



# *Global Welfare Regimes*

## A Cluster Analysis

MIRIAM ABU SHARKH  
*Stanford University, USA*

IAN GOUGH  
*University of Bath, UK*

**ABSTRACT** This article 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 confirms the distinction between three meta-welfare regimes: proto-welfare state regimes, informal security regimes and insecurity regimes. However, it discriminates between relatively successful and failing informal security regimes. Regime membership 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.

**KEYWORDS** *cluster analysis, global, path dependency, regime theory, social policy, welfare regimes*

The linear scoring approach (more or less power, democracy or spending) contradicts the sociological notion 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)

### *Introduction: Welfare Regime Theory*

This article tests an earlier attempt to extend the analysis of welfare state regime theory to the developing world (~~Abu Sharkh, 2006, 2007; Gough et al 2004;~~

Wood and Gough, 2006). This argued 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 satisfaction and wellbeing. Third, it is a *political economy* approach that 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: (1) different patterns of state, market and household forms of social provision, (2) different welfare outcomes, assessed according to the degree to which labor is 'de-commodified' or shielded from market forces, and (3) 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.

Applying the regime notion to the developing world requires attending to two aspects commonly presupposed in the western welfare literature. First, we investigate if clusters of developing countries actually exhibit enough temporal consistency to merit the 'regime' label. The notion of regime implies a temporal consistency, or 'stickiness', of welfare inputs and outputs. Thus countries clustering together at one point in time should show a reasonably common development trajectory over time. While the regime idea implies consistency, the idea of development connotes rapid change with possibly diverging outcomes across countries. We test these suppositions by examining the cluster compositions across a decade.

Second, this article questions whether the nation state centric view common to the western welfare state literature underestimates the important role played by transnational actors in the welfare provision of people in developing nations. Gough (2004a), Wood and Gough (2006) and Abu Sharkh (2006, 2007) argue that 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'. 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: this embraces aid, conditional loans 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* as illustrated in Figure 1.

	<i>National</i>	<i>Supra-national and extra-national</i>
State	National and local government; quasi-governmental institutions	International governmental organisations, national donors
Market	Domestic markets and economic actors	Global markets, multinational corporations
Community	Community practices and organizations, NGOs	International NGOs
Household	Household transfers, services and strategies	International household transfers, services and strategies

FIGURE 1 Components of the welfare mix

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. We thus use more general measures of welfare outcomes, derived from the Human Development Index. Third, political mobilizations in many developing countries are more diffuse and particularistic with less intentional impacts on state policies. This stems from an array of factors (see Gough, 2004a: 27–33): a plurality of sources of identity, weak differentiation of states from surrounding social groups and power systems, and ‘contamination’ of principles across these institutional domains.<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, and alongside some public social programs). 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. 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 employed in much of the 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 neither 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.<sup>2</sup>

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 article thus has four goals: first, to develop a methodology for testing the welfare regime framework using cluster analysis; second, to apply this to identify country clusters across 65 non-OECD (Organisation for Economic Co-operation and Development) 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; and fourth to draw conclusions about the existence and nature of distinct welfare regimes across the global South. These are the subjects of the next four sections.<sup>3</sup> It should be stressed that our goal is classification, not causal analysis.

### *Operationalizing and Analyzing Welfare Regimes*

#### RESEARCH QUESTIONS AND HYPOTHESES

The starting point is Esping-Anderson's (1990: 26) argument 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 (1) institutions and (1) welfare outcomes. The relevant institutions are those patterns of resources and programs 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 the fourth section we consider to what extent certain structural factors such as democracy are correlated with our regime patterns.

#### METHODS: CLUSTER AND 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>4</sup> Since this procedure, like most other statistical procedures, is sensitive to 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. By rescaling the actual distances to numbers between 0 and 25, the dendrogram maintains the distance-ratio between steps' (SPSS, 2000). Dendograms can be used as a visual aid to assess the cohesiveness of the clusters formed and can provide information about the appropriate number of clusters to keep (SPSS, 2000).<sup>5</sup> Yet the final choice of the number of clusters remains a judgment call.

We use at a second stage *k-means* cluster analysis (KCA) to improve this judgment. 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 (on criteria for determining the number of clusters, see Dudoit and Fridlyand, 2002).

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.

#### COUNTRIES INCLUDED

Initially, we wished to include all countries in the world, and undertook cluster analyses on the same basis as Abu Sharkh (2006). However, including the OECD countries complicates the analysis by increasing the range of variation and obscuring important differences within the rest of the world, which are the focus of this article. Since patterns of welfare state regimes across the OECD have been the subject of dozens of studies (for a survey, see Arts and Gelissen, 2002), it is also redundant here. Thus, the population of countries is reduced to the non-OECD world.<sup>6</sup>

In order to ~~exclude~~ large numbers of micro-states, countries with a population of less than 3m 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 later. Furthermore, to test the path dependency hypothesis, we needed data for the same set of countries over a period of time. In order to employ the most valid variables for our concepts for the greatest number of countries, 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.

#### VARIABLES

As outlined earlier, we home in on just two fundamental components of welfare/illfare regimes: the welfare mix and welfare outcomes. The welfare mix 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. 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>7</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).

To overcome well-known problems with expenditure as a measure of the reach of public welfare, we also use two indicators of state 'throughputs': 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>8</sup> We therefore used 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 use life expectancy and literacy as measures of welfare outcomes. Many other, more targeted measures were considered, such as the Human Poverty Index, but none 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 trend 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 I *Indicators of welfare regime: Mean values for all countries 1990 and 2000*

	1990	2000	Change
Aid per capita/GNI	7.5	4.9	-2.6
Workers' remittances/GNI	1.6	2.2	0.6
Public spending on health + education/GDP	6.4	6.9	0.5
Social contributions (% of revenue)	9.6	9.3	-0.3
Immunization, measles (% of children under 12 months)	76.0	81.0	5.0
School enrollment, secondary, female (% gross)	48.6	58.9	10.3
Life expectancy at birth, total (years)	62.0	62.0	0
Illiteracy rate, youth total (% of people ages 15-24)	17.9	13.1	-4.8
Valid N	65	65	

Source: World Development Indicators. Washington: World Bank (edition 2005), own computations.

#### 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 that 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 operationalize these variables. To retain the greatest number of countries in the analyses, 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 fractionalization index) and historical antecedents (employing Therborn's 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 requiring only the assumption 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.



## *Cluster Results*

### 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 both years the cluster with the highest scores for public responsibility and welfare outcomes is labeled A and that most distant is labeled H. However, it is important to stress that the nature of, say, the regime 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.

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.

### CLUSTER CHARACTERISTICS IN 1990 AND 2000

We summarize here the main characteristics of the four large clusters in 1990. The 'welfare regime' label is to be employed cautiously 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.

#### *Cluster A*

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. These 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 the most similar to western welfare states. It comprised in 1990 the countries of Eastern Europe and the more developed

TABLE II *Global welfare regime clusters 1990 and 2000*

1990	2000
A	A
Argentina	Argentina
Belarus	Belarus
Brazil	Brazil
Bulgaria	Bulgaria
Costa Rica	Costa Rica
Croatia	Croatia
Estonia	Estonia
Israel	Israel
Kazakhstan	Lithuania
Lithuania	Poland
Moldova	Romania
Poland	Tunisia
Romania	Ukraine
Ukraine	Uruguay
Uruguay	
B	B
Botswana	Bolivia
Chile	Chile
China	China
Colombia	Colombia
Dominican Rep.	Iran, Islamic Rep.
Ecuador	Kazakhstan
Indonesia	Korea, Rep.
Iran, Islamic Rep.	Malaysia
Jamaica	Mexico
Korea, Rep.	Moldova
Malaysia	Paraguay
Mexico	Peru
Paraguay	Philippines
Peru	Tajikistan
Philippines	Thailand
South Africa	Turkey
Sri Lanka	
Tajikistan	
Thailand	
Turkey	
Zimbabwe	
C	C
Tunisia	Dominican Rep.
El Salvador	Ecuador
Morocco	El Salvador
	Jamaica
	Morocco
	Nicaragua
	Sri Lanka

*(Continued)*

TABLE II (Continued)

1990	2000
D	D
Bolivia	Botswana
Namibia	Kenya
	Namibia
	South Africa
	Zimbabwe
E	E
Kenya	Cameroon
Nicaragua	Congo, Rep.
	Ghana
	Indonesia
	Tanzania
F	F
Burundi	Bangladesh
Cameroon	Cote d'Ivoire
Congo Rep.	India
Ghana	Nepal
Papua New Guinea	Pakistan
Rwanda	Papua New Guinea
Tanzania	Togo
Togo	
Zambia	
G	G
Bangladesh	Benin
Benin	Burundi
Cote d'Ivoire	Ethiopia
Ethiopia	Mali
India	Senegal
Mali	
Pakistan	
Nepal	
Senegal	
H	H
Mozambique	Mozambique
Guinea-Bissau	Guinea-Bissau
	Rwanda
	Zambia

parts of the Soviet Union, Israel, and countries of the southern cone of Latin America, except Chile, plus Costa Rica.

#### *Cluster B*

This cluster of countries exhibits low state expenditures (notably on social security) yet relatively good welfare outputs and outcomes. It contains 21 countries, one third of the total, representing several world regions: China and

TABLE III *Welfare regime indicators: Mean values by Cluster 1990*

<i>Cluster identifier</i>	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>	<i>F</i>	<i>G</i>	<i>H</i>
No. of countries in cluster	15	21	3	2	2	9	9	2
Aid per capita/GNI	0,89	1,87	4,96	8,45	24,14	14,74	10,08	49,16
Workers' remittances/GNI	0,14	0,95	6,80	0,16	0,00	0,23	2,13	0,23
Public spend. health + education/GDP	8,61	5,56	7,05	9,69	9,38	4,76	4,12	4,67
Social contributions/total revenue	30,87	3,75	11,51	4,58	4,17	2,38	0,77	0,00
School enrollment, secondary, fem. (% gross)	89,32	57,29	32,02	38,54	33,50	15,64	14,53	8,79
Immunization, measles (% of children < 12m.)	89,47	78,57	90,33	47,00	80,00	73,22	55,00	56,00
Life expectancy at birth, total (years)	71,03	66,87	66,47	57,91	60,80	50,13	51,97	42,89
Illiteracy rate, youth total (% ages 15–24)	1,22	6,08	25,61	10,00	20,99	24,87	55,10	53,54

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. This combination of low social policy and good social outcomes suggests that security and illfare are mitigated by other domestic, non-state, informal mechanisms, suggesting informal security regimes. However, there may be other explanations for this combination.

#### *Clusters F and G*

These exhibit very poor welfare outcomes betokening heavy and persistent insecurity for a majority of the population. 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 cluster embraces the entire Indian sub-continent (except Sri Lanka) plus a spread of countries in central sub-Saharan

TABLE IV *Welfare regime indicators: Mean values by Cluster 2000*

<i>Cluster identifier</i>	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>	<i>F</i>	<i>G</i>	<i>H</i>
No. of countries	14	16	7	5	5	7	5	4
Aid per capita/ GNI	0,81	2,08	2,98	2,59	6,22	3,96	12,05	27,19
Workers' remittances/ GNI	0,64	0,66	9,20	0,03	0,34	1,54	2,30	0,99
Public spend. health + education/ GDP)	9,35	6,77	5,77	8,63	4,35	4,80	5,44	5,17
Social contributions/ total revenue	29,46	7,06	6,78	1,05	1,72	1,19	1,29	0,43
School enrollment, secondary, fem. (% gross)	91,99	76,05	63,64	59,70	29,70	28,27	12,39	14,00
Immunization, measles (% of children u. 12 m.)	90,50	89,19	92,86	76,40	62,80	65,14	58,40	78,75
Life expectancy at birth, total (years)	72,32	69,57	70,30	44,17	53,74	56,90	46,32	41,30
Illiteracy rate, youth total (% ages 15–24)	1,28	2,20	13,39	7,29	6,65	35,57	48,21	27,42

Africa. Cluster F, comprising mainly countries in sub-Saharan Africa, has very low life expectancy and high mortality rates. Both clusters have low levels of public responsibility as measured by spending levels and social outputs and are on average more dependent on external flows of aid.

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 has become more complex.

#### *Cluster A*

Cluster A exhibits relatively good outcomes, with relatively high levels of state responsibility including social security. 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.

*Cluster B*

Cluster B comprises a large group of 16 countries with good welfare outcomes and moderate levels of state responsibility, but with a smaller or absent role for social protection and lower levels of public social 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.

*Cluster C*

A separate group of countries is now distinguished due to their 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 mechanism of informal insecurity.

*Cluster D*

This represents a novel combination in 2000: middle-income countries with relatively high spending on health and education, moderately good welfare impacts and high literacy but with very low life expectancy. This comprises five countries all in southern Africa (plus Kenya) that have been hard hit by the HIV-AIDS pandemic.

*Clusters F, G, H*

These have in common 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. 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).

## 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 clearly reveals a considerable degree of membership constancy over the decade but less so in the lower-order clusters.

Those grouped in cluster A in 1990 appear also in 2000 with only Moldova and Kazakhstan losing their place and Tunisia joining the club. Note, however, that this cluster experienced a more than fourfold increase in remittances in 10 years.

The 1990 cluster B is likewise mainly reproduced in 2000, but with some attrition. A separate cluster has formed (C) resulting from the growing role of

TABLE V *Comparison of cluster membership 1990 and 2000*

2000 → 1990 ↓	A	B	C	D	E	F	G	H
A	Argentina, Belarus, Brazil, Bulgaria, Costa Rica, Croatia Estonia, Israel, Lithuania, Poland, Romania, Ukraine, Uruguay		Tunisia					
B	Kazakhstan, Moldova	Chile, China, Colombia, Iran, S. Korea, Malaysia, Mexico, Paraguay, Peru, Philippines, Tajikistan, Thailand, Turkey			Bolivia			
C		Dominican Rep., Ecuador, Jamaica, Sri Lanka	El Salvador, Morocco		Nicaragua			
D		Botswana, South Africa, Zimbabwe		Namibia	Kenya			
E		Indonesia				Cameroon Congo Rep. Ghana Tanzania		

TABLE V (Continued)

2000	A	B	C	D	E	F	G	H
1990								
F						Papua New Guinea, Togo Burundi		
G							Benin Ethiopia Mali Senegal	Bangladesh Cote d'Ivoire India Nepal Pakistan Mozambique Guinea- Bissau
H						Rwanda Zambia		



remittances from migrant workers as sources of informal security in the Dominican Rep., Ecuador, Jamaica and Sri Lanka. Those countries that move dramatically to 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.

The high-illiteracy regime G 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 (Bangladesh, Cote d'Ivoire, India, Nepal and Pakistan) versus stagnation in the latter (Benin, Ethiopia, Mali and Senegal); but all continue with relatively high rates of youth illiteracy despite some improvement. The low life expectancy group of 1990 (F) persists but is split by the cluster analysis into different clusters according to schooling and literacy.

Table 5 reveals a considerable degree of membership constancy over the decade especially at the top of the cluster hierarchy. If there was strong 'stickiness' throughout all countries would remain on the diagonal. However we see some marked attrition in the middle and a dispersal at the lower end. Two common factors have brought about changes in cluster membership at the margins, 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 (on the impact of AIDS and the financial crises on welfare outcomes, see Abu Sharkh, 2007).

### *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 that theory suggests are associated with them, introduced in the first section of this article. 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 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 three structural-institutional variables: income per head, inequality and democracy.

TABLE VI *Structural and cultural correlates for four Welfare Regime Clusters*

TABLE VIA 1990

	<i>A</i>	<i>B</i>	<i>F</i>	<i>G</i>
GDP per capita (current internat. \$)	6516,68	3857,63	1073,75	979,99
Gini index	37.4	46.7	41.3	37.5
Democracy (Gurr index)	6.00	3.43	-5.55	-0.78
ELF	.169	.429	.618	.744

Sources: various, see Appendix 2.

TABLE VIB 2000

	<i>A</i>	<i>B</i>	<i>C</i>	<i>F</i>
GDP per capita (current internat. \$)	8789,29	5799,12	3998,89	1822,94
Gini index	37.7	45.1	42.6	38.2
Democracy (Gurr index)	6.50	4.62	7.17	3.86
ELF	.168	.430	.281	.703

Sources: various, see Appendix 2.

### *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 also 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>9</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 is significantly more inegalitarian than group A *and* group G comprising South Asia and some African countries. This pattern is repeated in 2000 with ~~the~~ clusters B and C recording the highest levels of inequality – alongside the distinctive high spending – low life expectancy cluster (D) in southern Africa.<sup>10</sup>

#### *Democracy*

The Gurr indicator of democracy which we have used records a global spread of democracy between 1990 and 2000 and our analysis shows a shift in the pattern of democracy across clusters. In 1990, there was a clear democratic gradient as we move down the alphabet, with one big exception: the democratic but poorly performing cluster G centered on India and South Asia. By 2000 this had disappeared and there were *no* evident linkages between democratic practices and clusters: C scores moderately well on democracy and welfare, D and E on welfare but not democracy, F and G on democracy but not welfare, and H on neither. The imposition and rapid spread of Western models of, at least nominally, democratic practices since 1990 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 (Alesina et al., 2003; Easterly and Levine, 1997). We use here data on ethno-linguistic fractionalization (ELF) employed by Krain (1997). 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 proto-welfare states of cluster A, most in clusters F and G. Cluster A is notably more homogenous than the others. This broad pattern is repeated in 2000, but it is joined by another group of highly homogenous countries mainly in Central America in cluster C. Most of the variation in mean ELF scores is significant in both years, confirming the hypothesis that high cultural diversity within nations is associated with weak institutionalization of mechanisms of welfare.

*Historical Antecedents: 'Roads to Modernity'*

Therborn (1992) identifies four 'roads to modernity' that 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 countries in cluster A are all members of the first two routes to modernity: Central and Eastern Europe and Latin American 'settler' countries. The next most successful clusters (B in 1990, B and C in 2000) embrace all four routes and display no clear historical background; 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 clusters with poorer welfare outcomes (F-H in 1990 and E-H in 2000) all but one country (Ethiopia) have had a history of western colonization.

*Are there Identifiable Welfare Regimes in the Developing World?*

Do these clusters indicate distinct welfare *regimes* based on different institutions and cultural-historical antecedents and following different paths of development? Is the welfare regime framework of Gough et al. (2004) vindicated? Our answer is that it is contingent on the position of the country cluster. The most 'advanced' country cluster (A) shows considerable stickiness: these dozen or so countries show a common upward trajectory with improved welfare outcomes over the span of only 10 years meriting a cautious regime label. There is less but still considerable stickiness among the countries in the next cluster. However, in the less developed clusters there is considerable movement, casting doubt on the assertion that they form a welfare regime. Here the welfare mix is ill-equipped to deal with seismic global shocks they are buffeted by, such as HIV/AIDS or financial shocks.

*Proto-welfare State Regimes*

In 1990 and 2000 cluster A countries resemble proto-welfare states. They share in common relatively extensive state commitments to welfare provision and relatively effective delivery of services as measured by immunizations and

TABLE VII 'Roads to modernity' of four Welfare Regime Clusters

TABLE VIIA 1990

<i>Roads to modernity:/Clusters:</i>	<i>A</i>	<i>B</i>	<i>F, G, H</i>
No. of countries	15	21	20
1. European	10	1	
2. Settler	5	8	
3. Colonised		7	19
4. Externally-induced		5	1

TABLE VIIB: 2000

<i>Roads to modernity:/Clusters:</i>	<i>A</i>	<i>B</i>	<i>E, F, G, H</i>
No of countries	14	16	21
1. European	8	3*	
2. Settler	5	6	
3. Colonised		2	20
4. Externally-induced	1	5	1

\* all ex-soviet union

female secondary school enrollments. They exhibit moderately extensive social security programs 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. Both developed European-style forms of social protection policies in the middle of the 20th century, and both suffered degradation of these in the late 20th century through the external imposition of neoliberal programmes. Thus, as other authors have argued, the framework of welfare *state* regimes can be validly applied to these parts of the non-OECD world.

However, the existence of a distinct *informal security* regime is less certain. At the very least we need to distinguish relatively successful and failing informal security regimes.

#### *Successful Informal Security Regimes*

In both years cluster B combines relatively good welfare outcomes and social service outputs with remarkably low levels of state social spending and low levels of external flows (aid and remittances). This interesting combination suggests a successful informal security regime. 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 unequal.

However, the degree of variation within the cluster is rather high, and culturally and historically it is a disparate group. Furthermore, there are several factors that might explain their good performance, as well as the existence of effective informal security mechanisms (which we cannot independently measure). In countries like Chile and Korea, with social protection systems mandated by governments but administered privately, the mandated contributions of employers and employees will not figure as government expenditures or as social security contributions. Such countries would probably be identified as proto-welfare states if our data were more sensitive. In contrast, in several East Asian countries, levels of welfare are likely to be enhanced by 'developmental states' with considerable infrastructure capacity to pursue agricultural and industrial policies but which do not develop traditional social policies. The welfare-enhancing impact of the state extends beyond traditional social policy – or at least our indicators of it.

~~At least two clusters may be labelled 'failing informal security' regimes.~~

#### *Failing Informal Security Regimes: High Illiteracy*

There is the high illiteracy cluster with 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, especially among women.<sup>12</sup> Though they boast a plethora of public programs and informal security mechanisms, 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. But these are by no means failed states – several now post high growth rates and India is proclaimed as a future economic giant. For this reason, we cannot classify them as insecurity regimes as defined by Gough et al. (2004).

#### *Failing Informal Security Regimes: High Morbidity*

A second cluster with informal insecurity characteristics emerged in 2000 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 to HIV/AIDS.

### *Insecurity Regimes*

If insecurity regimes are defined as those contexts where even informal security mechanisms cannot be sustained, our data cannot directly track this. One indirect measure is high reliance on overseas aid, though this declined between 1990 and 2000. This would include countries in clusters E, F and H in 1990 and/or in clusters G and H in 2000. This identifies 16 countries, all, except for Papua New Guinea, in sub-Saharan Africa characterised also by low and falling life expectancy alongside low levels of public responsibility, indicated both by spending levels and social outputs. This combination would seem to indicate an insecurity regime. Nine of these 16 are characterized by the UK Department of International Development as 'fragile states' in 1999–2003 (DFID, 2005: 6).<sup>13</sup>

### *Conclusion*

This article 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 (1) contributions to the welfare mix from governments, donors and overseas remittances, (2) intermediate social outputs in health and education and (3) final welfare outcomes in life expectancy and literacy. Reliable comparative data on poverty levels was sought but not found. These variables cluster in distinct ways, and we develop a method for ordering them by comparing the distances between final cluster centers, starting with the cluster that most resembles OECD welfare states.

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. However, this temporal consistency of a joint development path is most pronounced for the top country cluster. While distinct and persistent welfare regimes exist in the developing world, they are most pronounced in European and Settler countries.

This pattern of path dependent regimes in colonized countries and those with externally induced modernization has been modified by general global trends and specific regional trends highlighting the importance of transnational factors in the establishment of welfare and illfare. Two stand out. First, labor 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: this is notable in 2000 in the cluster centered 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 (for similar findings, see also Abu Sharkh, 2006,

2007). By 2000, even the development of more extensive social programs 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 globalization and seismic shocks. To understand global patterns of welfare and security, a valid social scientific approach must comprehend both facets.

The clusters provide some support for the theoretical framework of Gough et al. (2004), but also reveal more complexity. At the two extremes, the existence of proto-welfare states and insecurity regimes is confirmed. However, the concept of informal security regimes requires unbundling. As a result we distinguish successful and failing informal security regimes according to their welfare outcomes. Further regional distinctions are made within each. ~~The real world is always less tractable than theoretical frameworks would wish.~~

We also review five structural factors that 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 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 developmental pressures from the West, appear to foster relatively successful informal security regimes.

We conclude that the welfare regime framework continues to provide a parsimonious and workable method to disaggregate the developing world into clusters of similar countries facing divergent threats to human well-being and divergent potentials for social policies to mitigate these. Future research should test the significance of cluster constellations for a variety of welfare outcomes. Also, the role of transnational actors in welfare regimes should be further explored.

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. But this is the topic for another article.

#### ACKNOWLEDGEMENTS

Ian Gough gratefully acknowledges the support of the Economic and Social Research Council (ESRC). His work was part of the programme of the ESRC Research Group on Wellbeing in Developing Countries.



## NOTES

1. To take account of these and other factors Wood ~~et al.~~ (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.
2. The policy corollary is that 'one-size-fits-all' social policies are rarely likely to succeed, but that is not the focus of this article (see Wood et al., 2006).
3. As well as the regional case studies in this book (Barrientos, 2004; Bevan, 2004b; Gough 2004b), several cluster analyses of welfare regimes outside the OECD world have since appeared, including Martínez Franzoni (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.
4. For recent applications and discussions of clustering see the work of Wolfson et al. (2004) ~~and McKernan et al. (2005)~~.
5. 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.
6. Or rather the world excluding the original OECD member states except Turkey.
7. The WeD research programme at the University of Bath is generating much material on this – for just four countries (see Gough, 2007).
8. See Gasper (2004). For example, only a handful of Wood's (2007) suggested indicators of insecurity are at present operationalizable, let alone operationalized.
9. See <http://siteresources.worldbank.org/DATASTATISTICS/Resources/OGHIST.xls>
10. 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.
11. The conventional measure of fractionalization is the Herfindahl index, calculating the probability that two persons drawn at random belong to different groups. However, this misses the important point that some groups may be closer to each other than others. We have tried both data sources provided by Krain (1997) for this article and they yield no significant difference.
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.
13. Though seven are not. Fragile states are defined as those 'where the government cannot or will not deliver core functions to the majority of its people, including the poor ... DFID does not limit its definition of fragile states to those affected by conflict'.

## REFERENCES

- Abu Sharkh, M. (2006) 'Worlds of Welfare Integration and Their Effect', *Integration*. ILO. Geneva: ILO.

- Abu Sharkh, M. (2007) 'Global Welfare-illfare Regimes. Cluster, Factor and Regression Analyses of Global Welfare Mixes and Wellbeing Outcomes', paper presented at WeD International Conference Wellbeing in international Development, Bath, 28–30 2007 July, accessed 15 May 2009, <http://www.welldev.org.uk/conference2007/parallel5.htm#a3>
- Alesina, A., Devleeschauwer, A., Easterly, W., Kurlat, S. and Wacziarg, R. (2003) 'Fractionalization', *Journal of Economic Growth* 8(2): 155–94.
- Arts, W. and Gelissen, J. (2002) 'Three Worlds of Welfare Capitalism or More?', *Journal of European Social Policy* 12(2): 137–58.
- Barracrough, G. (1982) *The Times Concise Atlas of World History*. London: Times Books.
- Barrientos, A. (2004) 'Latin America: Towards a Liberal-informal Welfare Regime', in I. Gough and G. Wood (eds) with A. Barrientos, P. Bevan, P. Davis and G. Room, *Insecurity and Welfare Regimes in Asia, Africa and Latin America* (p. 121–68). Cambridge: Cambridge University Press.
- Bevan, P. (2004a) 'Conceptualising In/security Regimes', I. Gough and G. Wood (eds) with A. Barrientos, P. Bevan, P. Davis and G. Room, *Insecurity and Welfare Regimes in Asia, Africa and Latin America* (pp. 88–119). Cambridge: Cambridge University Press.
- Bevan, P. (2004b) 'The Dynamics of Africa's In/security Regimes', I. Gough and G. Wood (eds) with A. Barrientos, P. Bevan, P. Davis and G. Room, *Insecurity and Welfare Regimes in Asia, Africa and Latin America* (pp. 202–52). Cambridge: Cambridge University Press.
- DFID (UK Department for International Development) (2005) *Why We Need to Work More Effectively in Fragile States*. London: DFID.
- Dudoit, S. and Fridlyand, J. (2002) 'Bagging to Improve the Accuracy of a Clustering Procedure', *Bioinformatics* 19(9): 1090–9.
- Easterly, W. and Levine, R. (1997) 'Africa's Growth Tragedy: Policies and Ethnic Divisions', *Quarterly Journal of Economics* 111(4): 1203–50.
- Esping-Andersen, G. (1990) *Three Worlds of Welfare Capitalism*. Princeton, NJ: Princeton University Press.
- Gaspar, D. (2004) 'Subjective and Objective Well-being in Relation to Economic Inputs: Puzzles and Responses', WeD Working Paper No. 09, University of Bath.
- Gough, I. (2004a) 'Welfare Regimes in Development Contexts: A Global and Regional Analysis', in I. Gough and G. Wood (eds) with A. Barrientos, P. Bevan, P. Davis and G. Room, *Insecurity and Welfare Regimes in Asia, Africa and Latin America*. Cambridge: Cambridge University Press.
- Gough, I. (2004b) 'East Asia: The Limits of Productivist Regimes', in I. Gough and G. Wood (eds) with A. Barrientos, P. Bevan, P. Davis and G. Room, *Insecurity and Welfare Regimes in Asia, Africa and Latin America* (pp. 169–200). Cambridge: Cambridge University Press.
- Gough, I. (2007) 'Wellbeing and Welfare Regimes in Four Countries', paper presented to final WeD conference June, accessed 15 May 2009, <http://www.welldev.org.uk/conference2007/parallel5.htm#a3>
- Gough, I. and Wood, G. (eds) with Barrientos, A., Bevan, P., Davis, P. and Room, G. (2004) *Insecurity and Welfare Regimes in Asia, Africa and Latin America: Social Policy in Development Contexts*. Cambridge: Cambridge University Press.
- Krain, M. (1997) 'State-sponsored Mass Murder: The Onset and Severity of Genocides and Politicides', *Journal of Conflict Resolution* 41(3): 331–60.
- Martínez Franzoni, J. (2008) 'Welfare Regimes in Latin America: Capturing Constellations of Markets, Families, and Policies', *Latin American Politics and Society* 50(2): 67–100.
- Rudra, N. (2007) 'Welfare States in Developing Countries: Unique or Universal?', *Journal of Politics* 69(2): 378–96.

- SPSS (2000) *Base 10.0*. SPSS. Chicago, IL: SPSS.
- Therborn, G. (1992) 'The Right to Vote and the Four World Routes to/through Modernity', in R. Thorstendahl (ed.) *State Theory and State History*. London: SAGE.
- Therborn, G. (2004) *Between Sex and Power: Family in the World*. London: Routledge.
- Wolfson, M., Madjd-Sadjadi, Z. and James, P. (2004) 'Identifying National Types: A Cluster Analysis of Politics, Economics, and Conflict', *Journal of Peace Research* 41(5): 607–23.
- Wood, G. (2007) 'Using Security to Indicate Wellbeing', in I. Gough and J.A. McGregor (eds) *Wellbeing in Developing Countries: From Theory to Research* (pp. 109–132). Cambridge: Cambridge University Press.
- Wood, G. and Gough, I. (2006) 'A Comparative Welfare Regime Approach to Global Social Policy', *World Development* 34(9): 1696–712.
- World Bank (2005) *World Development Indicators 2004*. Washington: World Bank.

## RÉSUMÉ

*Les Régimes Mondiaux de Protection Sociale: Une Analyse de Groupement*

Cet article met à l'épreuve l'affirmation qu'un petit nombre de distincts régimes de protection sociale, qui combinent des modèles institutionnels avec des résultats d'assistance sociale, peuvent être identifiés partout dans le monde en voie de développement. L'article développe une méthodologie pour rassembler un grand nombre de pays en voie de développement, afin d'identifier et classer leurs régimes de protection sociale, d'évaluer leur stabilité pendant la décennie 1990–2000, et de lier ces données à des variables structurelles importantes. On confirme la distinction entre trois régimes de protection sociale ('meta-welfare'): des régimes de l'état-providence ('proto-welfare'), des régimes informels de sécurité sociale, et des régimes d'insécurité sociale. Cependant, on distingue entre les régimes informels de sécurité sociale qui ont été relativement couronnés de succès, et ceux qui sont en train d'échouer. L'adhésion à un régime peut causer des problèmes avec le temps, mais cela a été modifiée par deux tendances mondiales: la pandémie du VIH/SIDA en Afrique, et le rôle de plus en plus important des versements dans certains pays.

## RESUMEN

*Los Regímenes Globales de Bienestar: Un Análisis de Conglomerados*

El presente documento pone a prueba la afirmación que un pequeño número de distintos sistemas de bienestar, combinando pautas institucionales con resultados de bienestar social, pueden ser identificados en todo el mundo en vías de desarrollo. El documento propone una metodología para agrupar un gran número de países en vías de desarrollo, identificando y clasificando sus sistemas de asistencia social, evaluando su estabilidad durante la década 1990–2000, y relacionando estos datos con ciertos factores estructurales importantes. Confirma la distinción entre tres regímenes basados sobre el bienestar (regímenes 'meta-welfare'): los sistemas del estado social (regímenes 'proto-welfare'), los regímenes informales de seguridad social, y los regímenes de inseguridad social. No

obstante, discrimina entre los regímenes informales de seguridad social que han tenido bastante éxito, y los que están fallando. El pertenecer a un régimen puede ser 'peliagudo' con el tiempo, pero ha sido modificado por dos tendencias globales: la pandemia del VIH/SIDA en África, y el papel creciente de las remesas en algunos países.

#### BIOGRAPHICAL NOTES

MIRIAM ABU SHARKH, before returning to the Center on Democracy, Development and the Rule of Law at Stanford University, held a high-ranking professional position at the International Labour Organization, in Geneva, Switzerland. As the People's Security Coordinator (P4), she analyzed and managed large household surveys. She also worked on the Report on the World Social Situation for the United Nations Department of Economic and Social Affairs in New York. She has written on the spread and effect of labour standards as well as on welfare regimes, gender discrimination, child labour, social movements and work satisfaction. Please address correspondence to Miriam Abu Sharkh, Center on Democracy, Development and the Rule of Law, 616 Serra St, Stanford University, Stanford, CA 94305, USA. [email: [mabu@stanford.edu](mailto:mabu@stanford.edu)]

IAN GOUGH is ~~Professor of Social Policy at the University of Bath, UK and Visiting Professor at the LSE.~~ From 2002–7 he was deputy director of the ESRC Research Group, 'Wellbeing in Developing Countries' (WeD) at Bath. His books include *The Political Economy of the Welfare State; A Theory of Human Need; Insecurity and Welfare Regimes in Asia, Africa and Latin America*; and *Wellbeing in Developing Countries: From Theory to Research*. Some of his essays are published in *Global Capital, Human Needs and Social Policies*. He is ~~Chair of the College of Academicians~~ of the British Academy of Social Sciences. Please address correspondence to: ~~Department of Social and Policy Sciences, University of Bath, Bath BA2 7AY, UK. [email: [I.R.Gough@bath.ac.uk](mailto:I.R.Gough@bath.ac.uk)]~~

APPENDIX I *Cluster statistics*TABLE I 1990: *Distances between Final Cluster Centres*

<i>Cluster</i>	<i>A</i>	<i>H</i>	<i>B</i>	<i>G</i>	<i>D</i>	<i>F</i>	<i>C</i>	<i>E</i>
A		6,919	2,388	5,014	3,540	4,160	3,145	3,558
H	6,919		5,763	3,764	4,914	3,663	5,638	3,877
B	2,388	5,763		3,412	2,406	2,538	2,247	2,652
G	5,014	3,764	3,412		3,020	1,900	3,296	3,189
D	3,540	4,914	2,406	3,020		2,455	3,284	2,332
F	4,160	3,663	2,538	1,900	2,455		2,921	2,063
C	3,145	5,638	2,247	3,296	3,284	2,921		2,857
E	3,558	3,877	2,652	3,189	2,332	2,063	2,857	

TABLE II 1990: *ANOVA<sup>a</sup>*

	<i>Cluster</i>		<i>Error</i>		<i>F</i>	<i>Sig.</i>
	<i>Mean Square</i>	<i>d.f.</i>	<i>Mean Square</i>	<i>d.f.</i>		
Aid, (% of GNI) –	5,844	9	,185	55	31,573	,000
Workers' remittances, receipts (BoP, current US\$) divided by (Current US\$)	8,220	9	,144	55	57,161	,000
Public spending on health + education, total (% of GDP)	2,507	9	,311	55	8,050	,000
School enrollment, secondary, female (% gross)	4,827	9	,177	55	27,236	,000
Public spending on social security, total (% of GDP)	4,659	9	,161	55	28,866	,000
Immunization, measles (% of children under 12 months)	3,057	9	,282	55	10,825	,000
Life expectancy at birth, total (years)	4,935	9	,175	55	28,149	,000
Illiteracy rate, youth total (% of people ages 15–24), 0 for West	6,323	9	,140	55	45,179	,000

<sup>a</sup>The Z-score of all variables was taken.

Source: World Development Indicators (2005)

TABLE III 2000: Distances between Final Cluster Centres

Cluster	E	C	H	F	G	D	B	A
E		3,461	3,050	1,783	2,749	2,002	2,571	3,860
C	3,461		4,742	3,298	4,319	3,621	2,513	3,291
H	3,050	4,742		3,110	2,420	3,549	4,522	5,502
F	1,783	3,298	3,110		1,623	2,617	3,047	4,180
G	2,749	4,319	2,420	1,623		3,368	4,385	5,324
D	2,002	3,621	3,549	2,617	3,368		2,427	3,371
B	2,571	2,513	4,522	3,047	4,385	2,427		1,867
A	3,860	3,291	5,502	4,180	5,324	3,371	1,867	

TABLE IV 2000: ANOVA<sup>a</sup>

	Cluster		Error		F	Sig.
	Mean Square	d.f.	Mean Square	d.f.		
Aid, (% of GNI)	3,870	9	,203	55	19,053	,000
Workers' remittances, receipts (BoP, current US\$) divided by GNI (Current US\$)	7,935	9	,140	55	56,626	,000
Public spending on health + education, total (% of GDP)	2,597	9	,373	55	6,967	,000
School enrollment, secondary, female (% gross)	5,409	9	,167	55	32,342	,000
Immunization, measles (% of children under 12 months)	2,747	9	,307	55	8,949	,000
Public spending on social security, total (% of GDP)	4,252	9	,159	55	26,812	,000
Life expectancy at birth, total (years)	6,348	9	,146	55	43,420	,000
Illiteracy rate, youth total (% of people ages 15–24) 0 for West	5,913	9	,180	55	32,784	,000

<sup>a</sup> The Z-score of all variables was taken.

Source: World Development Indicators (2005).

APPENDIX 2 *t*-test (2-tailed significance) for equality of means

TABLE V 1990: GDP per capita, PPP

	<i>A</i>	<i>B</i>	<i>F</i>
A			
B	2659,04***		
F	5442,92***	2783,88***	
G	5536,69***	2877,65***	93,76

Source: World Development Indicators (2005).

TABLE VI 1990: Gini

	<i>A</i>	<i>B</i>	<i>F</i>
A			
B	9,33**		
F	3,92	5,41	
G	0,14	9,19*	3,78

Source: World Development Indicators (2005).

TABLE VII 1990: Democracy

	<i>A</i>	<i>B</i>	<i>F</i>
A			
B	2,57		
F	11,56***	8,98***	
G	6,78**	4,2+	4,77

Source: Guir democracy index (downloaded 15, may 2006 from <http://www.systemicpeace.org/polity/polity4.htm>)

TABLE VIII *Ethno-linguistic Fractionalization (pooled)*

	<i>A</i>	<i>B</i>	<i>F</i>
A			
B	0,26*		
F	0,44**	0,44**	
G	0,57***	0,31***	0,13

Source: Krain (1997).

TABLE IX 2000: GDP per capita PPP

	A	B	C
A			
B	2912,02*		
C	4712,25**	1800,22	
F	6888,19***	3976,17***	2175,95***

Source: World Development Indicators (2005).

TABLE X 2000: Gini

	A 10	B 9	C 2
A			
B	7,38*		
C	4,90	2,49	
F	0,55	6,83	4,35

Source: World Development Indicators (World Bank, 2005).

TABLE XI 2000: Democracy

	A 10	B 9	C 2
A			
B	1,98		
C	0,57	2,54+	
F	2,74	0,77	3,31

Source: Gurr democracy index.

TABLE XII ELF (pooled)

	A 10	B 9	C 2
A			
B	0,26**		
C	0,11	0,15	
F	0,53	0,27*	0,42**

Source: Krain (1997).

Notes: + Statistically significant at  $p < 0.1$ , \* Statistically significant at  $p = < 0.5$ , \*\* Statistically significant at  $p = < .01$ , \*\*\*Statistically significant at  $p = < ^{.001}$