The Variable Selection Problem in the Three Worlds of Welfare Literature

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Introduction

Since the publication of Gosta Esping-Andersen's classic The Three Worlds of Welfare Capitalism in 1990, the number of studies dealing with the classification and explanation of varieties of welfare regime have exponentially increased, leading to the emergence of a distinct literature on welfare regimes, also known as the "welfare modelling business" (Abrahamson, 1999; Powell & Barrientos, 2011). This literature is exceptionally empirical and quantitative, and it covers a large volume of different methodological approaches, regional approaches, and variables. In addition to the analysis of welfare regimes, some scholars have conducted meta-analyses of this literature as an object of study in itself and have identified several classifications of studies based on the methods or case selections (Barrientos, 2015; Kim, 2015). However, an empirical analysis of the variables used in this expanding literature has not thus far been provided, despite the fact that the selection and design of variables ultimately qualify the validity and reliability of studies.

The Three Worlds of Welfare (1990) has not only opened up new grounds for discussing the similarities and differences across welfare models in the context of regimes, but has also provoked a variety of cross-national comparative research covering a diverse and innovative set of methodological tools. Emmenegger, Kvist, and Marx (2015, pp. 8–9) showed that around one-third of the studies with strong engagement with *The Three Worlds* empirically tested for regime clustering while one-quarter of them had a "fourth world" focus. Kim (2015) provided a review primarily based on the variations across case selection practices in welfare modelling.

This review covered 33 studies on welfare typologies published until 2013, and presented a breakdown of case selection over five main groups ranging from Esping-Andersen's 18 nations to non-OECD regions/nations and all nations. The review revealed a "customary narrow focus" wherein over two-thirds of the welfare modelling studies dealt with cases from OECD countries (Kim, 2015. p. 315). Kim (2015, p. 316), as well as Ebbinghaus (2012, p. 6), also mentioned the disregard given to justification of case selection within the literature.

The methodological spectrum used for welfare modelling is also very wide. Barrientos's (2015) overview of the use of methods revealed three categories, broadly defined as (i) data reduction, which includes cluster analysis as well as latent variable models, (ii) regression analysis, and (iii) qualitative comparative analysis. The review showed that data reduction techniques (including cluster analysis) as well as regression analysis were all used extensively but in "a piecemeal fashion," and that qualitative comparative techniques were increasingly utilized. Following in the footsteps of such meta-analytic studies that focused on case selection and choice of methods, we turn in this paper to the choice of variables and measurements. Our analysis of variables can provide welfare regime scholars with cautionary tales about systemic errors that can stem from variable selection.

Providing examples from Gough et al (2004) on informal security regimes and insecurity regimes of the Global South illuminates our main motivation. Our main argument in this study is related to Gough's two arguments that both call for caution. First is the claim that concept of the welfare regime should be applied to Global North and South differently, and second, welfare outcomes should be a component of welfare regime operationalization in addition to welfare mix and stratification. In an introduction to their ground-breaking project on welfare regimes across different regions of the World, Gough (2004) argues that Global North and South are structurally and categorically so different as to require dissimilar conceptualizations and operationalizations of welfare regimes. Specifically, a *welfare state*

regime can only exist in the Global North, while the Global South is bounded to have only informal security regimes and insecurity regimes because "social policy in the West […] assumes a developed form of capitalism and a relatively autonomous state." (Gough 2004, p.21). Since the study argues that capitalist production relations exist in a developed form only in the Global North, welfare regime perspective is not applicable to the Global South where capitalism is non-existent or partly exists and where exploitation is accompanied by exclusion and coercion. He goes on to generalize that the Global South is not capitalist in the most general level as "other forms of production persist, develop and interact with capitalism", such as "direct production of food and other goods and services, employment in informal labor markets, the productive role of community resources, kin connections, smuggling and illegal activities" (Gough 2004, p.28). Gough argues that the dominant mode of production in the Global South is either peasant economies within peripheral capitalism or predatory capitalism. However, many studies have shown that informality and agricultural direct production, as well as smuggling and illegal activities are not external to, but, integral components of modern capitalism in the West as well as in the non-West (Castells and Portes 1989; Bernstein 2010; Araghi 1995; Xu 2017;).

Additionally, Gough's argument indicates that wage labor and salaries are not the main forms of livelihood in the Global South, and main forms of political mobilization occur on various aspects of politicized identities and cleavages, such as race, ethnicity, caste, rather than class struggle. Likewise, political structures are assumed to be clientelistic, as opposed to rational relatively autonomous states. Most importantly, decommodification is assumed by Gough to be absent and at most partial in the Global South, because labor is not genuinely commodified in the first instance. Although these regional differences may be empirically relevant to an extent, an ideal-type conceptualization of advanced capitalist countries as opposed to an ad hoc group that covers a vast range of different political structures may conceal

important variation within and across different regions. Aside from the well-known shortcomings of thinking with binary oppositions such as North vs. South, West vs. East, occident vs. orient and basing the analysis on these presumably self-explanatory categories (Said 1979; Fabian and Bunzl 2002; Appadurai 1988; Chakrabarty 2007), various studies illustrate that the degree of proletarianization, commodification, and capitalist development in the Global South are in levels commensurate to the Global North (Silver 2006; Harvey 2006; Ferguson 2006; Elyachar 2005; Piot 1999). Therefore, the argument that welfare state regime concept is not applicable to the Global South begs further attention.

More importantly for our argument in this paper, Gough (2014) argues that welfare outcomes should be central to the operationalization of welfare regimes, in addition to welfare mix and stratification. For Western countries, welfare outcomes have been "assessed according to the degree to which labor is de-commodified or shielded from market forces" (Gough 2004, p. 23). Therefore, according to Gough, decommodification is a welfare outcome, even in the *Three Worlds*. However, decommodification is operationalized by Esping-Andersen with reference to indicators that represent unemployment insurance, sickness insurance and old age pension. However, Gough (2014) operationalizes welfare outcomes in the Global South by well-being indicators such as poverty rate, Gini coefficient, or human development index. This operational difference begs for further justification besides from arguing that decommodification does not exist in the Global South and "more direct measures of human well-being and ill-being, security and insecurity" is needed (Gough 2004, p.36). For example, social assistance policy indicators rather that poverty rate could capture the concept more directly, even if welfare outcome is conceptualized in the sense Gough has attributed to Esping-Andersen. It seems to us that that the lack of data on such policy variables in the Global South is a more salient factor than the theoretical justifications presented by Gough. In addition, Gough also indicates that "available data severely restricts any attempt to be inclusive" for

operationalizing welfare mix, underlining insufficient systematic data on expenditure on social security, welfare and community services and housing and private welfare spending. This is in parallel with our main argument that data availability is a significant constraint that shapes welfare regime operationalizations in the Global South.

In general, as observed by Powell and Kim (2014), "whether the Western welfare modelling business can be successfully exported to other parts of the World" is a highly contended issue among scholars. While some are in favor of the global applicability of the concept (Rice 2013) others believe that the concept should never be used in the Global South or at least used with radical adaptations, because of irreconcilable institutional and structural differences across regions (Powell and Kim 2014; Walker and Wong 1996; Hudson and Kühner 2012). The resolution of this debate is certainly beyond the scope of this paper. However, we want to emphasize that even if the Global South needs novel operationalization efforts to elucidate specific welfare regimes, these new indicators should still not be about outcome, political or contextual variables that are associated with welfare, but welfare policy indicators that represent inputs to frame functions and scope of welfare across different countries.

Research Question and Arguments:

This article provides a comprehensive analysis of the Three Worlds literature by compiling, classifying, and quantitatively analysing all variables that have been employed. Our aim in this study is to discern the logic behind variable selection in the aforementioned literature. To this end, we classify 175 unique variables that are used in these studies under four analytic categories.

First, under the category of *welfare policy variables* we grouped indicators that represent government welfare policy efforts, such as "pension expenditure as a percentage of

GDP," "public unemployment spending as a percentage of GDP," "social security spending as a percentage of GDP," and "maternity leave qualifying period". These variables include both expenditure and non-expenditure types of welfare policies, which is a crucial distinction stressed by Esping-Andersen himself. Whether expenditure or non-expenditure, these variables represent content and scope of social policy efforts, including eligibility rules, generosity, or format of social programs. In this meta-analysis, we argue that these welfare policy variables should be the main component of any typological or classificatory study because various policies together make up alternative welfare types and they are the main indicators of specific policy choices to establish and institutionalize a specific welfare regime. Only 16 of 175 variables are the original variables used for measuring either decommodification or stratification by Esping-Andersen (1990). Surely, the use of additional variables can enrich the literature. Devising more precise measurements could yield interesting findings especially in a context in which the original study by Esping-Andersen has long been challenged substantively on methodological and conceptual grounds (Powell and Barrientos, 2011; Barrientos, 2015). However, while most of the studies refer back to Esping-Andersen's study (1990), we observe that scholarly research does not sufficiently employ original variables used in this study. Therefore, our review will suggest that there is not enough continuity in the welfare modelling literature, and multiple instances of welfare classification studies may be "reinventing the wheel" without paying attention to continuity in measurements. In fact, as we will show, a striking portion of studies (16 out of 31) do not refer to any of the original variables in Esping-Andersen's study at all, hindering geographic extension of studies into non-OECD countries and less developed regions.

Second, under the category of *developmental outcome variables,* we identified issues that relate to various economic development outcomes that are primary products of various welfare regimes. Indicators such as "female labour force participation," "human development

index," "life expectancy," "illiteracy rate," and "Gini index" are analysed under this second category of variables. These variables are defined as developmental outcomes because the studies on welfare regime typologies primarily focuses on economic development. Alternatively, welfare generosity levels can also produce/mediate secondary types of outcomes on various social institutions, such as family life, social trust and capital, political efficacy (i.e. perceptions about ability to change political outcomes), and even attitudes towards immigrants (Eger & Breznau, 2017). However, we specifically focus on development for two main reasons. First of all, the studies we present in this review categorically focus on developmental outcomes rather than potential corollary outcomes of welfare regimes. An alternative fifth category of factors that relate to non-developmental outcomes of welfare regime types would be a void category given the paucity of the 31 typological studies we analyse in this review. More importantly, separating outcomes into economic-developmental issues vs. non-economic secondary outcomes would complicate our analysis without any additional analytical leverage. One of our main findings from the meta-analysis indicates that typological-classificatory studies should aim to explain alternative types with reference to "inputs" to the welfare system, i.e. welfare policy variables. Given the role of welfare policy variables, substantive nature of alternative outcomes (whether they are developmental or secondary) is beside the main point of our argument.

Third, under the category of *contextual variables,* we classified indicators that typify the broader economic, social, and demographic context within which welfare policies operate, such as "GDP per capita," "ethnic diversity," "openness of economy," "consumer price index," and "population size". Finally, under the category of *political variables,* we grouped indicators that embody diverse political factors effective in shaping a welfare regime, such as "protest index," "union density," "democracy index," "cabinet seats of left parties," and "religious party cabinet strength". Given this categorization we present a meta-analysis of various aspects of

welfare modelling business studies (variable categories, regions, methods). Our basic argument relates to some general tendencies in the literature:

1. Selection of variables for welfare modelling has depended more on case selection than on theory. This leads to an under-utilization of welfare policy variables that should be at the core of welfare regime modelling. As a result, the increase in the number of variables in the Three Worlds literature has not led to a more precise operationalization of relevant concepts, but grew out of an endless effort to find proxy measures from whatever data are available for the regions under scrutiny. Furthermore, we argue that authors have largely employed variables that are available for the particular region or the group of countries of their research interest. In this respect, most studies have not theoretically grounded the selection of variables for their welfare modelling and this has led to serious limitations on the validity of the overall literature.
2. The use of "welfare policy variables" is mostly limited to studies focusing on Organisation for Economic Co-operation and Development (OECD) countries or those analysing Esping-Andersen's original 18 country cases. The lack of available datasets on welfare policies for non-OECD countries is the main reason for this in most cases, but scholars have chosen to use developmental outcome, contextual, and political variables rather than welfare policy variables, creating serious validity problems. This problem can potentially comprise both construct and external validity: research can suffer construct validity problems especially if welfare regime as a concept is measured by reference to developmental outcomes and/or other political and contextual variables. That is to say, with the use of variables other than welfare policy variables, the analysis does not measure what it intends to measure, i.e., welfare state regime. On the other side of the coin, selecting specific regions because of data limitation problems poses potential threats to external validity. Given that most of the research is based on

advanced capitalist democracies and OECD members, to what extent can we generalize research to other regions?

3. In relation to the previous point, the use of developmental outcome variables in place of welfare policy variables increases the potential risk of confusing development with welfare, and introduces the risk of blurring the line between determinants and outcomes of welfare.
4. Although the literature is grounded upon Esping-Andersen's Three Worlds, Esping-Andersen's original variables have been very rarely used, and this has undermined the continuity of the literature and the reliability of studies. We surely do not consider Esping-Andersen's variables sacred untouchables, but there still is a methodological need to incorporate them into welfare regime studies.[1] The comparative nature of the literature requires a shared framework and a gold standard, which could also elevate the status of the welfare modelling business to an established sub-discipline of welfare studies. Such a gold standard to comparatively evaluate cases and studies would be composed of common variables to be used in operationalizing welfare. Esping-Andersen's original variables would be a necessary but not sufficient sub-set of such a standard, as these variables have been shown to capture basic welfare efforts in many dimensions.
5. Studies utilizing data reduction methods or mixed-regression methods have particularly under-utilized welfare policy variables compared to developmental outcome variables.

Taken together, all of this has led to a conclusion that, similar to the dependent variable problem in welfare development studies, we are observing a "variable selection problem" in

[1] We contend that the use of certain political variables is necessary for capturing the political causes or effects of welfare regime changes. Our intention however is to point out a more general tendency in the literature to easily replace welfare policy variables by other variables without regarding much about the ensuing validity problems.

welfare regime studies (Clasen & Siegel, 2007; Green-Pedersen, 2004; Howlett & Cashore, 2009; Kühner, 2007). The following section presents a short overview of the Three Worlds literature with particular attention to existing studies with similar meta-analyses on methodology and case selection. Then, we explain our method and data collection, and present our results. In the conclusion, we discuss the limitations of the existing literature and provide some suggestions for improvement.

Methodology

We examine whether and how different case selection orientations are associated with variable selection, controlling for methodological approaches. We only selected journal articles that conducted a qualitative or quantitative empirical analysis, offering a new "welfare typology" or assessing the "impact" of welfare regime on certain developmental outcomes with the use of statistical data and methods. We started our case selection by synthesizing the two lists of relevant studies compiled in the previous meta-reviews of welfare typologies by Kim (2015) and Barrientos (2015). As these meta-reviews covered the literature up until 2013, for the remaining years (2013–16) we conducted a search on Google Scholar to include more recent quantitative studies published in English. Our criteria for including further studies are parallel to those used by Kim (2015), who synthesized two lists of studies by Arts and Gelissen (2010) and Ferragina and Seeleib-Kaiser (2011). This entailed conducting forward reference list checking (Gough, Oliver, & Thomas, 2012) using Google Scholar, limiting ourselves to English studies citing works that appear in Kim (2015) and Barrientos (2015). Ultimately, we identified a total of 31 articles published between 1994 to 2016 that varied in their methodological orientation and geographical case selection.

Using these 31 studies, we constructed a dataset by coding the articles according to their case selection and methodological approach. On the one hand, we followed Kim (2015)

and classified the articles into four main groups based on their case selection: those analysing Esping-Andersen's original 18 country cases (EA-18), those focusing on more than 18 OECD countries (OECD 18+), those that include non-OECD countries, and those analysing all[2] countries. In this classification, the first group of articles (EA-18) either re-test the validity of Esping-Andersen's typologies (Ferragina et al., 2012; Scruggs & Allan, 2006, 2008) or re-analyse Esping-Andersen's data with new methodological tools (Kangas, 1994; Shalev, 1996). The second group takes the discussion a step further by focusing on more than 18 OECD member states and identifying new welfare clusters such as Southern European (Castles & Obinger, 2008; Ferrera, 1996; Powell & Barrientos, 2004). The third group looks beyond the OECD nations (Abu Sharkh, 2009; Gough, 2013; Rudra, 2007; Wood & Gough, 2006) and aims to extend the welfare regime analysis from developed world to the developing world (Kim, 2015, p. 313). The final group of studies encompasses all countries: Abu Sharkh (2009), for instance, analyses welfare regimes of 79 countries.[3]

On the other hand, following Barrientos (2015), we coded the articles according to their methodological orientation. This coding led to identification of three distinct categories. The first category covers studies that use data reduction methods, most importantly cluster analysis. The second category covers articles that employ regression analysis to link country clusters to underlying political/social processes or structural factors. Some studies under this category also undertake cluster analyses. Hence, we labelled this category "mixed-regression". The third category use qualitative analysis methods such as small-n case comparisons.

[2] Here "all" does not refer to all countries in the world but rather connotes those with available comparable datasets. Kim (2015, p. 314) refers to this group of studies as those encompassing OECD and non-OECD nations on the basis of certain case selection criteria. Even if the study itself aimed at "all nation-states of the world," as for instance in Abu Sharkh (2009), case selection was narrowed down to those reporting data or with UN or World Bank "guestimates" of national data (Kim, 2015, p. 315).

[3] In order to replicate the analysis provided in this paper, an anonymized dataset replication is uploaded online at http://bit.ly/2jFuScM

Following the coding of the articles based on their methodological and geographical orientation, in the second stage of data compilation we coded each and every variable used in these 30 articles. Each row of our dataset identifies a single variable used in a study. In the cells of this row we then present values that characterize (i) the author of the article that used this variable, (ii) the type of variable (welfare policy, developmental outcome, contextual, or political; see next page for descriptions), (iii) the type of methodology of the article, and (iv) the case selection orientation of the article that used the variable. We used this charting to test whether variable selection is systemically affected by the selection of cases or methodological orientations.

In total, we observed 175 unique variables used in 30 studies. There are a total of 455 rows in our database, because some variables are used in more than one study. Thus, 455 rows represent the 455 times these unique variables are used in these studies, and each utilization of 175 variables constitutes an element in our dataset. For example, the variable "pension coverage" was used by four articles. There are therefore four rows with this variable, and each occurrence is coded differently because each article that used this variable has different methodological and regional orientations.[4]

As we mentioned in the introduction, we classified our variables in four categories. To reiterate, the four categories are welfare policies, developmental outcomes, issues that relate to the context within which welfare regimes occur (contextual variables), and lastly political variables. We expect studies on welfare regime typologies to employ variables that explain welfare policies rather than the other three categories because a typology necessitates focusing

[4] Each observation we have refers to a variable used in a specific study. The same variable can be reused in multiple articles and we approach each instance of a specific variable as a single observation, used in a specific study. Therefore, our unit of analysis is a "variable-study" dyad. For convenience, in the rest of the article, wherever we used the term variable, we refer to a particular instance in which a variable is used by a particular article.

on variance among components of different types (e.g. welfare regimes) rather than developmental outcomes or the larger contextual-political system within which welfare exists. Our categorization identified that welfare policy variables are used 240 times, developmental outcome variables 86 times, contextual variables 85 times, and political variables 44 times.

Table 1 below summarizes our categorization across the studies reviewed. It contains three dimensions that characterize each study: methodological orientation, regional case selection, and number of different variable types used in the study.

[Insert Table 1 to feature here]

In this study, we first employed standard descriptive analyses on the dataset to trace whether there is a systematic pattern in variable selection based on geographical orientation of case selection. Second, we used regression models to see whether there is a statistical association between variable selection and geographical orientation, controlling for methodological orientation. We estimated a multinomial logit model and obtained relative risk ratios (rrr).[5] Formally, our model can be written as:

$$\ln(p_j/p_1) = \mu_j + \alpha_j x_1 + \alpha_j x_2 \qquad j = 2,3,...,J,$$

where p_j is the probability of occurrence of the j^{th} category of the dependent variable and x_1 and x_2 are the independent variables. Our dependent variable in this model is "variable selection" across the 30 articles listed above. Based on our classification criteria, this dependent variable takes up four values: (i) welfare variable, (ii) developmental outcome variable, (iii) contextual variable, and (iv) political variable. The explanatory variable in our model, case selection, is also a categorical one which depicts four categories: (i) EA-18 countries, (ii)

[5] Exponentiated coefficients obtained from multinomial logit are called "relative risk ratios," rather than odds ratios. We employed a multinomial logistic regression analysis since our dependent variable has more than two categories. Multinomial logit method is used to predict a nominal dependent variable given one or more independent variables. It is an extension of binomial logistic regression to allow for a dependent variable with more than two categories. As with other types of regression, multinomial logistic regression can have nominal and/or continuous independent variables and can have interactions between independent variables to predict the dependent variable.

OECD 18+ countries, (iii) Non-OECD countries, and (iv) All nations. The control variable, methodological orientation, takes up three categories: (i) data reduction, (ii) mixed-regression, and (iii) qualitative.

This meta-analytic approach to scrutinizing variables used in the welfare modelling literature lets us conduct both descriptive and inferential analyses. Results of both analyses presented below support each other and the argument that variable selection is dependent on geographical orientation of case selection, controlling for methodological choice of the study.

Results and discussion

In this section, we first present the results of descriptive statistics to discern any pattern that links variable selection to case selection. Then we continue with descriptive statistics to determine the extent to which original Esping-Andersen variables have been used. Finally, we present the results of the regression analysis that tests whether variable selection is significantly and substantively associated with case selection, controlling for the methodological orientation.

Types of Variable

Table 2 below presents the descriptive results of our systematic review with a categorical breakdown of the variables used in welfare modelling literature across the methodological and geographical orientation. This reveals that close to half of the total number of variables (47.2%) used in welfare modelling literature are not welfare policy variables. Around one-fifth of the variables used are developmental outcome variables, which increases the potential risk of confusing development with welfare and implies a tautological argument that blurs the line between determinants and outcomes of welfare. At the same time, the remaining 28.4% of variables belong to the sets of contextual and political variables.

[Insert Table 2 to feature here]

In terms of case selection, our analysis shows that the majority of studies (24 studies out of 30) either dealt with the original 18 countries or also included some OECD members – a slightly greater dominance of analyses about western countries than observed by Kim (2015), who indicated that over two-thirds of total studies he analysed were analysing EA-18 and Southern European countries. Here we observe that the use of welfare variables decreases significantly as the geographical orientation of studies expands. However, to begin with, even in studies that analyse the original 18 Esping-Andersen cases, around one-quarter (27.3%) of the variables are not welfare policy variables. Similarly, welfare policy variables constitute only 48.2% of the variables employed for analyses among studies that focused on developed OECD members (OECD 18+). Furthermore, when authors include non-OECD members and/or focus on all countries, the use of welfare policy variables drops significantly, i.e., to 28.9% and 33.3% respectively. Such findings support the claim that there are systemic reasons related to data availability for the case selection procedures.

Moreover, our analysis illustrates that studies on welfare regime typology which utilize different methodological orientations also diverge on the types of variable employed. To begin with, in articles conducting cluster analysis, only 57% of the variables used are welfare policy variables. Studies utilizing mixed-method and regression analysis techniques make use of a variety of different categories of variables. This is reasonable given the explanatory nature and motivation of regression analysis, which involves the incorporation of several different sets of explanatory and control variables, whereas data reduction methods aim at typological research. Articles that employ mixed-regression methods (i.e., a combination of data reduction and regression) use 24.2% welfare, 41.9% developmental outcome, 21% contextual, and 25.8% political variables, and this multiplicity is mostly because of the explanatory nature of regression. Yet, we still observe an excessive utilization of developmental outcome variables,

compared to welfare variables. For example, in the "cluster analysis" part of her article, Abu Sharkh (2009) uses more developmental outcome variables than welfare policy variables to identify clusters. On the other hand, the dependent variables of her regression analysis are also developmental outcome, rather than welfare policy variables. She justified her choice of variables by referring to Wood and Gough (2006): "Building on Wood and Gough (2006), we develop a framework of three components: the welfare mix (resources and expenditure), the wellbeing outcomes (consisting of development and equality components) and the political economy (nationally and internationally)" (Abu Shark 2009, p. 8). This illustrates the possibility of a feedback loop within the literature that strengthens the use of non-welfare variables to operationalize welfare regimes.

Furthermore, as we noted above, even in articles that only conduct data reduction (cluster) analysis, 43% of variables are not welfare policy variables but developmental outcome, contextual, and political variables. We argue that this is a serious flaw of the Three Worlds literature since the identification (as opposed to explanation) of welfare regimes should be conducted using welfare policy variables.

[Insert Table 3 to feature here]

As is shown in Table 3, we have also conducted another coding of variables. We have identified variables that represent stratification as in EA (1990), decommodification in EA (1990) and defamilisation in EA (1999) and then looked at their distribution over methodology and case selection. Our analysis illustrates that in total 48.2 percent of these EA variables are related to decommodification, 29.6 percent to stratification and 22.2 percent to defamilisation. Moreover, when we decompose variables in terms of methodology and case selection, we observe that there is much higher use of decommodification variables in articles using mixed-regression and qualitative methods as well as covering all nations. There is no use of such variables for analyses of non-OECD nations, as well.

As suggested above, the variable selection for welfare modelling seems to be associated with the geographical orientation of the study. In order to statistically test this claim, we ran multinomial logit analysis. We tested whether variable selection is associated with the geographical orientation of case selection, controlling for methodological orientation. It should be noted that we were not intending to establish a causal direction between variable selection and case selection. Rather, we suspected that variable selection and case selection are mutually conditioned and the direction of causality may not be the same across all studies reviewed. In other words, it is either that scholars select their cases on the basis of the variables they intend to use, or that they select their variables from data that are available for the countries they intend to analyse. Nevertheless, we contend that casting a wider net and trying to classify welfare regimes in non-OECD countries prompted scholars to use variables that are only tangentially related to determinants of welfare regime types. Because data exist mostly for more developed countries, studies of less-developed countries use less pertinent variables.

Here it should be noted that there have been some efforts to compile cross-national datasets that include unavailable welfare policy data. For instance, the Atlas of Social Protection Indicators of Resilience and Equity (ASPIRE) compiled by World Bank aims at a comprehensive set of indicators to measure "performance" of social protection systems across developing countries. Similarly, the Social Assistance and Minimum Protection Dataset (SaMIP), which is now a part of Social Policy Indicators (SPIN) at the Swedish Institute for Social Research at Stockholm University, provides information on social assistance programs and related policies of last resort for 36 countries, almost all of which are OECD countries. The Comparative Welfare Entitlements Dataset (CWED) compiled by Scruggs and colleagues provides data on the programmatic features of the social insurance programs in 33 developed

countries. Such efforts however remain insufficient to provide a fully global dataset with a wider set of countries and a more comprehensive set of welfare policy variables[6].

To test the claim that variable selection is associated with geographical orientation, we use a multinomial regression analysis with a dependent variable that takes on one of the four possible values: 1 if the variable is a welfare policy indicator, 2 if it is a developmental outcome indicator, 3 if a contextual indicator, and 4 if political. The explanatory variable in the model is the regional orientation of case selection and the control variable is the methodological orientation. This helps us explore further evidence to substantiate our argument that variables are not selected on a concrete theoretical basis (Table 4).

[Insert Table 4 to feature here]

The results presented in Table 4 reveal that studies on OECD member countries are 8.8 times more likely to use contextual variables when compared to the studies analysing the original EA-18 countries, controlling for methodological orientation. Moreover, studies on non-OECD countries are 5 times more likely to use developmental outcome variables and 6.4 times more likely to use contextual variables than welfare variables when compared to the studies analysing original EA-18 countries. Finally, articles analysing all nations are 2.8 times more likely to use developmental outcome variables than welfare variables when compared to the studies analysing the original EA-18 countries. This shows that there is a statistically significant and substantive association between variable selection and case selection, controlling for methodological orientation. Figure 1 plots the predicted probabilities using the four different sets of variables across regions. We should also note that for methodological orientation, our results show that the studies employing regression techniques are 12.3 times more likely to use political variables when compared to those using data reduction methods.

[6] These datasets and related documentations are available from http://datatopics.worldbank.org/aspire/, http://cwed2.org/ and http://www.spin.su.se/datasets/samip

As we indicated before, this has mostly to do with the explanatory nature of these methodologies.

[Insert Figure 1 to feature here]

Our findings from this exercise produce results similar to our conclusions from descriptive analysis of systematic reviews of the welfare modelling literature. That is to say, we find that the larger the geographical scope of the study, the less likely it is to use welfare policy variables. Given the challenges in retrieving welfare policy variable data from countries that neither systematically collect nationwide data nor report such data to international organizations and data repositories, it seems that scholars were either confined to focusing on specific cases, not on the basis of any comparative case selection criterion for justification or theoretical framework, but rather due to data availability; or, they analysed only those variables available for selected case countries. In this respect, data availability problems may limit the generalizability and external validity of the arguments regarding new welfare regime typologies.

This account suggests that studies focusing on advanced countries measure welfare policy variables in a more precise manner and therefore are able to conceptualize better, but extending the cases towards other countries tends to decrease the internal validity of studies. There is a trade-off between the number of cases included and precision of the measurements in the analysis. Our analysis suggests that this trade-off depends on systemic errors when the literature on welfare regime typology tends to cover an extended set of cases. This poses a considerable challenge for the literature, as it necessitates additional efforts to collect original welfare policy variable data from countries where these data are not immediately accessible.

Discontinuity in the Literature: The Underuse of Original Esping-Andersen Variables

16 out of 30 of the studies we reviewed did not use even one variable from Esping-Andersen's original study. Table 5 reports the results of our review concerning the variables in the original Esping-Andersen work, categorically presented along case selection and methodological orientations. As we mentioned earlier, we analysed the original sixteen variables used in the original study.[7] Similar to our findings on the types of variable used, we observe a systemic association between the use of Esping-Andersen variables and the methodological/geographical orientation within the welfare modelling literature. In further regression analyses we also observed a substantive systematic association that is significant at conventional statistical significance levels.

[Insert Table 5 to feature here]

As illustrated in Table 5, our review finds that only 25% of the studies that utilize mixed methods or regression analysis use the variables from the original Esping-Andersen study. Only around half of the studies that employ clustering methods use the variables in Esping-Andersen's original work, while a very limited number (4.6% of studies with data reduction methods) use all the variables from the original study. We observe that all of the original variables are used in only 3.3% of our cases (namely only one out of 30 studies reviewed).

[7] The 16 variables used by Esping-Andersen (1990) is as follows: 1- minimum pension replacement rate, 2- standard pension replacement rate, 3- number of years of contributions required to qualify for old age pension, 4- the share of total pension finance paid by individuals, 5- the percent of persons above pension age actually receiving a pension (take-up rate), 6- sickness benefits replacement rate, 7- number of waiting days to receive benefits, 8- number of weeks of benefit duration, 9- unemployment benefits replacement rate, 10- number of waiting days to receive benefits, 11- number of weeks of benefit duration, 12- corporatism (occupationally distinct public pension schemes), 13- etatism (measured as expenditure on pensions to government employees as percentage GDP), 14- means-tested poor relief (as a percentage of total public social expenditure), 15- private pensions (as percentage of total pensions,) and 16- private health spending (as percentage of total). In his analysis, Esping-Andersen (1990) also uses "average universalism" and "average benefit equality" measures but we excluded those in our review since these two measures are his own index calculations, hence not original variables.

When we look at the geographical orientation of case selection, we observe a very low use of original Esping-Andersen variables in all categories, including the original EA-18 countries. 38.5% of all studies that analyse EA-18 countries do not use any Esping-Andersen variables, and only 7.7% of studies use all Esping-Andersen variables. We observe more striking results when we go beyond EA-18. More than half of the studies that analyse OECD 18+ do not use any Esping-Andersen variables, and none of these studies use all the Esping-Andersen variables. An even more striking finding is that Esping-Andersen variables have never been used in analysing non-OECD countries. Finally, half of the studies that analyse all nations do not use any Esping-Andersen variables, and the other half use only one of these variables.[8]

These results are mostly due to data limitations, which suggests the following arguments concerning the potential for continuity in the literature: first, these studies remain constrained in extending Esping-Andersen's original framework to other countries since the original variables are under-utilized. Secondly, the continuity in literature is bounded by data limitations or availability of the relevant data. The welfare regime typology framework was in fact expanded by Esping-Andersen in his later works to incorporate new sets of variables in order to further develop his framework. For instance, the contribution of the household economy and family to the welfare mix was later captured by including new variables such as public spending on family services, public day-care coverage rate, weekly unpaid hours for women, etc., to capture the concept of "de-familialisation" (Esping-Andersen, 1999, pp. 50–63). Furthermore, new challenges facing welfare regimes globally paved the way for respective

[8] Scruggs and Allan (2006 and 2008) and Powell and Barrientos (2004) are examples of good practice. They have used genuine social policy variables to represent welfare state efforts. Castles and Obinger (2008) can be cited as two examples for the type of flaws that dominate the literature. In their cluster analysis, they mixed different types of variables to estimate welfare regimes, including total fertility rate, public sector employment, social security contributions, direct taxes, indirect taxes, inflation, unemployment, education expenditure, subsidies, male employment, social transfers, total tax revenues, female employment, outlays of government, economic growth.

policy changes, necessitating new variables such as percentage of labour force in public training and employment measures, unemployment rate, poverty rate for specific groups, and labour force composition (Esping-Andersen, 1996, pp. 12–20; Ferragina, Seeleib-Kaiser, & Spreckelsen, 2015). In this regard, we argue that it has been valuable to extend the analysis with new variables even while the neglect of the original Esping-Andersen variables remains problematic. Generalizing Esping-Andersen's original framework for modelling welfare regime types necessitates either replicating the study with the same variables and/or suggesting more precise measurements for the sampling universe of country cases. However, we find that most of the studies fall somewhere in between, either by suggesting an additional regime type without using the original variables or by selecting cases so as to confine the research agenda to certain data availability structures. As this observation is not random but systemically distributed across cases, we argue that the current literature repeats itself in a confined manner.

Doubtlessly, not all scholars claim to be following in Esping-Andersen's theoretical footsteps and in fact, many of them have criticized him for selecting certain variables or for his limited regional scope. For example, Bambra (2004, 2005 and 2007) emphasizes the gender dimension and importance of social services in welfare regimes. Gough and Wood (2006) indicate that Esping-Andersen framework cannot be applied in the Global South. Hudson and Kühner (2009 and 2012) and Rudra (2007) propose productive and protective welfare regimes as alternatives and, Siaroff (1994) and Vrooman (2013) bring forward gender and culture as two additional sets of explanations. However, given the theoretical framework at hand, all scholars have been engaged with Esping-Andersen, either by further developing his framework or by criticising it. The critics of Esping-Andersen have mostly either introduced new dimensions of welfare regimes or new welfare regime typologies. In both cases, the reader expects existing original variables to be retained and complemented by additional variables that indicate new dimensions or typologies. By doing so, we can comparatively assess the

explanatory power of alternative accounts. Even Esping-Andersen himself changed some of his theoretical arguments over time but he retained many of his original variables in his later work while introducing new ones (Esping-Andersen 1999). We observe that many scholars have added their own variables by taking out original Esping-Andersen variables and this prevents us from measuring the real effect of new variables.

Conclusions

The review of literature on welfare modelling identifies a significant advancement from Esping-Andersen's original *Three Worlds* study (1990), with a commendable effort by several scholars who aimed at extending the welfare regime analysis to other cases around the world by utilizing different methods. Our analysis suggests that the selection of variables used in this effort has however fallen short of fulfilling this ambitious commitment of extending the debate on welfare regime types both methodologically and geographically.

Alongside the geographical orientation, we find that the use of "welfare policy variables" is mostly limited to studies focusing on OECD countries or those analysing Esping-Andersen's original 18 country cases. One of the reasons behind this narrow focus could be the lack of available datasets on welfare policies for non-OECD countries. For the studies on non-OECD countries, our analysis reveals that developmental outcome variables, and to a lesser extent, contextual and political variables, are commonly used in place of welfare policy variables, creating validity problems. Despite various implicit and explicit links between welfare policies and developmental outcomes, interchangeable use of these two large variable categories is harmful as it may blur the boundaries between comparative developmental analysis and comparative welfare regime analysis. Also, despite the increasing variety of the methods utilized, the literature has been increasingly detached from the original study of Esping-Andersen and under-utilization of the variables used in Esping-Andersen's original

study implies a discontinuity in the welfare regime literature. We also observe that, across the methodological spectrum, studies utilizing data reduction methods or mixed-regression methods have under-utilized welfare policy variables compared to developmental outcome variables. This poses a challenge to the literature because it can potentially create a validity problem across different studies.

Our analysis shows that the welfare regimes literature falls short of using genuine welfare policy variables—and within such variables, especially the original Esping-Andersen ones. We construe this as a problem because underuse of welfare policy variables leads to a validity issue, in that the measurements intended for the welfare state do not give results for welfare efforts when developmental, contextual, or political variables are used. Developmental, contextual, and political variables are useful to understand the effects, causes, and context of the welfare state but not its content. In addition, the use of developmental variables may be misleading because welfare is not the only factor of development, which can depend on domestic resources and international dynamics, among other factors. Therefore, students of the welfare regime literature must confine themselves to the exclusive use of welfare policy variables in operationalizing welfare state regimes, and this effort has to be undertaken especially for non-OECD countries, where other types of variable currently dominate existing empirical studies.

This is particularly important because the welfare regime perspective, as used to analyse Western welfare states, has now become applicable to non-Western countries, as the level and forms of commodification and stratification in most of the non-West are today commensurable to Western counterparts. Therefore, there is a need to implement welfare regime analysis for the non-West in the same way it is conducted for the West. While our analysis shows that welfare policy variables are also underused for the West, the dominant

tendency for the West is still to employ these variables for welfare regime analysis, and this tendency should be adopted and improved for the analysis of the non-West. The underuse of welfare policy variables, and specifically the original Esping-Andersen variables, also leads to a reliability problem for the welfare regime literature. This literature is by nature comparative, but the use of non-welfare policy variables significantly undermines comparability across cases and studies, as the literature ends up being an array of studies that operationalize the welfare state with non-comparable measures.

We show that the larger the geographical scope, the lower the use of welfare policy variables. Furthermore, the larger the geographical scope, the lower the use of the original Esping-Andersen variables, in addition to the underuse of Esping-Andersen's original welfare policy variables even in the original 18 countries.

Out of the discussion of these findings, we would like to present a list of suggestions for welfare regime scholars who plan to conduct empirical analysis.

1. To operationalize welfare state regimes, only welfare policy variables should be used.
2. Esping-Andersen's original variables should be used to maintain validity and reliability.
3. The main criteria for selection of variables should be theoretical requirements of conceptualization, rather than data availability, which is naturally expected to impose certain constraints.
4. There is a significant validity problem in the welfare regime literature due to data availability. Availability of data stands as one of the main challenges confronting the scholars undertaking welfare modelling research when making their decision on methodological orientation and case selection, and such choices in return constrain the quality of the prospective findings from these studies. Thus, utilization of new datasets

with a wider coverage of nations as well as welfare policy variables could help explore other regions/country cases for welfare modelling research without validity problems. Currently, there is a mismatch between existing datasets and the theoretical requirements of the literature, which increasingly aims to make global points through large-scale comparisons. This can only be resolved by developing new datasets that contain welfare policy variables for both Western and non-Western countries.

5. There is a two-way orientalism which either imposes western yardsticks to the non-west or insists on the non-applicability of western concepts in the non-west. This resolution is beyond the scope of this articles, but we argue that the selection of non-welfare variables is to some extent related to these orientalist lenses.
6. With the release of new global welfare datasets, scholars of non-Western welfare regimes should pay more attention to the possibility that a global welfare regime theory and classification is viable. The fact that there are no comparable data that span Western and non-Western countries is often translated into an argument that Western and non-Western countries have non-comparable welfare regimes. In other words, the lack of comparative welfare data leads to a bifurcation between the conceptualizations and operationalizations of welfare regimes in Western and non-Western countries. To help overcome the variable selection problem in the Three Worlds literature, which emanates mainly from the lack of available data on non-OECD or developing countries, the authors have been building a new comparative welfare state indicators database, as part of an ongoing ERC project (emw.ku.edu.tr). This database covers data on more than 300 variables from 59 countries, including OECD and non-OECD countries, for the period since 1990. We believe that this new database and the resulting availability of new welfare policy variables will enable the scholars of welfare regimes in the non-

Western world to conduct analyses with the variables that would fit into scholar's theoretical concerns

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