The diversity of social protection systems in developing countries: A multidimensional statistical analysis

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Abstract: This article is a contribution to the analysis of social protection diversity in developing countries and lies within Esping-Andersen's framework. By taking into account the degree of decommodification of social rights and the existence of informal schemes, our empirical analysis produces a four-group typology identifying a liberal model, a decommodified model, a social insecurity model and a model of informal social protection. Moreover, this typology cannot support the hypothesis of a model specific to emerging countries.

Key words: social protection, decommodification, welfare regimes, factorial analysis, cluster analysis.
JEL classification: H53, I38, O10, C1

1. Introduction

In industrialized countries, social protection systems have been set progressively since the end of XIX° century under the influence of Bismarckian and Beveridgian canonical models. These systems focus on the satisfaction of multiple objectives such as the improvement of wellbeing, the reduction of inequality and the mitigation of political and social conflicts. In spite of these common objectives, social protection models in industrialized countries are quite diverse. In order to characterize this diversity, Esping-Andersen (1990) proposed a typology constructed by taking into account three criteria: (i) the capacity for decommodification of social rights which captures the degree of independence from market which is necessary to people for protecting their livelihoods; (ii) the impact of redistribution on social stratification (status or class inequality) and thus its contribution to the reproduction of the existing institutional context and (iii) the respective contribution of the State, the market and the family to the financing of social protection. By analyzing social protection systems in 18 industrialized countries, Esping-Andersen identifies three welfare state models: (i) the liberal model (Australia, Canada, Ireland, New Zealand, United Kingdom and United States) characterized by a minimal public protection through means-tested assistance and extended private insurance schemes; (ii) the social democratic model (Austria, Belgium, the Netherlands, Denmark, Norway and Sweden) characterized by a high degree of decommodification and universal benefits; (iii) the conservative model (Finland, France, Germany, Japan, Italy and Switzerland) characterized by a moderate degree of decommodification and benefits related to occupational status. This typology seems hard to transpose to developing countries because social protection expenditures are very limited and many social, economic and cultural factors impede the establishment of an extended public protection.

Nevertheless, social protection has seemed to find an increasing role in development strategies since the mid 1990s. Under the influence of international organizations such as the

ILO or the World Bank, a consensus has emerged about the necessity to set protection mechanisms which help people to manage social risks in Southern countries. Recently, several social programs have been established in developing countries. As an illustration, we can mention the *Child Support Grant* in South Africa, the *Oportunidades* and *Bolsa Familia* programs, respectively in Mexico and Brazil, and the *Minimum Living Standards Scheme* in China. Three major stakes are inherent to these new forms of public redistribution. At first, policy designers must think about the articulation between these emerging mechanisms and informal social protection which is provided at the community or family scale. Moreover, these new programs have to deal with specific social demands considering the social risks that occurred in developing countries. Finally, policy makers have to break with the numerous institutional constraints which stand in the way of public policy design. These stakes give evidence about the difficulties relatives to the identification of the outline of social protection in developing countries.

Following Esping-Andersen's seminal work, this article aims at identifying social protection patterns in developing countries by using multidimensional statistics methods like principal component analysis and cluster analysis. The study is organized as follows. The first part focuses on specificities and recent trends relating to social protection in developing countries. The second part provides a survey of the extensions of Esping-Andersen's analysis and discusses about its adaptation to the context of developing countries. The third part lays out the data and the statistical methods that we use. Finally, we present the classification and comment the results in a fourth part.

2. Social protection in developing countries: specificities and trends

Structural characteristics of developing countries can explain that the introduction of the same forms of protection as the ones prevailing in industrialized countries is a difficult task. Numerous cultural, political and socioeconomic specificities justify this inadequacy. A first obstacle to social protection in Southern countries lies in the absence of initial political impulse because of the fragility of States and the weakness of social forces such as unions (Destremau & Lautier, 2006). This absence may be exacerbated by political pressures of elites against redistribution. They may refuse to drop private insurance schemes and to participate to a social insurance system funded on solidarity and risk-sharing (Newbery & Stern, 1987).[1] The book of Haggard and Kaufman provides an interesting historical and comparative analysis of the role of democratization in the design of welfare reforms in Latin America, East Asia and Eastern Europe. A second impediment lies in the nature of social risks in developing countries. The World Bank proposes a typology which identifies six categories of risks: natural, social, economic, political, environmental and health-related risks (World Bank, 2000). In a context of imperfect markets, the consequence of these risks is a strong vulnerability and high poverty levels.[2] The third obstacle consists of financial constraints imposed to public authorities and households. On the one hand, the establishment of social protection systems implies a costly management when regarding the weak capacity of States to collect taxes and contributions. On the other hand, the extent of household poverty obstructs the payment of social contributions or taxes for a large part of the population. Fourth, developing countries are characterized by specific socio-cultural norms and values.

[1] Haggard and Kaufman (2008) provide an interesting historical and comparative analysis of the role of democratization in the design of welfare reforms in Latin America, East Asia and Eastern Europe over the 1980-2005 period.

[2] The existence of multiple risks in developing countries has led the World Bank to develop an approach of social protection in terms of social-risk management (World Bank, 2001; Holzmann et al., 2003).

The importance of family and intra-community solidarity explains that a large part of protection escapes from market and public policies (Morduch, 1999). Furthermore, the limited contractualization of labour relations weakens the link between salarisation and protection. Indeed, labour deregulation and informalization impede the instauration of social insurance programs financed by social contributions levied in labour income (Destremau, 2003). Fifth, social protection in Southern countries is greatly influenced by external factors (often in relation to colonial history) such as the degree of political and economic dependence and the importance of immigration (Gough, 2001).

These different impediments show doubts about the establishment of social protection mechanisms in developing countries. They seem to confer validity on the idea that policies aiming at promoting growth are a necessary and sufficient condition to a deep poverty reduction (Ravallion, 1995; Dollar & Kraay, 2002).[3] But several studies attempt to show that the positive impact of economic growth may be weakened or annihilated by an inequality increase. The relations between poverty, growth and inequality are complex as revealed by the poverty-growth-inequality triangle of Bourguignon (2004). The harmful impact of inequality on poverty justifies the implementation of policies that favour a redistribution of the positive effects of growth. It gives support to the consensus about the efficiency and the importance of social protection which has been developed since the mid 1990s (Drèze & Sen, 1991; Barrientos & Hulme, 2008; ILO, 2008). Moreover, by accelerating the reduction of inequality and poverty, social protection strengthens solidarity and national cohesion. Finally, the ILO points out that maintaining the largest part of the world’s population without basic social protection translates into continuing poverty and increasing inequality in such a way that the costs of keeping people excluded will be higher and higher (ILO, 2008).

This increasing interest about social protection appeared with the failure of structural adjustment programs to promote economic growth and poverty reduction throughout the 1980s and the 1990s. The East Asian crisis, the globalization process and rapid economic transformations have also accelerated the demand for social protection (Rodrik, 1997; Gough, 2001; Holzmann et al., 2003).[4] From now onwards, the international financial institutions (World Bank, regional development banks, ILO, WHO, etc.) consider social protection as a pertinent tool in order to eradicate poverty and to reach the Millennium Development Goals (MDG). For instance, in 2001, the ILO has launched the campaign *Social security and coverage for all* with the objective of implementing systems of social protection with broad coverage in the developing world in so far as four out five people still lack basic social security coverage (Schmidt et al., 2005).

This period favourable to the expansion of social protection is the occasion for implementing social protection mechanisms in Southern countries. These programs are often innovating so as to deal with the socio-cultural specificities. For example the programs *Oportunidades* in Mexico and *Bolsa Familia* in Brazil are designed to target poverty by providing cash benefits to poor families in exchange for children’s regular school attendance or vaccination. In India, the *National rural employment guarantee scheme* provides enhancement of livelihoods

[3] All the more because the idea according to which social protection acts as a hindrance to economic growth is quite prevalent during the 1980s. For instance, see Feldstein (1988).
[4] The effect of globalization is ambiguous since it opposes two hypotheses in the literature (Garrett, 2001). On the one hand, the efficiency hypothesis explains that globalization puts governments under efficiency and competitiveness pressures which may undermine interventionism and the welfare state (Evans, 1997; Mishra, 1999). On the other hand, the compensation hypothesis argues that globalization, by increasing inequality and social insecurity, leads governments to expand public economy in order to compensate the losers from globalization (Rodrik, 1997; Quinn, 1997).

security by giving at least 100 days of guaranteed wage employment to every household in rural areas, whose adult members volunteer to do unskilled manual work. In Philippines, the health insurance scheme *PhilHealth* founded in 1995 has been completed in order to cover informal sector workers through organised groups such as cooperatives.

3. The diversity of social protection models: A review

This sustained expansion of public social protection schemes in developing countries raises several questions. Can we observe convergences concerning recent trends in social protection within Southern countries? Which is the role of social protection private schemes? Is there a specific model of social protection for emerging economies? These multiple interrogations traduce the interest of categorizing the systems of social protection in the developing world.

Surprisingly, scholars have paid little attention to the variety of welfare states in less developed countries, perhaps because of the effects of the globalization process. As explained by Rudra, "since developing countries face similar economic challenges (e.g. demand for capital, large pools of surplus labor), they are expected to converge on neoliberal welfare policies for the purposes of attracting capital and promoting exports" (Rudra, 2008, p. 78). In this perspective, several empirical investigations show a negative correlation between the degree of globalization and government spending in developing countries (Kaufman & Segura-Ubiergo, 2001; Rudra, 2002; Wibbels, 2006). For instance, Rudra observes that "from 1972 to 1995, globalization increased in both developed and developing countries, yet trends in government spending for social welfare diverged during this period: spending rose in rich countries and slightly declined in less-developed countries" (Rudra, 2002, p. 416). But by focusing only on social spending, these studies neglect institutional contents of social policies which are crucial in the comparative welfare states literature.

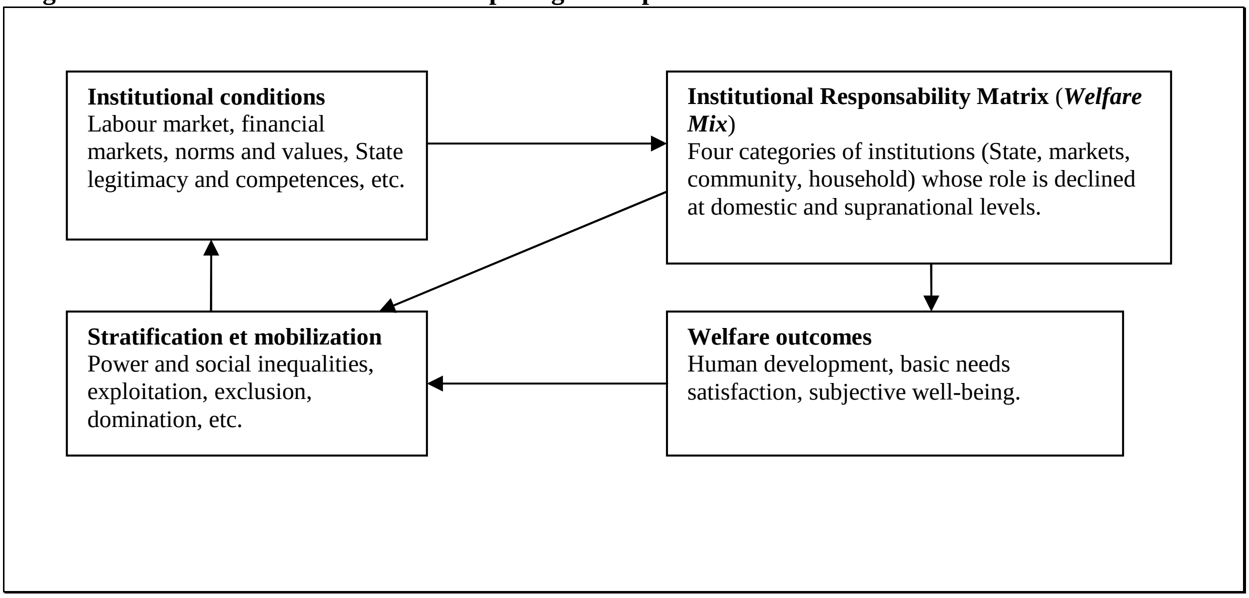
Using monographs on seven developing countries (Tunisia, Cambodia, Colombia, Mexico, Mali, Philippines, South Africa), Destremau and Lautier (2006) identify three forms of social protection. The first type (Tunisia, Colombia, and Mexico) brings together bismarckian welfare systems which are characterized by an extension of coverage. The second type (Mali and Philippines) concern countries where social protection is embryonic and its extension blocked. The last type (Cambodia and South Africa) describes beveridgian systems with degraded public services and widespread private insurance schemes. Esser et al. (2009) propose a more targeted typology which dealt with child benefits. They identify regularities within Sub-Saharan African countries and Latin American countries. In African countries, child benefits consist of bismarckian programs (linked to employment) inherited from colonial period whereas in Latin American countries they are means-tested and often conditioned by regular school attendance objectives.

These two studies are fundamentally qualitative and focus on institutional characteristics of public programs of social protection. As a consequence, they occult the plurality of social protection actors in developing countries (households, communities, markets and NGOs). It seems necessary to adopt a broader definition of social protection which might to take into account social, economic and cultural specificities. In this perspective, the Esping-Andersen's framework constitutes an interesting starting point if we consider the numerous extensions that it has aroused.[5] In particular, several studies have attempted to justify the existence of a fourth welfare regime which would concern Southern Europe countries (Leibfried, 1992;

[5] See the survey provided by Bambra (2007).

Ferreira, 1996; Bonoli, 1997), Oceanic countries (Castles & Mitchell, 1991), or even transition countries (Fenger, 2007). Other studies focus on the specificities of social protection systems in East Asian countries. Authors such as Ku (1997), Kwon (1999) or Esping-Andersen (1997) attempt to give evidence on the similarities between the three welfare systems identified by Esping-Andersen (1990) and the institutional characteristics of social protection schemes in South Korea, Taiwan, Japan and Hong Kong. For instance, Ku (1997) shows that the Taiwanese system of social protection presents obvious convergences with the conservative regime. In the same way, Esping-Andersen (1997) argues that the Japanese welfare model stands at the intersection between the liberal regime and the conservative regime. Holliday (2000) and Lee and Ku (2007) grasp the question differently. They try to determine if the institutional characteristics and social protection trajectories in East Asian countries can give evidence about a fourth regime. Holliday (2000) asserts that East Asian countries can be regrouped in a 'productivist' welfare regime. The two central aspects of this regime are "a growth-oriented state and subordination of all aspects of state policy, including social policy, to economic/industrial objectives" (Holliday, 2000, 709). Following Holliday, Gough (2001) refers to a 'developmental' model which suggests that East Asian States always set economic development as their first goal, with social protection being one of the instruments for its accomplishment.[6]

Figure 1: Theoretical framework for comparing social protection models.



Source: Wood & Gough (2006).

Even if Esping-Andersen's analysis has given rise to criticisms,[7] it seems an interesting model so as to analyse social protection regularities in less-developed countries, if we consider its institutionalist grounds. However, taking into consideration the social, cultural and economic characteristics of developing countries requires to adjust the initial framework. In this perspective, Rudra (2007, 2008) explores the possibility of distinct welfare regimes in developing countries by referring to two ideal types of welfare states: (i) protective welfare states in which government efforts are focused on decommodification and (ii) productive welfare states which prioritize commodification. An empirical cluster analysis confirms the relevance of these two categories but also identifies a third group which describes weak dual

[6] This concept of developmental model was initially proposed by Johnson (1982) in order to describe the Japanese model.
[7] See Kasza (2002).

regimes (with elements of the two initial regimes).[8] The study of Wood and Gough (2006) is also an extension of Esping-Andersen's analysis. The starting point of their conceptual grid (figure 1) lies in institutional conditions of the considered country, that is, markets characteristics, State legitimacy, social integration, norms and values and the position in global system. Taking into account these initial conditions leads Wood and Gough (2006) to define an institutional responsibility matrix (*welfare mix*), following Gough (2001). It describes "the institutional landscape within which people have to pursue their livelihoods and well-being objectives, referring to the role of government, community, private sector market activity and the household in mitigating insecurity" (Wood & Gough, 2006, 1701). The authors distinguish four categories of institutions (State, market, community and household) whose role is declined at the domestic and supranational levels. This institutional structure produces *welfare outcomes* which are broadly defined in terms of human development, satisfaction of basic needs and subjective well-being. The last feature of this framework is the stratification system and the patterns of political mobilization. The stratification system refers to power and social inequalities and characterizes the degree of mobilization of the different social groups. Even if the extent of stratification and mobilization tend to reproduce institutional conditions, it may also destabilize them. Furthermore, it is also influenced by institutional conditions and welfare outcomes. Thus, social stratification and political mobilization are both causes and consequences of the other factors.

On the basis of this institutional grid, Wood and Gough (2006) implement a simple cluster analysis on several dimensions of the welfare mix and the welfare outcomes for a sample of 56 countries. In order to describe the welfare mix, two variables are considered: (i) public spending on health and education as a share of GDP and (ii) the sum of international inflows of aid and remittances as a share of GNP. The HDI is used as a proxy of welfare outcomes. Three meta-regimes are identified. First, the *welfare State regimes* include the three traditional welfare models of Esping-Andersen (social democratic, conservative and liberal) but also an emerging productivist welfare State for countries such as Korea and Taiwan. Second, the *informal security regimes* (Latin America, South Asia and East Asia) describe systems in which: (i) people rest on community and family relations to insure their social security and (ii) a public and formal social protection emerges recently. In this meta-regime, Wood and Gough (2006) identify a liberal-informal regime (Latin America) and a productivist regime (East Asia). The *insecurity regimes* (Sub-Saharan Africa, Afghanistan, and Gaza) are characterized by institutional arrangements which generate a strong social insecurity and block the emergence of efficient informal mechanisms of protection.

This analysis is interesting in so far as it takes into consideration the diversity of social protection actors. Particularly, it points out the role of community and household whereas Esping Andersen's analysis focuses mainly on State and market. Undoubtedly, the theoretical framework of Wood and Gough is adapted to the context of developing countries. Nevertheless, the empirical analysis seems restrictive at three levels. First, the sample used by Wood and Gough excludes industrialized countries. We think that their introduction is important in order to identify more precisely potential convergences between developing countries models and the three canonical welfare State regimes of Esping-Andersen. Second, the analysis does not take into account the respective contribution of private and public protection. In other words, it neglects the degree of decommodification of social rights which

[8] The productive regime describes countries such as Korea, Malaysia, Thailand, Singapore, Chile or Costa Rica. The protective regime is associated with India, Egypt, Bolivia, Tunisia, and Morocco. The dual model concerns four Latin American countries (Argentina, Brazil, Mexico, and Uruguay).

is crucial in Esping-Andersen's analysis. Third, it seems more relevant to construct a typology only on the basis of welfare mix variables which are the ones who describe the institutional structure of social protection. Welfare outcomes would be better used ex-post to qualify the groups identified.

4. Methods and data

This paper presents a two-step empirical analysis which is based on multidimensional statistical methods. In a first step, we run principal component analysis (PCA) in order to better understand the basic structure of the dataset. PCA is a multivariate data analysis method whose purpose is to reduce the dimension of the observations and thus simplify the interpretation of data. More precisely, it aims at creating a set of uncorrelated factors, called principal components, in order to replace an original set of quantitative variables. These new variables are linear combinations of the initial variables. The objective is to find out only a few components which explain most of the variance in the original dataset. In a second step, we use cluster analysis in order to construct a typology of social protection models. Cluster analysis is a statistical method that classifies objects (i.e. countries) into clusters according to the characteristics of the objects (that have been identified with PCA). Objects in the same cluster share significant homogeneity whereas there is significant heterogeneity among objects in different clusters. In this study, we run k-means cluster analysis which is a non-hierarchical cluster method that fits well for a set of continuous variables. It produces only one solution for a predetermined number of clusters.

Six quantitative variables are retained to implement PCA and k-means cluster analysis.[9] The proportion of public social protection and health expenditures in GDP (SOC_EXP) and the proportion of social contributions in GDP (CONTRIB) give information about the extent of public social protection. The ratio between private and public health expenditures (RATIO_EXP) is used as a proxy for commodification of social protection. Moreover, we have calculated the mean oldness of public programs of social security (AGE_PRG). For each country, the ILO Social Security Database gives the date of creation of the first scheme for eight branches of social security (old-age, sickness, maternity, invalidity, survivors, family allowance, work injury, unemployment). For each risk we deduce the oldness of the first program and then calculate a simple average which measures the mean age of social security schemes. The fifth variable is the total number of programs (NB_PROG) for all these branches. Finally, the proportion of remittances in GDP (REMIT) is used as a measure of the degree of informal social protection. In order to describe the groups of countries that we identify with cluster analysis, we use three additional variables which are not used to run PCA and k-means cluster analysis. The first two characterization variables are the Gini index and the human development index (HDI) and measure welfare outcomes. The third one is the GDP per capita (GDPH).

The dataset consists of 148 countries. The reference year for all observations is 2005 but when data observations were missing, we retain older data until 2000. This strategy seems relevant since we use mainly structural variables which are quite time-invariant. In spite of this adjustment, there are always missing values. Yet, one of the main purposes of our study is to construct a typology of social protection models for a sample as large as possible comprising industrialized, transition, emerging and less-developed countries. So the treatment of missing observations is an important issue. So as deal with them for SOC_EXP, we use the

[9] The sources are presented in table A1.

series on public health expenditures as a percentage of GDP (from World Bank's World Development Indicators) which are more complete. We affect the value for this variable when observations were missing in SOC_EXP. But it's necessary to multiply these values by the mean ratio of SOC_EXP to public health expenditure to preserve the same scale and to allow comparability. For other variables, we fill missing values by assigning the nearest neighbour observation on the basis of all the variables retained for the analysis.

5. Results

5.1. Principal Component Analysis

The results of PCA are summarized in table 1 and figure 2. The number of components to retain depends on (i) the proportion of total variance explained by each component, (ii) the absolute variance explained by each component (the Eigenvalue of each component retained should excess one) and (iii) the ability of each component to be interpreted meaningfully. By examining the results of PCA, we can extract two principal components, accounting for more than 69 percent of the total variance.

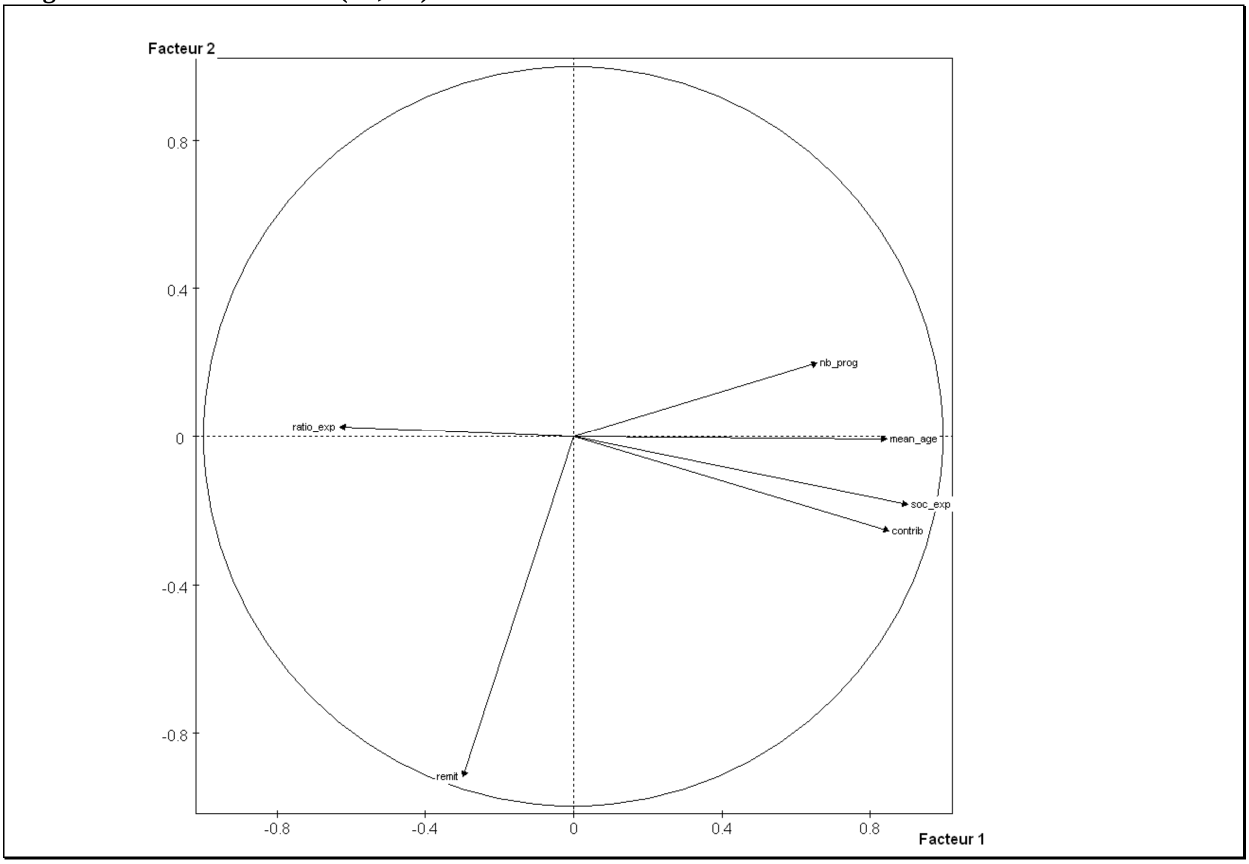
Table 1: PCA results (contributions and Eigenvalues).

Variable	Factor 1	Factor 2	Factor 3	Factor 4
remit	0,03	0,86	0,03	0,07
mean_age	0,23	0,00	0,09	0,06
nb_prog	0,13	0,04	0,33	0,45
contrib	0,23	0,06	0,00	0,15
soc_exp	0,26	0,04	0,02	0,02
ratio_exp	0,12	0,00	0,53	0,25
Eigenvalue	3,172	0,98	0,82	0,55
% variance	52,86	16,39	13,69	9,24
Cumulative % variance	52,86	69,25	82,94	92,19

The first component explains about 53 percent of total variance. The contributions of variables show that F1 captures mostly positive correlations between SOC_EXP, MEAN_AGE, NB_PROG and CONTRIB. Consequently, countries with a high level of public social protection are those who have the oldest and the most fragmented public schemes. As an illustration, France has 15 public schemes (for 8 covered risks) with a mean age of 91 years and representing almost 30 percent of GDP in 2005 (including health expenditures). At the opposite, for Pakistan, the share of social protection and health expenditures is only 0.2%, the mean age is 42 years and the number of programs is 6 (for 6 covered risks). The first factor also captures negative correlation between these four variables and the RATIO_EXP.[10] Therefore, the localisation of countries regarding this first component can be interpreted in terms of decommodification of social protection. Although the second component has an Eigenvalue just less than one, it may be extracted because it explains about 16% of total variance and can be interpreted easily. Most of the variance explained by component F2 comes from the variable measuring the share of remittances in GDP (REMIT). Consequently, this second factor captures the degree of informal protection, even if remittances give only partial information on the extent of informal copying mechanisms.

[10] The correlation matrix is reported in table A2.

Figure 2: Correlation circle (F1, F2).



As a result of PCA, countries can be classified regarding the degree of decommodification of social rights and the degree of informality of social protection. As we can observe in figure A1, the projection of countries on the first factorial plan (F1, F2) supports the idea of a four-group classification so as to identify models of social protection. On the right side, there are mainly industrialized countries, transition countries and several Latin-American countries. But the situation of all these countries does not seem homogeneous regarding F1. The extreme right consists of West-European countries whereas Anglo-Saxon, Latin-American and Central and Eastern European countries (CEEC) are closer to the origin. The left-side contains only developing countries with a distinct group on the top (low degree of informal protection) and a distinct one on the back (high degree of informal protection). If PCA helps suggesting a classification, it cannot identify precisely the composition and the characteristics of different categories. The construction of typologies is the main objective of cluster analysis methods.

5.2. Four models of social protection

A k-means cluster analysis has been implemented on the basis of the six variables of PCA in order to classify 148 countries into four groups. As all observations are classified in such a procedure, the produced typology may be fuzzy because some countries may have a social protection profile that is in fact not really distinct from the average one. It's the reason why we create a fifth category by selecting the 10 percent of countries whose Euclidean distance to the average observation is the weakest. In order to define the groups that cluster analysis has generated, the means of classification and characterization variables for each cluster are reported in table 2. The composition of each group is shown in table 3.

Table 2: Means of classification and characterization variables by cluster.

	Clusters					
	1	2	3	4	Indistinct	All
Classification variables						
Remittances (% of GDP)	4,7	**1,3**	**2,8**	**19,3**	**2,3**	4,5
Mean age of programs	**69**	**89**	**43**	**40**	57	59
Number of programs	**11,2**	**11,1**	**7,2**	**6,6**	**7,6**	8,9
Social contributions (% of GDP)	6,6	**10,9**	**1,0**	**2,5**	**2,7**	5,5
Social protection expenditure (% of GDP)	14,6	**22,3**	**3,9**	8,6	**9,5**	12,7
Ratio private to public health expenditure	0,97	**0,36**	**1,67**	1,58	1,10	1,23
Characterization variables						
GDP per capita	14038	**26679**	**6421**	**4563**	**7620**	11423
Welfare outcomes						
Gini index	40,2	**31,6**	41,1	**45,0**	**45,4**	40,2
Human development index	**0,802**	**0,901**	**0,592**	0,662	0,669	0,707

Notes: (i) The means are calculated without replacement of missing values. (ii) The values that significantly differ from those of other clusters (independent samples t-test) are in bold.

The first group describes institutionalized systems of public social protection with a moderate degree of decommodification of social rights. The level of human development is high. This category is quite representative of *liberal social protection*. Three developed countries which are typical of Esping-Andersen’s liberal model (United States, Australia and Canada) belong to this group. Social protection systems in Japan and Switzerland are also classified as liberal models as in the typology provided by Castles & Mitchell (1993). Other typologies describe Japan welfare State regime as a conservative one (Esping-Andersen, 1990; Kangas, 1994; Korpi & Palme, 1998). In fact, Japan model is likely at the intersection between the liberal and conservative models, as highlighted by Esping-Andersen (1997). The composition of this second cluster confirms the proximity between the liberal model of social protection and Latin-American model. The privatization of old-age pension and healthcare systems since Chile’s reforms of 1981 has been widely discussed in literature (Mitchell & Ataliba-Barreto, 1997; Armada et al., 2001; Mesa-Lago & Müller, 2002; Homedes & Ugalde, 2005). For instance, the total or partial privatization of old-age pension systems has concerned most of Latin-American countries belonging to this group like Peru (1993), Colombia (1994), Argentina (1994), Uruguay (1996) and Bolivia (1997).[11] Furthermore, the structure of the group shows that several features of the liberal model have been attractive for several transition countries, like Baltic ones or Poland. Under communist regimes, social protection was linked to occupational status and presented the main characteristics of the Esping-Andersen’s conservative model. But the intervention of World Bank and IMF and the financial difficulties of public schemes during the transition process have resulted in the introduction of private schemes.[12] The significant decrease in the proportion of social protection expenditures in GDP that we can observe for Latvia (from 17.2% in 1996 to 12.7% in 2005) or Estonia (from 16% in 1996 to 13.9% in 2005) give a strong evidence of this liberalization process. Social protection in India also suggests convergences with the liberal model. Although India has some Beveridgian schemes, social expenditures are very small comparing to other developing countries (Justinio, 2006) and, expressed as a percentage of

[11] As mentioned by Kritzer (2001), there are some variations. Several countries like Argentina or Uruguay have implemented mixed systems combining pay-as-you-go and private individual accounts whereas Chile and Bolivia have totally privatized their system.

[12] Most of transition countries follow World Bank’s recommendations and set up three-pillar pensions systems which combine a public-managed compulsory pay-as-you-go pillar, a privately-managed compulsory pillar and voluntary private schemes. For a review, see Kritzer (2001).

GDP, these expenditures have decreased from 1.6% in 1995 to 0.86% in 2005. Moreover, existing programs cover only a small proportion of the population. For instance, in 2005, only 25.1% of the population over 65 years receives an old-age pension (ILO, Social Security Database). The low extent of public social protection justifies a moderate level of decommodification and programs that have been launched more recently like the *National rural employment guarantee scheme* (1995) or the *Targeted public distribution system* (1997)[13] are assistance schemes which reinforce the liberal orientation of the system.

Table 3: Composition of the clusters.

Cluster 1 - Liberal social protection model				
Angola	Brazil	Finland	Lesotho	Switzerland
Argentina	Canada	Gambia, The	Lithuania	United States
Armenia	Chile	Greece	Mongolia	Uruguay
Australia	Colombia	Iceland	Oman	Venezuela, RB
Azerbaijan	Costa Rica	India	Peru	
Belarus	Croatia	Japan	Poland	
Bolivia	Dominican Republic	Kyrgyz Republic	Portugal	
Bosnia and Herzegovina	Estonia	Latvia	Serbia and Montenegro	
Cluster 2 - Decommodified social protection model				
Austria	France	Luxembourg	Romania	Sweden
Belgium	Germany	Macedonia, FYR	Russian Federation	Ukraine
Bulgaria	Hungary	Netherlands	Slovak Republic	United Kingdom
Czech Republic	Ireland	New Zealand	Slovenia	
Denmark	Italy	Norway	Spain	
Cluster 3 - Social insecurity model				
Afghanistan	Ethiopia	Korea, Rep.	Niger	Tanzania
Bangladesh	Gabon	Kuwait	Nigeria	Thailand
Cambodia	Georgia	Lao PDR	Pakistan	Togo
Cameroon	Ghana	Liberia	Papua New Guinea	Turkey
Central African Republic	Guatemala	Libya	Rwanda	Turkmenistan
Chad	Guinea-Bissau	Madagascar	Senegal	Uganda
China	Guinea	Mauritania	Sierra Leone	United Arab Emirates
Congo, Dem. Rep.	Hong Kong, China	Mauritius	Singapore	Uzbekistan
Congo, Rep.	Indonesia	Morocco	Sri Lanka	Vietnam
Cote d'Ivoire	Israel	Mozambique	Sudan	Yemen, Rep.
Cuba	Kazakhstan	Myanmar	Swaziland	Zambia
Eritrea	Kenya	Namibia	Syrian Arab Republic	
Cluster 4 - Informal social protection model				
Albania	Haiti	Jordan	Nepal	Saudi Arabia
Burundi	Honduras	Lebanon	Nicaragua	Tajikistan
El Salvador	Jamaica	Moldova	Philippines	Zimbabwe
Cluster 5 - Non classified countries				
Algeria	Burkina Faso	Iran, Islamic Rep.	Mexico	South Africa
Benin	Ecuador	Malaysia	Panama	Trinidad and Tobago
Botswana	Egypt, Arab Rep.	Mali	Paraguay	Tunisia

Countries belonging to the second cluster are characterized by a high degree of decommodification and by an old and institutionalized public protection system. Inequalities are significantly lower than in other categories and human development greater. In other words, this group has the best welfare outcomes and is representative of *decommodified social*

[13] In India, the *public distribution system* is an instrument for ensuring availability of certain essential food items like rice, wheat and sugar at affordable prices. In 1997, the *targeted public distribution system* has replaced the old universal public distribution system and provides now food assistance only for the poor.

protection. It concerns mainly European countries identified by Esping-Andersen (1990) as characteristics of the conservative model (Germany, France, Italy) and the social democratic model (Sweden, Denmark, Norway, the Netherlands). Yet, the six variables that we take into account do not allow to clearly distinguish these two welfare regimes. Unlike to many transition countries which implement deep liberal reforms, social protection systems inherited from Soviet Union seems more resistant in Russia and Ukraine and explains the proximity with decommodified social protection. As an illustration, the proportion of social protection and health expenditures in GDP has slightly increased in Russia from 11.1% in 1999 to 12.2% in 2005.[14]

The third group describes a model of *social insecurity*. The public protection is residual and the degree of decommodification extremely weak. Furthermore, the extent of remittances is moderate and supports the idea that informal protection is limited and cannot compensate the absence of an institutionalized system. As a consequence, the level of human development is significantly weaker than in other groups. This group is quite heterogeneous. It consists mainly of less developed countries like sub-Saharan African countries and the poorest Asian countries (Cambodia, Myanmar, Bangladesh, and Lao). But it also includes several emerging countries like China, Turkey, Morocco, Korea, Singapore, Hong Kong, Thaïland, Vietnam or Indonesia. The presence of several East-Asian countries in this group confirms the idea that welfare States in these countries are not protective in the sense of Rudra (2007, 2008) or, in other words, that they are not designed to satisfy social and distributive objectives. Therefore, it may give evidence of a 'productivist' East-Asian regime where State intervention would be subordinated to economic and industrial objectives, as underlined by Holliday (2000). However, the presence of less developed countries in the same cluster shows that the robustness of this 'productivist' model is weak.

The last cluster refers to *informal social protection*. The formal and public protection is weak as for the previous category but the extent of inflows of international remittances shows that familial solidarity helps to mitigate vulnerability. The group comprises 15 countries which present a very high degree of remittances. For instance, the share of remittances in GDP exceeds 20 percent in Moldova, Honduras, Haiti, Lebanon and Tajikistan. The unequal access to remittances and informal copying strategies generates strong income inequality since the Gini index is significantly higher than in all other groups. Nonetheless, the existence of informal schemes probably explains the higher level of human development comparing to the third group. And this difference concerns countries which are quite comparable in an economic perspective. We can mention the cases of Philippines compared to Indonesia. These two countries share many economic characteristics and present a comparable development path. Moreover, the extent of public social protection expenditures in GDP is extremely weak in both countries (less than 2 percent). This economic proximity justify that they are both categorized as "baby tigers" and yet, Philippines present a higher level of human development. One plausible explanation of this gap lies in the existence of informal social protection mechanisms through international migration and remittances in Philippines. The same observation can be drawn by comparing Jordan and Lebanon (informal social protection) to Syria (social insecurity).

[14] Clément (2007) explains that in Russia social protection is a domain where the Soviet legacy is the most pregnant. The 2001 pension reform is a first sign of liberalization. It follows World Bank's recommendations and establishes a three-pillar system with pay-as-you and private schemes. Nevertheless, the extent of privatization is limited and the pay-as-you-go pillar is still predominant.

6. Concluding remarks

This article is a contribution to the analysis of social protection diversity in developing countries and lies within Esping-Andersen's framework. One of the specificities of social protection in Southern countries lies in the plurality of social protection actors and the existence of a strong informal dimension. Thus, a relevant classification of social protection models requires taking into account the respective role of government, community, market and family in the promotion of social security, what Wood and Gough (2006) name the *welfare mix*.

Our empirical analysis applies multidimensional statistical techniques to variables relating to the configuration of welfare mix. Compared to previous contributions, we use a very large sample containing 148 countries with together industrialized countries, transition countries and most of developing countries. Principal component analysis (PCA) identifies the degree of decommodification and the extent of informal social protection as the two crucial dimensions in order to characterize social protection. On this basis, we have implemented a cluster analysis producing a four-group typology with a liberal model, a decommodified model, a social insecurity model and a model of informal social protection.

This classification sheds light on three aspects. First, most of Latin-American countries show obvious similarities with the Anglo-Saxon liberal model. The privatization of healthcare and old-age pension systems in Chile during the 1980s has generated a second wave of privatization in other Latin American countries during the 1990s. Second, our results can only give weak evidence of a specific East-Asian model. Even if Korea, Singapore, Hong Kong, Thaïland, Vietnam and Indonesia belong to the same group (i.e. social insecurity model), they share characteristics with less developed countries like Sub-Saharan African ones. Third, the situation of transition countries regarding social protection issues is quite diverse. Contrary to Russia and Ukraine whose social protection systems are still marked by the Soviet legacy and a significant degree of decommodification, countries like Baltic ones and Poland liberalized their social systems during the transition process following World Bank's recommendations.

In the end, this typology doest not identify a model which would be specific to emerging countries. Latin-American countries and India show similarities with the liberal model whereas China and East-Asian countries are classified in the social insecurity model. The only common feature lies in the low degree of decommodification of social rights. As a consequence, public social protection is not a key dimension in the process of emergence and is not decisive in qualifying countries as emergent. However, many emerging countries have recently established ambitious public schemes. We can mention the *Child Support Grant* in South Africa, the programs *Oportunidades* and *Bolsa Familia* respectively in Mexico and Brazil, the *Minimum Living Standards Scheme* in China, the *National Rural Employment Guarantee Scheme* in India and the *PhilHealth* program in Philippines. These new programs show that social protection tends to become an important preoccupation. It might suggest that during the emergence process, redistributive issues make sense for governments once the sustainability of economic growth insured. A common property of these schemes is that they are targeted on certain categories of population (poor, rural workers, informal workers, etc.). For instance, *Oportunidades* and *Bolsa Familia* are targeted on poor families with children whereas *PhilHealth* program is designed to help informal workers. In other words, emerging countries seem to privilege a selective protection rather than universal or insurance benefits. According to us, this evolution gives evidence of a convergence towards liberal model.

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Annexes

Table A1: Statistical sources

Code	Label	Source
soc_exp	Public social protection and health expenditures (% of gdp)	IMF
contrib	Social contributions (% of gdp)	World Bank, WDI
mean_age	Mean oldness of public social protection	ILO Social Security Database
nb_prog	Total number of public social protection programs	ILO Social Security Database
ratio_exp	Commodification ratio (ratio of private to public health expenditures)	World Bank, WDI
remit	Workers' remittances and compensation of employees (% of gdp)	World Bank, WDI
gini	Gini index	World Bank, WDI
hdi	Human development index	UNDP
gdph	GDP per capita, PPP (constant 2005 international $)	World Bank, WDI

Table A2: Correlations matrix variables.

	remit	mean_age	nb_prog	contrib	soc_exp	ratio_exp
remit	1,00					
mean_age	-0,22	1,00				
nb_prog	-0,21	0,55	1,00			
contrib	-0,09	0,68	0,40	1,00		
soc_exp	-0,15	0,70	0,44	0,79	1,00	
ratio_exp	0,19	-0,33	-0,24	-0,43	-0,57	1,00

Figure A1: Projection of countries of the first factorial plan (F1, F2).