0	1	0	0
Greece	1	1	0	0	0	0
Ireland	0	1	0	1	0	0

Table 3. Raw Data Table for Sub-Saharan Africa

Country	Electoral System	Quotas	Women's Status	Level of Human Development	Post-Conflict Situation	% Women in National Parliament
Mozambique	PR	Yes	44	0.39	Yes	34.8
South Africa	PR	Yes	77	0.65	Yes	32.8
Burundi	PR	Yes	32	0.38	Yes	30.5
Tanzania	Majority	Yes	47	0.43	No	30.4
Uganda	Majority	Yes	65	0.50	Yes	29.8
Namibia	PR	Yes	69	0.63	Yes	26.9
Lesotho	Majority	No	66	0.50	Yes	23.5
Senegal	Mixed	Yes	36	0.46	No	22.0
Ethiopia	Majority	Yes	30	0.37	Yes	21.9
Zambia	Majority	No	52	0.41	No	14.6
Sierra Leone	PR	No	55	0.34	Yes	14.5
Guinea-Bissau	PR	No	29	0.35	Yes	14.0
Malawi	Majority	Yes	64	0.40	No	13.6
Gabon	Majority	No	68	0.63	No	12.5
Niger	Mixed	Yes	18	0.31	No	12.4
Burkina Faso	PR	No	23	0.34	Yes	11.7
Botswana	Majority	Yes	72	0.57	No	11.1
Ghana	Majority	No	44	0.53	No	10.9
Djibouti	Majority	No	21	0.50	Yes	10.8
Mali	Majority	Yes	30	0.34	No	10.2
Gambia	Majority	No	50	0.48	No	9.4
Congo	Majority	No	49	0.52	Yes	8.5
Benin	PR	No	41	0.43	No	8.4
Kenya	Majority	No	58	0.50	No	7.3
Madagascar	Mixed	No	55	0.51	No	6.9
Nigeria	Majority	No	50	0.45	No	6.4

Table 4. Dichotomized Truth Table for Sub-Saharan Africa

Country	Electoral System	Quotas	Women's Status	Level of Human Development	Post-Conflict Situation	% Women in National Parliament
Mozambique	1	1	0	0	1	1
South Africa	1	1	1	1	1	1
Burundi	1	1	0	0	1	1
Tanzania	0	1	0	1	0	1
Uganda	0	1	1	1	1	1
Namibia	1	1	1	1	1	1
Lesotho	0	0	1	1	1	1
Senegal	0	1	0	1	0	1
Ethiopia	0	1	0	0	1	1
Zambia	0	0	0	1	0	0
Sierra Leone	1	0	0	0	1	0
Guinea-Bissau	1	0	0	0	1	0
Malawi	0	1	1	1	0	0
Gabon	0	0	1	1	0	0
Niger	0	1	0	0	0	0
Burkina Faso	1	0	0	0	1	0
Botswana	0	1	1	1	0	0
Ghana	0	0	0	1	0	0
Djibouti	0	0	0	1	1	0
Mali	0	1	0	0	0	0
Gambia	0	0	0	1	0	0
Congo	0	0	0	1	1	0
Benin	1	0	0	1	0	0
Kenya	0	0	0	1	0	0
Madagascar	0	0	0	1	0	0
Nigeria	0	0	0	1	0	0