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### *Global Welfare Regimes: A Cluster Analysis*

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CDDRL was founded by a generous grant from the Bill and Flora Hewlett Foundation in October in 2002 as part of the Stanford Institute for International Studies at Stanford University. The Center supports analytic studies, policy relevant research, training and outreach activities to assist developing countries in the design and implementation of policies to foster growth, democracy, and the rule of law.

## Abstract

This paper tests the claim that a small number of distinct 'welfare regimes', combining institutional patterns and social welfare outcomes, can be identified across the developing world. It develops a methodology for clustering a large number of developing countries, identifying and ranking their welfare regimes, assessing their stability over the decade 1990-2000, and relating these to important structural variables. It identifies three meta-welfare regimes: proto-welfare state regimes, informal security regimes and insecurity regimes (distinguishing illiterate-insecurity and morbidity-insecurity regimes). Membership of these is 'sticky' over time, but has been modified by two global trends: the HIV-AIDS pandemic in Africa and the growing role of remittances in some countries.

Key words:

Regime theory, welfare regimes, cluster analysis, path dependency, social policy, global.

*“The linear scoring approach (more or less power, democracy or spending) contradicts the sociological notion that that power, democracy, or welfare are relationally structured phenomena..... Welfare-state variations.. are not linearly distributed, but clustered by regime types”.*

*Esping-Anderson (1990:26)*

## **1 INTRODUCTION: WELFARE REGIME THEORY**

This article attempts to extend the analysis of welfare state regime theory to the developing world. We consider that Esping-Andersen’s (1990) regime approach remains a fruitful paradigm for thinking about social policy across the developing as well as the developed world for several reasons. First, it situates modern ‘welfare states’ within a wider *welfare mix*: governments interact with markets and families to produce and distribute welfare. Second, it pays attention to welfare *outcomes*, the final impact on human security, need satisfactions and wellbeing. Third, it is a ‘political economy’ approach which embeds welfare institutions in the ‘deep structures’ of social reproduction: it forces researchers to analyze social policy not merely in technical but in power terms.

Welfare state regimes in the West are defined by three factors: a) different patterns of state, market and household forms of social provision, b) different welfare outcomes, assessed according to the degree to which labor is ‘de-commodified’ or shielded from market forces, and c) different stratification outcomes. The last component refers to the role of ‘political settlements’ in defining the shape of welfare state regimes and the way these provide positive feedback, shaping political coalitions which tend to reproduce or intensify the original institutional matrix and welfare outcomes. As a result this framework also posits a strong thesis of path dependence.

But to apply this paradigm to the nations and peoples of the developing world requires a radical reconceptualization and broadening of focus from *welfare state regimes* to *welfare regimes* (Gough, 2004a, Wood and Gough, 2006). First, the welfare mix must be extended beyond 'the welfare state', financial and other markets, and family/household systems. The important role of community-based relationships must be recognized, ranging from local community practices to NGOs and clientelist networks. In addition, the role of international actors cannot be ignored as it often has been in the welfare state literature: this embraces aid, loans and their conditions from international governmental organizations, the actions of certain transnational markets and companies, the interventions of international NGOs, and even the cross-border spread of households via migration and remittances. The result is an extended *welfare mix* or *institutional responsibility matrix* as illustrated in Figure 1.

**Figure 1.**

### **Components of the Institutional Responsibility Matrix or Welfare Mix**

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In addition, second, the 'de-commodification' of labor has less salience as a measure of security in societies where labor markets are imperfect and livelihoods diffuse; instead a wider range of indicators needs to be employed. Third, political mobilizations in many developing countries are more diffuse and particularistic with less intentional impacts on state policies; indeed, the state is more weakly differentiated from other power systems.<sup>1</sup> On this basis, Gough and Wood (2004) posit the existence of two meta-welfare regimes in the modern world alongside the welfare state regime: an informal security regime and an insecurity regime.

*Informal security regimes* describe institutional arrangements where people rely heavily on community and family relationships to meet their security needs (though to greatly varying degrees). These relationships are usually hierarchical and asymmetrical. This often results in problematic inclusion or 'adverse incorporation', whereby poorer people acquire some short-term assistance at the expense of longer-term vulnerability and dependence (Wood, 2004). The underlying patron-client relations are then reinforced and can prove extremely resistant to civil society pressures and social policy reforms along welfare state lines. Nevertheless, these relations comprise a series of informal 'rights' and afford some measure of security.

*Insecurity regimes* describe institutional arrangements which block the emergence even of stable informal security mechanisms, and thus generate gross levels of insecurity and poor welfare outcomes. These regimes often arise in areas of the world where powerful external actors interact with and reproduce weak state forms, conflict and political instability (Bevan, 2004a). The result is a circle of insecurity, vulnerability and suffering for all but a small elite and their enforcers and clients.

This theoretical model of three meta-regimes is more general than the original welfare state regime framework, but it does retain the theoretical corollary of *path dependence*. Notwithstanding the unifying and converging forces of global capitalism, it emphasizes the variegated and path-dependent patterns of development or underdevelopment across different zones of the world. The regime approach is deliberately middle range; opposing both teleological functionalist approaches (as in much globalization literature) on the one hand, and post-modern approaches emphasizing uniqueness and diversity on the other hand. The implication is that there are a small number of welfare regime types, and not just

one, as some global convergence thinkers contend, nor 200 (the approximate number of states in the world system). It holds out the promise of a parsimonious conceptualization and understanding of human insecurity and welfare in the contemporary world, which yet does not force inappropriate categories and systems of thought on the immensely diverse range of countries in the modern world. The policy corollary is that 'one-size-fits-all' social policies are rarely likely to succeed, but that is not the focus of this paper (see Wood and Gough, 2006).

To empirically ground this, Gough (2004a) presented a brief mapping of welfare regimes using cluster analysis. However, it was recognized that a proper testing of the welfare regime framework would require a more rigorous study. This paper thus has three goals: first, to develop a methodology for testing the welfare regime framework using cluster analysis; second, to apply this to identify welfare regimes across 65 non-OECD countries at two points in time – 1990 and 2000; third, to test the relationship between these regimes and a small group of institutional and cultural-historical variables. These are the subjects of the next three sections.<sup>2</sup> But it should be stressed that our goal is classification, not causal analysis.

## **2 OPERATIONALISING AND ANALYSING WELFARE REGIMES**

### **2.1 Research questions and hypotheses**

The starting point is Esping-Anderson's argument (1990:26) that "the welfare-state variations we find are therefore not linearly distributed, but clustered by regime types". The regime concept rests on the idea that linear scoring approaches do not capture the systemic realities of country welfare or illfare systems because variations are not linearly distributed. The appropriate method for testing this hypothesis is cluster analysis. This article also explores a specific hypothesis

associated with the regime notion, that membership of regime clusters is 'sticky' over time, by clustering the same group of countries at two points in time.

For the purposes of this research we define welfare regimes as combinations of a) institutions and b) welfare outcomes. The relevant institutions are those patterns of resources, programmes and social outputs that can act to enhance welfare and security in specific societies. The welfare outcomes refer to final welfare conditions in the population. We do not here extend the meaning of welfare regimes to include structural and cultural aspects of societies and nation states, as depicted in Wood and Gough (2006). Instead in section 4 we consider to what extent certain structural factors are correlated with our regime patterns.

## **2.2 Methods: cluster analysis**

We undertook cluster analysis in two stages: hierarchical cluster analysis and k-means cluster analysis. All variables were standardized before beginning the analysis.

*Hierarchical* cluster analysis (HCA) identifies relatively homogeneous groups of cases according to the selected variables based on an algorithm that starts with each case in a separate cluster and combines clusters until all cases form a single cluster (SPSS, 2000).<sup>3</sup> Since this procedure, like most other statistical procedures, is sensitive to the omitted variable bias, care was taken to include all relevant characteristics for the analytical dimensions. The precise number of clusters to some degree lies in the eye of the beholder. A 'dendrogram' is 'a visual representation of the steps in a hierarchical clustering solution that shows the clusters being combined and the values of the distance coefficients at each step. Connected vertical lines designate joined cases. The dendrogram rescales the actual



distances to numbers between 0 and 25, preserving the ratio of the distances between steps' (SPSS, 2005). Dendograms 'can be used to assess the cohesiveness of the clusters formed and can provide information about the appropriate number of clusters to keep' (SPSS, 2000)<sup>4</sup>. Yet the final choice of the number of clusters remains a judgment call.

To improve this judgment we use at a second stage *k-means* cluster analysis (KCA). This is designed to identify relatively homogeneous groups of cases based on selected characteristics, using an algorithm that requires one to specify the number of clusters in advance. Compared to HCA it permits the recombination of cases and clusters over repeated iterations. Initial cluster centers form by assigning each case in turn to the cluster with the closest centre and then updating the centre, until final cluster centers are identified. The pre-specified number of clusters can be generated by theories or previous observations.

In our case, the number was generated by observation of the dendograms generated by the hierarchical clustering. Since this depends on the distance (1-25) one specifies to distinguish clusters, a variety of numbers was tried from  $k=4$  to  $k=10$ . In the end we decided on  $k=10$  for the analysis presented below because this better reflected the heterogeneity of data entailed in welfare regimes. It also enabled outlier countries to be given a cluster of their own, which reduced the variability of the larger clusters. Going beyond 10 did not yield more country clusters, just a larger number of one-country outliers (see Dudoit and Fridlyand, 2002, on criteria for determining the number of clusters).

K-means also generates many useful statistics. The analysis of variance F statistics provide information about each variable's contribution to the separation of the groups (though these statistics are opportunistic since the procedure tries to

form groups that do differ). We used this information to discriminate between numbers of k-means: clusters where each variable contributes more equally to cluster discrimination were favored over clusters overwhelmingly determined by one or two variables. In addition, the distance between cluster centers enables one to relate clusters according to their proximity to others. We use this statistic to generate an innovative *ordering* of the clusters, described below.

Thus cluster analysis is a time-consuming process! Numerous runs must be undertaken varying according to the variables included (entailing a trade-off between validity and coverage) and the number of k-means clusters identified.

### **2.3 Countries included**

Initially, we wished to include all countries in the world, and undertook cluster analyses on this basis (Abu Sharkh, 2006). However, it soon became clear that to include the OECD countries complicated the analysis by increasing the range of variation and obscuring important differences within the rest of the world. Since patterns of welfare state regimes across the OECD have been the subject of dozens of studies (see Arts and Gelissen, 2002 for a survey) it was also redundant. Thus the population of countries was reduced to the non-OECD world.<sup>5</sup>

In order to exclude large numbers of micro-states, countries with a population of less than 3 million people in 1990 were also excluded. This left potentially 127 countries which report data or let the UN or World Bank 'negotiate' data with the country. However, the number of countries was then further restricted due to severe variations in data availability, discussed below. Furthermore, to test the path dependency hypothesis we needed data for the same set of countries over a period of time. Initially we wanted to analyse data for 1970, 1980, 1990 and 2000, but again

due to lack of information, we were restricted to the two years 1990 and 2000. As a result we ended up with just 65 countries. To achieve even this number often meant rejecting more appropriate variables and substituting less suitable but more widely available ones.

## 2.4 Variables

As argued above, we home in on just two fundamental components of welfare/illfare regimes: the welfare mix and welfare outcomes. The *welfare mix* or *institutional responsibility matrix* describes the pattern of resources and programs that can act to enhance welfare or security in that society. It comprises the roles of government, private sector market activity, community and the household, as well as of the supra-national equivalents of these actors and processes. To operationalize this across the non-OECD world is exceptionally difficult, not least because of lack of data. Thus we could find no valid, reliable and comparative measures of: privately provided pensions and services (except for health purchases); community and NGO-provided welfare; the role of households and wider kin groups, except for overseas remittances; and little on the role and influence of transnational actors, except aid donors.<sup>6</sup> Given this unfortunate fact, we are reduced to *inferring* the nature of informal and insecurity regimes from the data that is available, to which we now turn.

To capture the extent of governmental and public responsibility for critical social resources, we use two pairs of variables covering expenditure/revenues and service delivery. The first pair is public spending on education and health as a share of GDP, and social security contributions as a share of total government revenues (as a proxy for provision of social insurance benefits). The second pair is immunization

against measles and secondary school enrolment of females. Immunization represents a low minimum social policy target; the extent of secondary education of girls was chosen as a higher, more extensive output target. Finally, to represent international aspects of the welfare mix noted in figure 1, we have measures of two external transfer flows: official aid and remittances from overseas migrants as share of GDP. Definitions and sources are provided in the appendix.

*Welfare outcomes* are difficult to measure in a consistent way in developing countries. Proposed concepts of security and insecurity have not yet secured the necessary scholarly agreement, let alone agreed measures.<sup>7</sup> We were therefore reduced to using the classic human development indicators of life expectancy, literacy and poverty. However, it transpired that there are no accurate measures of poverty for a large number of countries for a range of years, even restricting ourselves to the common but arbitrary cut-off measure of one dollar per person per day. It is astonishing that there is no remotely accurate way of tracking this, the most commonly cited Millennium Development Goal! Thus we were reduced to just life expectancy and literacy as measures of welfare outcomes. Many other more targeted measures were considered, such as the Human Poverty Index, but no others were available for the full range of developing countries over the two years.

Unweighted mean values for all 65 countries for all these variables are shown in Table 1. Welfare outcomes display a mixed trend from 1990-2000: a 4.8 percentage point decline in illiteracy but total stagnation in life expectancy, due to the catastrophic effects of the HIV-AIDS pandemic in a number of our countries. The role of the state in the welfare mix has changed remarkably little – there was a tiny expansion in public health and education spending and a tiny decline in social security receipts, though the reach of immunization and secondary schooling for

girls expanded, the latter by 10 percentage points. Most noticeable perhaps has been the opposite trends in the international components of the welfare mix (as measured): the decline of aid and the rise in remittances. This demonstrates the importance of expanding our concept of institutional responsibility to the supra-national level when charting welfare regimes in the developing world.

**Table 1.**

**Mean values for all countries 1990 and 2000**

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**2.5 Relating structures with regimes**

Having restricted the concept of regimes in this way, we finally want to consider their structural correlates. There are a large number of societal factors which have been theorized to affect the welfare mix and welfare outcomes. Gough (2004a) distinguishes six: the dominant modes of production; the dominant relationships of inequality, exploitation and exclusion; the portfolio of livelihoods; the political mobilization of different interest groups; the degree of autonomy/heteronomy of the state from such societal influences; and the capacities of states to act effectively and legitimately to define and pursue social policy goals. Again it is another matter to operationalise these variables! Due to lack of data we have had to restrict ourselves to just five indicators in this exercise: stage of economic development (GDP per head), societal inequality (the Gini coefficient of income inequality), the level of democracy (using the Gurr index), the degree of cultural diversity within countries (the ethno-linguistic fractionalisation index) and historical antecedents (identifying four distinct 'roads to modernity').

There is no agreed method to test the significance of cluster patterns: cluster analysis is a descriptive not an analytical statistical technique. We thus experimented with t-tests to test for significant differences between the means of pairs of clusters. The advantage of these tests is that the sample size may be very small (10 or smaller) while making only one significant assumption, that of normal distribution within the two groups compared. In the case of the non-continuous variable (historical antecedents) we simply present descriptive statistics in tabular form.

### **3 CLUSTER RESULTS**

#### **3.1 Welfare regimes in 1990 and 2000**

Table 2 below shows the clusters generated for 1990 and 2000 using the above variables and k-means clustering with  $k=10$ . In 1990 there were four substantial cluster groups, the remainder having three or fewer country members. In 2000, eight clusters contained four or more country members. In both years two clusters comprising a single country were excluded from our tables.

In both years the clusters are ordered in this and the following tables by comparing the distances between final cluster centers, starting with the cluster that most resembles OECD welfare states (see Appendix 1). In 1990, the cluster with the highest scores for public responsibility and welfare outcomes is the cluster labeled A. Most remote from this cluster is the pairing of Mozambique and Guinea-Bissau (H) and then the larger cluster beginning with Bangladesh (G). The remainders are ranked according to the distances between their final cluster centers and those of cluster A and H. A similar process was used to rank the clusters from A to H in 2000. However, it is important to stress that the nature of, say, the regimes labeled

'D' may be different in the two years – the weight of the variables shaping them are not necessarily the same. The label D indicates only that the cluster centre is the third closest to the centre of the A cluster in each year.

The magnitude of the F values from the analysis of variance (ANOVA) performed on each dimension indicates the role of each variable in discriminating between the clusters (Appendix 1). In both 1990 and 2000 remittances play a leading role, and public expenditure and immunization rates a minor role. Overall, there is a reasonable discriminatory role for each variable in both years.

**Table 2.**

**Global clusters 1990 and 2000**

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In order to understand the differences between these clusters, Tables 3 and 4 present the mean values for each component item in 1990 and 2000, respectively.

**Table 3.**

**Cluster means 1990**

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**3.2 Cluster characteristics in 1990 and 2000**

Concentrating on the four larger clusters, we can identify three broad groups of welfare regime types in 1990. Strictly speaking, the 'welfare regime' label is not warranted at this stage of the argument, since it remains to be demonstrated that these clusters represent common identifiable and plausible characteristics, and that these are consistent over time in a majority of countries. However, because we have

found that labeling using letters is very confusing, we anticipate our argument from hereon in by using the regime labels.

*Proto-welfare state regimes.* In 1990 Cluster A exhibited the highest welfare outcomes (remembering that all original OECD countries are excluded from this analysis) in terms of survival and literacy. The countries undertook relatively extensive public responsibility, as measured by state expenditure on education and health, high social security revenues, and good intermediate outputs on immunization and girls' secondary schooling. This cluster is most similar to Western welfare states and we may label them *proto-welfare state regimes*. They comprised in 1990 the countries of Eastern Europe and the more developed parts of the Soviet Union, Israel, and countries of the southern cone of Latin America, except Chile, plus Costa Rica.

*Insecurity regimes.* At the other extreme are clusters F and G. These clusters both exhibit very poor welfare outcomes betokening heavy and persistent insecurity for a majority of the population; hence our label *insecurity regimes*. The forms of deprivation differ: in cluster G, half of the young population is illiterate and only one in six females are enrolled in secondary school. This 'illiterate insecurity' cluster comprises the entire Indian sub-continent (except Sri Lanka) plus a spread of countries in central sub-Saharan Africa. Cluster F, comprising mainly countries in sub-Saharan Africa, exhibited very low life expectancy and high mortality rates linked to the HIV-AIDS pandemic – a 'morbidity insecurity' cluster. Both clusters have low levels of public responsibility as measured by both spending levels and social outputs and are on average more dependent on external flows of aid or remittances or both.



*Informal security regimes.* In between, we find a large cluster B with moderate welfare outcomes and low state expenditures (notably on social security) yet relatively good welfare outputs. It contains 21 countries, one third of the total, representing several world regions: China and most countries in East Asia from Korea through Thailand and Indonesia to Sri Lanka; the remaining countries of South and Central America; South Africa and its near neighbors; plus Iran, Turkey and Tajikistan. Compared with the insecurity regimes, this cluster exhibits superior outcomes coupled with lower public responsibility and smaller international transfers. This interesting combination suggests that security and illfare are mitigated by other domestic, non-state, informal mechanisms; we therefore designate them informal security regimes.

Is this pattern reproduced a decade later in 2000? Table 4 presents the cluster patterns found in 2000 using the same data and techniques as for 1990. This suggests that the pattern of welfare regimes has become more complex.

**Table 4.**

**Cluster means 2000**

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*Proto-welfare state regimes.* Cluster A exhibits relatively good outcomes, with relatively high levels of state responsibility including social security (as measured by size of revenues). It comprises 14 countries, mostly in Eastern Europe and parts of the ex-Soviet Union, Israel, the Southern Cone countries of Latin America and Costa Rica.

*Insecurity regimes.* At the other extreme are three clusters (F, G and H) which exhibit high but different levels of insecurity with low levels of public responsibility.

Clusters G and H have very low levels of life expectancy and very poor secondary school enrolment. All are in sub-Saharan Africa and may be labeled 'morbidity-insecure' countries. They are much more dependent on international resource flows, whether aid or remittances or both. Cluster F, comprising the Indian sub-continent, Papua New Guinea and two African countries, exhibits higher life expectancy but high youth illiteracy (though somewhat higher girls' secondary enrolment) - an illiterate-insecurity regime.

*High spending morbidity-insecurity regime.* In 2000, cluster D represents a novel combination: middle-income countries with relatively high spending on health and education, moderately good welfare impacts and high literacy but with very low life expectancy indicating high morbidity. This comprises five countries all in southern Africa which have been hard hit by the HIV-AIDS pandemic.

*Informal security regimes.* The remaining regime types also display more diversity in 2000. Cluster B comprises a large group of 16 countries with good welfare outcomes and moderate levels of state responsibility. A major difference between it and the proto-welfare states above is a smaller or absent role for social protection and lower levels of public spending. This picks up China and much of East Asia, though excluding Indonesia and Sri Lanka. It also includes much of remaining Latin America but not the Caribbean, plus Iran, Turkey and some other countries in Western Asia.

*Remittance-based informal security.* Cluster C is distinguished by great reliance on remittances from abroad, which account for 9% of gross national income on average. It mainly comprises countries in the Caribbean and Central America, plus Ecuador, Morocco and Sri Lanka. Here migration and remittances provide a newer and dominant mechanism of informal insecurity.

### **3.3 Consistency of cluster membership 1990-2000**

There are clearly some common features in the cluster arrays of the two years, but how constant is the membership over time? Table 5 groups the countries according to their cluster membership in 1990 and 2000.

#### **Table 5.**

#### **Comparison of cluster membership 1990 and 2000**

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Table 5 clearly reveals a considerable degree of membership constancy over the decade but with some movement. To comment on some of these:

- Those designated as proto-welfare states (regime A) in 1990 appear so in 2000 with only Moldova and Kazakhstan losing their place and Tunisia joining the club. This persistent group is coloured green in Table 5.
- The 1990 informal security regime (B) is likewise mainly reproduced in 2000, but with some attrition. A separate cluster has formed (C) resulting from the growing role of remittances from migrant workers as sources of informal security. In all other respects, this can be regarded as an informal security group, coloured yellow. But those countries that now appear in cluster D in 2000 reflect the drop in life expectancy due to HIV-AIDS: South Africa, Botswana and Zimbabwe. In addition Indonesia is relegated to cluster E, no doubt reflecting the impact of the 1997 East Asian financial crisis which affected that

country most severely. These two 'deteriorating' groups are coloured mauve in Table 5.

- The 'illiterate insecurity' regime (G, coloured grey) of 1990 divides into two: the Indian sub-continent (plus Cote d'Ivoire), and the remaining countries of central Africa. The major difference is improving life expectancy in the former versus stagnation in the latter; but all continue with high rates of youth illiteracy despite some improvement.
- The 'morbidity insecurity' regime of 1990 (F, coloured blue) persists but is split by the cluster analysis into different clusters according to schooling and literacy.

The extent to which these three broad groups of clusters constitute enduring regime types will be discussed below. At this stage we note just that their country membership changes at the margins due to two main factors, one of opportunity, the other a threat. In the last decade of the last century, migration and remittances provided new and significant sources of monetary security for some, while the HIV-AIDS pandemic escalated the gross insecurity of others (see Abu Sharkh 2007 on the impact of Aids).

#### **4 STRUCTURAL CORRELATES OF WELFARE CLUSTERS**

We have demonstrated reasonably persistent clusters of countries across the non-OECD world according to their welfare mix and welfare outcomes during the last decade of the last century. But do these constitute genuine and enduring 'welfare regimes' as the term was defined earlier on? To begin to answer this we

examine the relationships between our clusters and the set of societal factors which theory suggests are associated with them, introduced in section 1 above. Again we are constrained in investigating these correlates by the available data. The available measures have been introduced above: stage of economic development (GDP per head), societal inequality (the Gini coefficient of income inequality), the level of democracy (using the Gurr index), the degree of cultural diversity within countries (the ethno-linguistic fractionalisation index) and historical antecedents (using Therborn's (1992) four distinct 'roads to modernity').

Table 6 presents cluster means for the four continuous variables in 1990 and 2000. Given the small N in many clusters, we present results for only the four largest clusters in each year: clusters A, B, F and G in 1990 and A, B, C and F in 2000. T-tests of significance of the differences between these cluster means are presented in Appendix 2. We begin with the three structural-institutional variables: income per head, inequality and democracy.

**Table 6.**

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*Economic development.* There is an unbroken downward slope of average income as we proceed up the alphabet from cluster A to G in 1990; in 2000 this is broadly the case but with some exceptions. Broadly speaking, the proto-welfare states are close to upper-middle income countries according to the World Bank definition, the informal welfare regimes are lower-middle income and the insecurity regimes low income<sup>8</sup>. In 1990, all these differences are highly significant, except for the difference between the two insecurity clusters. In 2000, this is again the case, except that clusters B (informal security) and C (remittance-dependent informal security) do not differ significantly. This suggests that our welfare regimes are

tracking levels of development on average. However, comparison of clusters B and C and A shows the informal security regimes narrowing the economic gap with the proto-welfare state regime over the decade. This suggests that income per head is becoming a poorer predictor of welfare regime among the lower-middle income group countries. Convergence of economic development between these clusters is not yet a harbinger of converging welfare regimes.

*Income inequality.* The Gini coefficient of inequality does not vary in a linear way across the welfare regime types; rather it is an inverse U-shaped relationship. Cluster B – the informal security regime – is significantly more inegalitarian than the proto-welfare state group A *and* the ‘illiterate insecurity’ group G comprising South Asia and some African countries. This pattern is repeated in 2000 with the two informal security clusters B and C recording the highest levels of inequality – alongside the distinctive ‘high spending morbidity-insecurity cluster’ (D) in southern Africa.<sup>9</sup> This is an interesting finding: informal security regimes may be associated with improved levels of health and literacy, but not with reduced income inequality.

*Democracy* The Gurr indicator of democracy which we have used records a global spread of democracy between 1990 and 2000 and our cluster analysis shows a shift in the pattern of democracy across welfare regimes. In 1990, there was a clear democratic gradient from insecurity through informal security to proto-welfare state regimes, with one big exception: the democratic but insecure welfare cluster G of India and South Asia plus some African countries. By 2000 this had disappeared and there were *no* evident linkages between democratic practices and welfare regimes. Cluster C scores moderately well on democracy and welfare, clusters D and E on welfare but not democracy, clusters F and G on democracy but not welfare, and cluster H on neither. The global spread of nominally democratic

practices has undermined any previous correlations with regime type. Put another way, in 2000 there appears to be no significant link between civil-political and social rights.

*Fractionalisation and 'horizontal' inequality:* Turning to cultural variables, the effects of cultural diversity of various forms on development have been extensively studied using measures of 'fractionalization'. Fractionalization is usually defined as the probability that two randomly chosen persons belong to different groups, be it ethnic, religious, linguistic, or other. Higher levels of fractionalization are associated with poorer levels of growth, public goods provision, and redistribution, so we hypothesize a link with welfare clusters.<sup>10</sup> We use here data on ethno-linguistic fractionalization (ELF) from Taylor and Hudson. This databank draws on anthropological research in the 1960s and 1970s, so it reflects slow-changing structural features of populations. It is not longitudinal and we use the same data to set alongside our regimes in 1990 and 2000.

The 1990 results are clear: there is least cultural diversity among the countries of the proto-welfare state cluster and most in the two insecurity clusters. Cluster A is notably more homogenous than the others. This broad pattern is repeated in 2000 with one major exception: a group of highly homogenous countries mainly in Central America has formed a separate cluster with informal security characteristics. Most of the cluster differences in mean ELF scores are significant in both years, confirming the hypothesis that high cultural diversity within nations is associated with weak institutionalization of mechanisms of formal security - and indeed informal security.

*Historical antecedents: 'roads to modernity'.* Therborn (1992) identifies four 'roads to modernity' which can be used to test for the influence of historical-distal factors on emerging welfare regimes. The four routes are: 1. the first, European

route which later embraced Eastern Europe and Russia; 2. the 'settler societies' of the New Worlds including both North and South America as well as Australasia and southern-eastern Africa; 3. the colonial zone of Africa and much of Asia; and 4. the countries of 'externally-induced modernization', where nominally independent states, in the face of Western pressures, undertook autonomous strategies of development (including such nations as Japan, China, Thailand, Egypt and Turkey). We allocated countries to these four groups using the Times Concise Atlas of World History as a basic source (Barraclough, 1982).

Since this is a non-continuous variable, we simply cross-tabulate the results in Table 7. This shows that the proto-welfare states (A) are all members of the first two routes to modernity: Central and Eastern Europe and Latin American 'settler' countries. The informal security regimes (B in 1990, B and C in 2000) embrace the all four routes and thus display no clear association with this factor; however, the majority of the countries of 'externally-induced modernization' are in this cluster (China, Korea, Thailand, Iran and Turkey). If we group together all the insecurity regime clusters (F-H in 1990 and E-H in 2000) all bar one country (Ethiopia) have had a history of Western colonization. The antecedents of modernization relate closely to our proto-welfare states and insecurity regimes, but are unrelated to the global pattern of our informal security regimes.

## **5 DISCUSSION: are there identifiable welfare regimes in the developing world?**

We will argue that there is thus convincing *prima facie* evidence to suggest that these clusters indicate distinct welfare *regimes* based on different institutions and cultural-historical antecedents and following different paths of development.



The *proto-welfare states* share in common relatively extensive state commitments to welfare provision and relatively effective delivery of services as measured by immunizations and female secondary school enrollments. They also exhibit moderately extensive social security programmes similar to those in Western welfare states. Apart from Israel and Costa Rica, this cluster comprises two distinct geographical zones and historical antecedents: the countries of the ex-Soviet Union and its bloc members and the relatively industrialized countries of southern South America. This regime type is middle income with relatively low inequality, is relatively democratic and culturally homogenous.<sup>11</sup> Thus as other authors have argued, the framework of welfare *state* regimes can be validly applied to these parts of the non-OECD world.

We infer the presence of a distinct *informal security* regime which combines relatively good welfare outcomes and social service outputs with low levels of state social spending and low levels of external flows (aid and remittances). This interesting combination suggests that security and illfare are mitigated by other domestic, non-state, informal mechanisms; we therefore designate them informal security regimes. It is found in several world regions: China and most countries in East Asia from Korea through Thailand to Sri Lanka; the remaining countries of South and Central America; plus Iran, Turkey and Tajikistan. Countries in this group are mainly but not necessarily low middle income, with high growth rates, but are relatively undemocratic and highly unequal. But culturally and historically this is a disparate cluster, comprising homogenous and very heterogenous nations, and exhibiting different paths to modernity. However, countries of externally-induced modernization, where states have been forced over longer periods to react to outside developmental pressures, appear to foster informal security regimes. This

may indicate the presence of 'developmental states' with considerable infrastructure capacity but which do not develop traditional social policies.

In both years we identify two types of 'insecurity regimes'. One is a 'morbidity insecurity' regime found in sub-Saharan Africa. This group exhibits low and falling life expectancy alongside relatively weak states with low levels of public responsibility, indicated both by spending levels and social outputs, and higher dependence on overseas aid. By 2000 a further distinct cluster had formed in southern and east Africa, comprising South Africa, Namibia, Botswana, Zimbabwe and Kenya. In these countries public social policy has *expanded* in both expenditures and outreach and literacy levels are high, but these improvements are swamped by rising mortality and morbidity due mainly to the HIV-AIDS pandemic. The presence of gross health insecurity in all these areas justifies labeling these as insecurity regimes, even though in a majority of countries moderately effective states continue to function.

We also find a distinctive group of countries in both years which we label an 'illiterate insecurity' regime. Its defining features are high levels of youth illiteracy and low numbers of females in secondary education. Its correlates are low income, an ex-colonial ancestry and high cultural diversity; however it also exhibits more extensive democracy and income equality. The number of countries clustered in this way declined by 2000, but at its core remain the countries of the Indian sub-continent: India, Pakistan, Bangladesh and Nepal (not Sri Lanka). This is a notable and robust finding across a wide range of variables and k-numbers. South Asia is always differentiated from East and South-east Asia most notably due to its illiteracy and poor education of women.<sup>12</sup> These are by no means failed states, many now post high growth rates and India is proclaimed as a future economic giant.

Moreover, they boast a plethora of informal security mechanisms. However, the absence of effective schooling, health and security policies coupled with highly gendered outcomes, according to such indicators as the population sex ratio, betokens high levels of insecurity among the mass of the population. It is for this reason that we label this group an insecurity regime.

By undertaking the cluster analysis for the same countries using the same indicators in two years, 1990 and 2000, we investigate the hypothesis of path dependency, albeit over a much shorter period of time than we would wish. We find there is indeed evidence that membership of regime clusters is 'sticky' over time, notwithstanding divergent patterns of economic growth. We will not repeat these findings here. Thus our overall conclusion is that distinct and persistent welfare regimes exist across the developing world.

However, this pattern of path dependent regimes has been modified by general global trends and specific regional trends. Two stand out. First, labour migration and remittances have provided new and significant but informal sources of monetary security for a number of countries, usually exceeding the share of public social spending in GDP. By 2000 we identify a distinct new regime of remittance-dependent informal security, centred on, but not confined to, the Caribbean and Central America. Second, the HIV-AIDS pandemic has further differentiated the morbidity-insecurity cluster identified in sub-Saharan Africa in 1990 (see also Abu Sharkh 2007). By 2000, even the development of more extensive social programmes in a number of countries could not withstand the impact of this egregious threat to human welfare. Thus, path dependent welfare regimes exist in a world of globalisation and seismic shocks. To understand global patterns of welfare and security, a valid social scientific approach must comprehend both facets.

## 6. Conclusion

This paper has developed a methodology for clustering a large number of developing countries and applies it to identify a number of distinct 'welfare regimes'. These combine a) contributions to the welfare mix from governments, donors and overseas remittances, b) intermediate social outputs in health and education and c) final welfare outcomes (life expectancy and literacy). Reliable comparative data on poverty levels was sought but not found. These variables cluster in distinct ways, enabling us to confirm the existence of three broad regime types: proto-welfare state regimes, informal security regimes and insecurity regimes (distinguishing illiterate-insecurity and morbidity-insecurity regimes). We also develop a method for ordering the clusters by comparing the distances between final cluster centers, starting with the cluster that most resembles OECD welfare states.

We then review five structural factors which may influence welfare regime type and test their association with our clusters. Level of economic development measured by income per head remains an important correlate, notably with insecurity regimes. However, despite some catch-up in income per head by the informal security regime cluster there is no evidence yet of a convergence towards a proto-welfare state regime – an important finding. The extent of democracy expanded in the last decade of the millennium, but its association with regime type has disappeared: there is little evidence to date that the spread of civil and political rights hastens the spread of social rights. The most significant and persistent correlates of insecurity regimes on the one hand and proto-welfare state regimes on the other are the least tractable: historical path of development and internal cultural diversity. However, countries of externally-induced modernization, where states

have been forced over longer periods to react to outside developmental pressures, appear to foster informal security regimes.

We conclude that the welfare regime framework provides a parsimonious and workable method to disaggregate the developing world into clusters of similar countries facing divergent threats to human wellbeing and divergent potentials for social policies to mitigate these. The policy implication is that social programs must be adapted to welfare regimes. There are few 'one-size-fits-all' social policies that can be exported and implemented across the global South, but there is greater scope for policy learning within regime clusters. We hope that this attempt to undertake a cluster analysis of welfare regimes in the global South fosters further research.

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1 To take account of these and other factors Wood and Gough (2006) have advanced a more general model of welfare regimes; however, the present article is not intended to operationalize and test for this wider range of factors.



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- 2 As well as the regional case studies in this book (Barrientos 2004, Bevan 2004b and Gough 2004b), several cluster analyses of welfare regimes outside the OECD world have since appeared, including Martinez Fanzoni (2008) on Latin America. However, the only applications of cluster analysis to welfare regimes across the world have been undertaken by Abu Sharkh (2006, 2007) and Rudra (2007). Rudra's article makes an important contribution, but stays within the original welfare state framework: apart from the usual outcome measures (mortality, literacy) all indicators refer to government expenditures and activities. Our analysis below also differs in many other ways, for example by studying all countries at two points in time and by using non-hierarchical cluster techniques.
- 3 For recent applications and discussions of clustering see the work of Wolfson et al. (2004) and McKernan et al. (2005).
- 4 Some observers caution that results should be treated as tentative until confirmed by an independent sample. This is obviously not possible as there just is one world. However, cross-temporal consistency checks can serve a similar purpose as is discussed further down.
- 5 Or rather the world excluding the original OECD member states except Turkey.
- 6 The WeD research programme at the University of Bath is generating much material on this – for just four countries. See Gough 2007.
- 7 See Gasper 2004. For example, only a handful of Wood's (2007) suggested indicators of insecurity are at present operationalizable, let alone operationalized.
- 8 See: <http://siteresources.worldbank.org/DATASTATISTICS/Resources/OGHIST.xls>
- 9 The superior growth record of the informal security cluster will have compensated for the costs of inequality in raising the incomes of the poorest, thus contributing to their superior and improving welfare outcomes. It would be useful to construct a 'Rawlsian' measure of the real income of the worst off to capture the combined effects of growth plus inequality.
- 10 The conventional measure of fractionalization is the Herfindahl index, calculating the probability that two persons drawn at random belong to different groups. The problem is that this measure implicitly assumes that all groups are equally distant. Krain (1997) argues that there are 'two major problems with the measure of fractionalization used in virtually all studies of the effects of fractionalization. First, the choice of which groups to consider is often done in a more pragmatic than rigorous way. Second, the measure implies that two persons are either identical (belong to the same group) or totally different (belong to different groups). This misses the important point that some groups may be closer to each other than others.' We have tried both data sources for this paper and they yield no significant difference.
- 11 Again we must stress that the term 'relatively' is compared to the remainder of the non-OECD world, not to the rich countries of the OECD. The Latin American countries with high inequality are overwhelmed by the relatively more equal countries of the ex-Soviet bloc
- 12 This may well be related to its family system (especially in the north of the sub-continent) which exhibits, according to Therborn (2004), one of the most extensive and persistent forms of patriarchy in the modern world. Unfortunately, we cannot examine this hypothesis here.