

Titel/Title:

Autor*innen/Author(s):

Veröffentlichungsversion/Published version:

Zeitschriftenartikel/Journal article

Empfohlene Zitierung/Recommended citation:

Verfügbar unter/Available at:

(wenn vorhanden, bitte den DOI angeben/please provide the DOI if available)

Zusätzliche Informationen/Additional information:

The coverage of social protection to outcomes in the Global South

Carina Schmitt

SOCIUM - Research Center on Inequality and Social Policy, University of Bremen, Germany

Running head: Outcomes of social protection coverage in the Global South

Key words: social pensions, democracy, social protection, Global South, developing countries

Correspondence Author:

Prof. Dr. Carina Schmitt

University of Bremen

SOCIUM - Research Center on Inequality and Social Policy

Mary-Somerville-Straße 3

28359 Bremen, Germany

Abstract

About 73% of the global population is not, or is only partly, covered by social protection. Particularly across low- and middle-income countries (LMICs) social protection coverage is highly heterogeneous. What explains the large differences in the inclusiveness of social protection across LMICs? By analysing 100 LMICs using retirement schemes as an example, this study shows that non-contributory schemes in LMICs are, by far, more inclusive than contributory ones. Surprisingly, democratic institutions characterised by low levels of political corruption only promote the inclusiveness of non-contributory social protection while reducing the coverage of contributory schemes.

In recent times, social protection has been one of the most popular instruments for promoting human development worldwide. Almost every country in the world has implemented some kind of social protection legislation. However, not all citizens across the globe actually benefit from social protection provided by the state. In fact, about 73% of the global population is not at all, or is only partly, covered by social protection (ILO, 2014, p. xxi). Especially in low- and middle-income countries (LMICs), it is often the poorest who do not receive essential social protection (Holliday, 2000). For example, in many African countries ‘social security always kept its character as a privilege, to which only a small minority had access’ (Eckert, 2004, p. 472). However, this does not apply to all LMICs. Some countries, such as Botswana and Swaziland, have achieved nearly universal coverage with single social protection schemes, or, as in Bangladesh, have at least expanded their social inclusiveness (ILO, 2014c). Overall, social protection coverage varies strongly across countries beyond the OECD (Fiszbein et al., 2014).

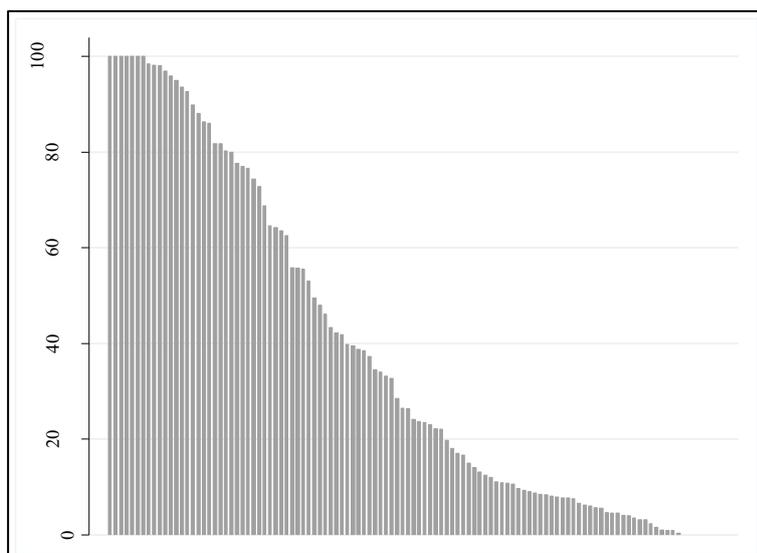
Figure 1 shows the variation in the inclusiveness of social protection in LMICs using the example of retirement schemes, which are the most common type of programme. The figure demonstrates that the differences in the percentage of older-aged persons receiving old-

age benefits are very large across low- and middle-income countries, ranging from 0 or slightly above in some countries such as Nigeria and Laos, to 100% in, for example, Namibia and Botswana. Why does social protection coverage differ so strongly across nations? Why have some LMICs introduced universal systems while social protection in other countries covers only a small proportion of society?

The aim of this study has been to explain contemporary variation in the inclusiveness of old-age protection across low- and middle-income countries (LMICs). Identifying the factors driving coverage by old-age protection is of particular relevance since large parts of the population in LMICs are dependent on effective social protection schemes. In many regions of the world, retirement benefits are the only available source of income for older people in LMICs. Old-age protection programmes are especially important since they are the most widespread type of social protection programme across the world. Nearly all countries across the globe have introduced at least one, and often more, old-age schemes (Schmitt et al., 2015). Moreover, old-age expenditures ‘often account for a high proportion of public spending’ (Lloyd-Sherlock, 2000, p. 2160).

To date, comparative welfare state research dealing with social protection in LMICs has not paid much attention to the inclusiveness of social protection, but has rather been concerned with explaining the introduction of social protection (e.g. Carnes & Mares, 2013; Kangas, 2012; Schmitt et al., 2015; Usui, 1994). The few studies that have investigated coverage by social protection are mainly descriptive in nature (e.g. ILO, 2014; Mesa-Lago, 1978; Palacios & Knox-Vydmanov, 2014; Rofman et al., 2015). Additionally, a number of case studies dealing with the inclusiveness of social policy in specific countries are available (e.g. Casey & McKinnon, 2009; Pelham, 2007; Seekings, 2012). Comparative studies explaining different social policy outcomes are almost non-existent. A significant reason for this is the limited availability of data on LMICs. Data on coverage by specific forms of social (← p. 6) protection have become available only within recent years.

Figure 1: Total coverage of retirement schemes in LMIC



Notes: the y-axis displays the number of people who receive a pension in relation to the total number of people above statutory pensionable age for the latest available years. Data is used from ILO (2014).

This article contributes to the existing literature first by elucidating the outcomes of social protection in LMICs and thereby extending the focus of existing research on Western democracies. Second, it constitutes a first attempt to explain the extensive variation in contemporary inclusiveness of social protection across LMICs with a large-N framework. Third, it enhances our understanding of the different rationales and mechanisms that underpin social protection in LMICs and emphasises that the narratives established for OECD countries have to be differentiated and adjusted when it comes to social protection in LMICs.

By using data on effective pension coverage in 100 LMICs (ILO, 2014), the study provides a first quantitative analysis on the inclusiveness of old-age protection programmes in LMICs. The period of observation ranged from 1990 until 2010. Furthermore, a self-coded data set on the type of retirement schemes introduced in LMICs was compiled, based on information provided by several institutions such as HelpAge International, the ILO, and the World Bank.

The estimation results reveal several interesting findings. First, the type of retirement scheme highly influences the inclusiveness of social protection in an LMIC. In contrast to OECD countries, non-contributory pension schemes (NCPs) in LMICs are more inclusive than contributory pension schemes (CPs) due to, for example, large groups in society that are active in the informal labour market and are not covered by CPs. Second, the incentives created by political institutions differ fundamentally with regard to non-contributory and contributory pension schemes. Even though politicians in autocracies as well as in democracies opt for social policies as instruments to enhance regime survival, they use different types of social policies to achieve this aim. In democratic settings with low levels of political corruption, expanding the inclusiveness of NCPs to cover larger proportions of society is a reasonable strategy for politicians aiming to attract greater electoral support. In contrast, in autocratic settings, political leaders rather tend to use contributory social protection schemes to compensate powerful social groups such as the military and urban formal workers for political loyalty. Third, socioeconomic international and national factors affect coverage by contributory and non-contributory social protection differently. For example, while urbanised countries with a large share of older residents have a high coverage rate for contributory old-age protection, the opposite is true in the case of non-contributory social protection.

To best develop these arguments and to present the empirical analysis, this article is structured as follows. In the next section, the types of retirement schemes introduced in LMICs are elucidated and the variations in coverage differentiated according to NCPs and CPs are presented. The third section discusses how type of retirement scheme influences inclusiveness and how the influence of democracy varies depending on whether the inclusiveness of non-contributory or contributory systems is taken into consideration. In the subsequent section, the data and methodology (← p. 7) are presented in detail. The fifth section presents the empirical analysis and discusses the results. The last section concludes.

Old-age schemes across low- and middle-income countries

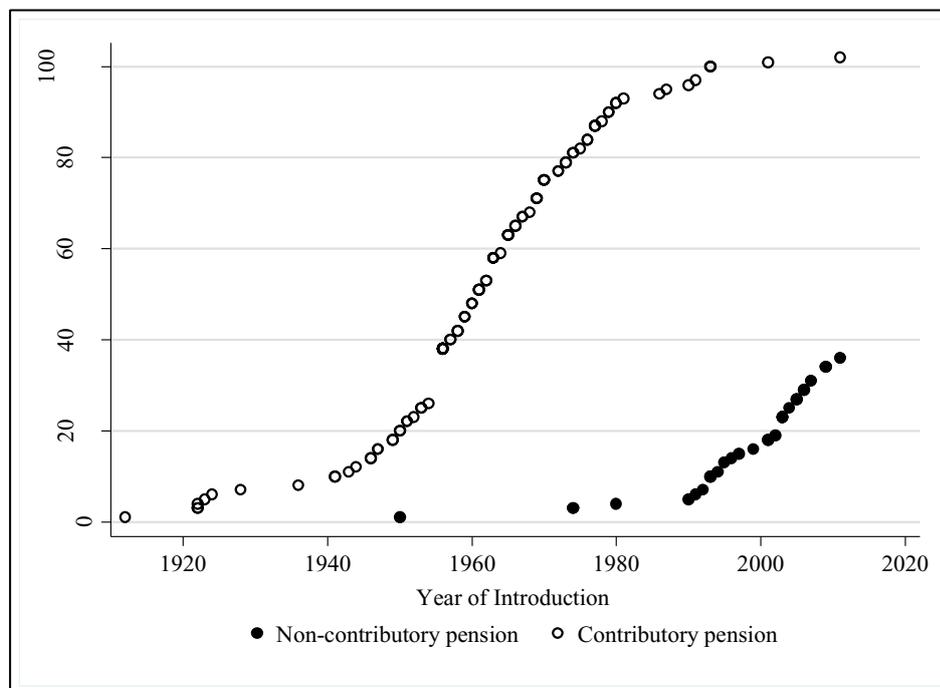
What do pension systems in low- and middle-income countries (LMICs) look like? Which retirement schemes exist and how inclusive are they? The first pension systems in LMICs were introduced in the first half of the 20th century, mostly in the form of earnings-related social insurance systems (see Figure 2; also Lloyd-Sherlock, 2000; Mahon et al., 2015). This type of scheme is based on contributions made by wage earners. Pension payments are therefore directly related to wages (Carnes & Mares, 2013). Up to this day, social insurance is the most widespread and dominant retirement scheme across LMICs. In contrast, only few countries initially introduced provident funds. This form of retirement scheme can be found only in former British colonies in Asia and Africa (Schmitt, 2015). Very few countries rely on mandatory individual accounts to protect older-aged people.¹ Earnings-related schemes, provident funds and mandatory individual savings accounts are contributory pensions schemes (CPs), since pension benefits are dependent on individual contributions which are related to previous earnings (ILO, 2014; Johnson & Williamson, 2006).

Over recent decades, more and more countries have introduced non-contributory pensions (NCPs) as an additional pension pillar. In contrast to CPs, NCPs are tax-financed and beneficiaries receive pensions independent of contributions. NCPs are often labelled social pensions and can be universal, pension-tested or means-tested (Carnes & Mares, 2013; ILO, 2014). Universal pensions are paid to everyone over a certain age. In the case of pension-testing, benefits are provided to those people who do not receive a pension from other sources. Means-testing underpins the most restrictive form of NCP in which the total

¹ A provident fund is a compulsory savings account into which the employer and the employee make periodical payments without a government contribution. The benefit is equal to the savings plus interest (see Williamson & Pampel, 1991). Mandatory individual accounts as provident funds are private savings but without contributions made by the employer.

income of a person is evaluated and pensions are provided only to older-aged individuals whose incomes fall below a certain threshold (ILO, 2014).

Figure 2: The spread of NCPs and CPs across LMIC



Notes: y-axis = the number of countries that have introduced a certain retirement scheme

Figure 2 shows how CPs and NCPs have spread since the beginning of the 20th century. It indicates that in almost all LMICs, pensions are provided by at least one scheme. The heyday of introducing social insurance was in the 1950s and 1960s. In contrast to CPs, the introduction of non-contributory pensions (NCPs) is a comparably recent development since the 1990s, with a few exceptions such as South Africa and Brazil being early birds (Seekings, 2013; Barrientos, 2009). NCPs were introduced mainly on the Asian continent and in Latin American countries as means-tested NCPs, whereas in Africa only about 20% of the countries introduced tax-financed NCPs (Brooks, 2015; Overbye, 2005). Besides South Africa, Namibia introduced a universal NCP relatively early, in 1992, shortly after gaining

independence from South Africa, and a few countries such as Botswana and Lesotho followed suit. In most African countries, social insurance constitutes the only available pension (← p. 8) programme and typically covers only certain segments of the population. Overall, CPs are by far more widespread than NCPs. Within the sample analysed in this study, 39 countries have non-contributory old-age programmes, while a further 102 have contributory schemes.

How do these patterns of old-age pension schemes influence inclusiveness across LMICs? Does old-age protection coverage systematically differ between countries with different types of retirement schemes, namely CPs and NCPs? Figure 3 displays the number of pension beneficiaries in relation to the total number of people over statutory pensionable age, differentiated by whether countries have only a CP system (left box plot) or whether they (also) have an NCP system (right box plot).

Figure 3: Coverage rate of retirement schemes separated by type

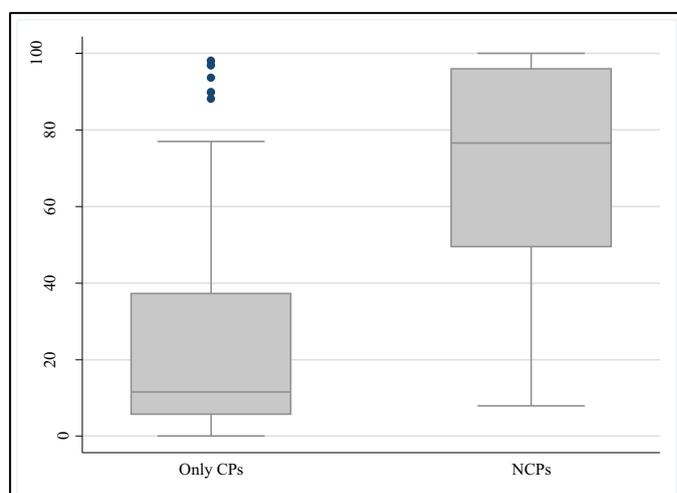


Figure 3 demonstrates that the coverage rate differs highly between both groups. While in countries without a contributory pension system on average 23.79% of older-aged people receive pensions, the mean coverage in countries with non-contributory old-age protection is 68.13%. Moreover, the distribution is right-skewed for LMICs without NCPs

with a median value of 11.5, indicating that more than half of all countries in this group have a coverage rate below the mean. The opposite holds true for LMICs with non-contributory pensions (mean=68.13 and median=76.6). This stands in sharp contrast to the picture in high-income countries. In Western democracies, the inclusiveness of old-age protection is very high and comparable in size between countries that have only a CP system (coverage rate on average 93%) and those that additionally have an NCP in place (coverage rate on average 88%) (own coding, data source: ILO 2014).

Interestingly, inclusiveness is highly diverse in both groups of countries, i.e., LMICs with and without NCPs. Among countries that rely only on contributory systems, some nations, such as Pakistan and Lebanon, have very low coverage rates close to zero, whereas in other states, such as Tunisia or Georgia, the great majority of older-aged people receive some kind of old-age benefit. In LMICs with an additional non-contributory pillar, the coverage rate is also very heterogeneous. Some countries have introduced universal NCPs such that almost 100% of the population over statutory pensionable age receive old-age benefits (e.g. Botswana) and others have very low levels of inclusiveness, such as Kenya and Colombia.

Why is the variation in the inclusiveness of social protection so large in LMICs? And which variables promote the expansion of coverage by old-age schemes? The following section discusses the driving factors for the inclusiveness of NCPs and CPs.

Inclusiveness of old-age protection: theoretical considerations

When analysing the inclusiveness of old-age protection in LMICs, it is important to distinguish non-contributory (NCPs) from contributory pensions (CPs) for the following reasons. First, due to the specific preconditions in LMICs the coverage rates differ highly between NCPs and CPs. Second, the influence of socioeconomic and political factors on the inclusiveness of social protection varies depending on whether contributory or non-contributory schemes are taken into consideration.

As shown above, many LMICs have introduced CPs and, more specifically, social insurance, as a first pillar of social protection.² Social insurance systems are based on formal wage employment and individual monthly payments over a specific period. Consequently, only the social groups within the formal labour market are covered by social security. ‘[F]ormal employment is a gateway for access to financial markets (pension plans, annuities), housing market (housing loans), or health care and insurance markets’ (Barrientos et al., 2003, p. 562). Employees outside the formal labour market lack access to publicly provided insurance and income replacement in old age (Brooks, 2015). According to ILO estimates, in LMICs, on average around 50% of the total output of an economy is produced by informal labour. The fact that many people are working in the informal sector and are thus not integrated into regular wage employment implies that the group of potential beneficiaries in CP systems and the basis for broad coverage are limited (Johnson & Williamson, 2008, Midgley, 2013). While not directly linked to formal wage employment such as social insurance systems, provident funds or mandatory individual savings accounts nevertheless require that people are able to individually pay contributions. People in LMICs are often too poor to contribute to an (← p. 9) individual fund. Non-contributory pensions should therefore be more inclusive than contributory ones.

Furthermore, it can be argued that the form and inclusiveness of social protection is influenced by the political institutional setting. While autocratic and democratic leaders both make use of public policies in general and social policies in particular to create winning coalitions and secure regime survival (Bueno de Mesquita et al., 2002; Knutsen & Rasmussen, 2014), they use different social policy instruments to achieve this aim. CPs in LMICs have often been introduced in highly stratified societies characterised by patron–client

² In many LMICs, the European colonial powers pressured the former dependent territories in the mid-20th century to introduce social security according to the schemes implemented in Europe. See Schmitt (2015) on the influence of colonial interdependencies on the introduction of social security.

relations, nepotism and corruption during colonial times or shortly after independence. CPs therefore often have a long-standing clientelist tradition. Benefit provision in CP systems can be designed to target specific powerful groups such as civil servants, military and urban workers in important industries (Williamson & Howling, 2003). Powerless groups are often automatically excluded due to their position outside the formal labour market. Consequently, in political regimes dominated by authoritarian non-democratic institutions and political corruption, CP systems can still be used by political leaders as an instrument to secure elite privileges in recompense for political loyalty and to serve patronage purposes (Magaloni et al., 2006; Rudra, 2004; Wibbels & Ahlquist, 2011). In contrast, excluding marginalised poor people from receiving benefits and catering only to powerful groups contradicts the logic of NCPs. Therefore, implementing and extending NCPs is not a very attractive policy choice for political leaders in autocratic settings.

In democratic systems, a different logic applies. '[P]olitical competition has a virtuous effect in generating incentives for politicians to shift their investment toward public good provision in an attempt to cater to a wider voting audience' (Magaloni et al., 2006, p. 202). However, broadening the inclusiveness of old-age protection through CPs is often not possible since large informal sectors, poverty and low levels of industrialisation and urbanisation inhibit expansion. Given that they are independent from previous contributions, NCPs are often the only available pathway towards more inclusive old-age protection covering rural and marginalised groups in society. Therefore, democratic leaders who aim to extend the coverage of old-age programmes to groups that have been excluded by CPs should opt for NCPs (Leisering & Barrientos, 2013). Brooks came to the conclusion that '[t]he deepening of democracy [...] may help to explain the expansion of social assistance transfers to the poor in recent decades' (Brooks, 2015, p. 561; Pelham, 2007). Moreover, in democratic settings where governments are formulating policies in transparent ways, people are more in

favour of welfare state policies. Democratic systems with low levels of corruption should therefore subscribe to inclusive NCPs rather than inclusive CPs (Overbye, 2005).

In sum, in LMICs, the inclusiveness of national pension schemes should be greater in LMICs with NCPs than in countries that only have CPs. Effective democratic institutions and limited political corruption should promote inclusive NCPs (Brooks, 2015; Carnes & Mares, 2013), whereas in non-democratic regimes the extension of CPs may constitute an instrument to compensate powerful groups for political loyalty.

The next section addresses the research design, the measurement of the main variables of theoretical interest and briefly discusses alternative factors that might be relevant for the effectiveness of old-age systems and hence are included as control variables.

Data and method

The main dependent variable is the coverage rate of the national retirement schemes. This indicator relates the total number of beneficiaries to the number of older-aged persons over statutory pensionable age. The data for about 100 LMICs were taken from the ILO (2014), which reports coverage rates for the latest available years, mainly from 2008 and 2011.

Unfortunately, data on social protection coverage rates are highly limited and no time series information is available for this variable. Therefore, a cross-sectional analysis was conducted.

Considering that the purpose of the study is to elucidate cross-country differences in recent times and not developments and dynamics over time, a cross-sectional design is an appropriate modelling strategy. Since the effects of the independent variables cannot be expected to be realised within a single year or driven by a specific year, the country-specific averages for all independent variables (apart from those that are time-invariant) were calculated for the 10 years prior to the year from which the coverage data were drawn (see below and Models 3 and 4, Table A2 in the Appendix).

First, the influence of the type of retirement schemes was tested using overall coverage as the dependent variable (Table 1). Since it is expected that political and socioeconomic factors would yield different effects on the inclusiveness of NCPs vs. CPs, the coverage rates of NCPs, on the one hand, and the coverage rates of CPs, on the other, were also used as dependent variables (Table 2). Since coverage rates of CPs and NCPs are available only when the respective retirement scheme exists, simple OLS regressions might be biased due to sample selection. Therefore, a sample selection model (Heckman model) was estimated to test whether there was (**← p. 10**) evidence for sample selection bias. However, the coefficient of the inverse Mill's ratio was statistically insignificant (i.e., no evidence for sample selection bias) and the results for the variables of theoretical interest remained the same. Therefore, the models based on OLS regressions are presented, but the basic models of Table 2 were also estimated as Heckman models and presented in the Appendix (**← p. 11**) (see Table A1 for more details). The formula of the basic OLS regression (Model 1, Table 1) can be expressed as follows:³

Total coverage rate_t

$$= a + b_1 * \Delta \text{globalisation}_c + b_2 * \Delta \text{dependency ratio}_c + b_3 * \Delta \text{fertility rate}_c + b_4$$

$$* \Delta \text{GDP per capita}_c + b_5 * \Delta \text{urbanisation}_c + \Delta \text{democracy}_c + b_6$$

$$* \text{Existence of contributory pension}_t + b_7 * \text{Existence of non - contributory pension}_t + u$$

where t is the latest available date for the dependent variable and the subscript c refers to the average value in the period ranging from t-10 to t.

³ I checked for heteroscedasticity with a Cook Weisberg test and, in the case of heteroscedasticity, robust standard errors were used. Moreover, jack-knife models were estimated to test whether the estimations are sensitive to single cases. The jack-knife estimates confirm the results for the main variables. Furthermore, the VIF values do not indicate problems of multicollinearity and are below any critical thresholds in all models.

Table 1. Determinants of the overall coverage rate in LMIC.

Dependent variable: Overall coverage rate	(1)	(2)	(3)	(4)
Globalisation	0.135** (0.059)	0.140** (0.060)	0.225** (0.091)	0.153*** (0.052)
Dependency ratio	4.337*** (0.504)	3.876*** (0.535)	3.837*** (0.802)	4.654*** (0.504)
GDP per Capita	0.002*** (0.001)	0.001** (0.001)	0.002** (0.001)	0.001** (0.001)
Urbanisation	-0.155 (0.158)	-0.103 (0.157)	-0.256 (0.201)	-0.153 (0.142)
Statutory pensionable age	1.500** (0.753)	1.280* (0.735)	1.317 (0.928)	2.053*** (0.671)
Democracy (Polity)	-0.875** (0.421)		-0.713 (0.594)	-1.061** (0.421)
Political corruption		-4.111 (13.240)		21.610*** (6.059)
NCP	36.310*** (5.475)	35.240*** (5.736)		21.610*** (6.059)
CP	-20.760* (10.860)	-18.310* (10.230)	-64.140*** (19.130)	
Timing NCP				0.700*** (0.150)
Timing CP			0.463** (0.212)	
Constant	-79.440 (50.680)	-74.630 (48.920)	892.500* (449.300)	1,283.000*** (302.400)
Observations	90	93	90	90
R-squared	0.720	0.696	0.540	0.744
F	56.44***	48.26***	23.36***	56.78***

Notes: Robust standard errors in parentheses, ***p<.01, **p<.05, *p<.1
(← Table 1 p. 11)

Table 2. Determinants of the coverage rates of CPs and NCPs in LMIC.

Dependent variable	(1) Coverage rate of CPs	(2) Coverage rate of NCPs	(3) Coverage rate of CPs	(4) Coverage rate of NCPs
Globalisation	-0.006 (0.054)	0.011 (0.093)	0.006 (0.055)	-0.021 (0.109)
Dependency ratio	5.199*** (0.438)	-2.229 (1.388)	4.506*** (0.521)	-1.633 (1.470)
GDP per Capita	0.001 (0.001)	0.002 (0.001)	0.001 (0.001)	0.001 (0.002)
Urbanisation	0.200* (0.100)	-0.297 (0.100)	0.236* (0.100)	-0.193 (0.100)

	(0.114)	(0.267)	(0.127)	(0.291)
Statutory pensionable age	-0.617	3.773***	-0.935	3.683***
	(0.687)	(0.688)	(0.660)	(0.697)
Means-tested pension		-46.090***		-46.540***
		(8.768)		(9.285)
Democracy (polity)	-1.021**	1.323**		
	(0.413)	(0.635)		
Political corruption			8.077	-40.830*
			(10.580)	(21.880)
Constant	20.500	-159.600***	24.270	-112.200*
	(40.770)	(43.020)	(39.840)	(56.940)
Observations	84	34	87	34
R-squared	0.642	0.784	0.586	0.772
F	44.38***	24.91***	41.58***	22.78***

Notes: Robust standard errors in parentheses, ***p<.01, **p<.05, *p<.1; note also that Models 1 and 3 include only countries with a CP and Models 2 and 4 only those countries that have a NCP in place.

(← Table 2 p. 11)

To capture the type of retirement scheme present at the national level, a self-coded data set was compiled. Information on retirement schemes comes mainly from the ILO (2014) and was extended as well as cross-validated by information provided by HelpAge International and the World Bank (2015). Within this data set, two dummy variables labelled *NCP* and *CP* capture whether a non-contributory or a contributory pension system is present. Following the ILO, social insurance systems, mandatory individual accounts and provident funds are categorised as CPs and means-testing, pension-testing and universal NCPs are categorised as NCPs. Both dummies (*NCP* and *CP*) are included in Models 1 and 2 (Table 1). Their coefficients reflect the expected coverage rates in all possible settings (with or without *NCP* or *CP* or both).

Furthermore, the *timing* of the introduction of the respective old-age scheme (Model 3 for CPs and Model 4 for NCPs, Table 1) is included. It can be hypothesised that at their introduction CPs covered only a small portion of the population and afterwards were gradually expanded to cover more social and occupational groups (Esping-Andersen, 1997). The same should apply for NCPs, which have often been adopted in urban areas and then expanded to rural areas. In other cases, such as South Africa, an NCP was first introduced for

White people and was then extended to the whole population. Conversely, the date of the introduction of social protection does not necessarily correspond with the de facto coverage of social protection since formal implementation might be only a paper tiger that bears no relation to reality, particularly in LMICs. To test whether retirement schemes that were introduced comparatively early were more inclusive, the number of years a specific retirement scheme has been in place (date of the dependent variable minus years since first introduction) is included. A positive and statistically significant coefficient indicates that more mature systems indeed cover a greater percentage of entitled older people. To test whether democratic institutions predominantly provide coverage by NCPs, the polity index measuring the level of *democracy* provided by the 'Polity IV Project' (Marshall et al., 2014) is included. This indicator ranges from -10 (autocracy) to 10 (full democracy). The polity measurement consists of several component measures, for example the competitiveness and openness of executive recruitment, constraints on the chief executive and executive authorities, regulation and competitiveness of participation and constraints on political competition (for more details, see Marshall et al., 2014). To capture the extent to which political systems are characterised by *political corruption*, the index of political corruption provided by the 'Varieties of Democracy Project' (Coppedge et al., 2016) is taken. The corruption index ranges from 0 (low corruption) to 1 (high corruption). It includes measures of six distinct types of corruption that cover both different areas and levels of the polity, distinguishing between public sector, executive, legislative and judicial corruption. Within the executive realm, the measure also distinguishes between corruption pertaining mostly to bribery and corruption due to embezzlement. Lastly, it differentiates between corruption at the highest levels of the executive (at the level of the rulers/cabinet) and in the public sector at large.

Furthermore, important socioeconomic factors potentially relevant for the coverage rates of old-age schemes are included. The overall coverage rates of pension systems should first be affected by the economic situation. Implementing pensions for a wide range of

beneficiaries is usually costly. Countries with a low *level of GDP*, as indicated by GDP per capita, should therefore have lower coverage rates than wealthy nations (World Bank, 2015). GDP per capita is measured in constant international dollars (purchasing power parity-based).⁴ Moreover, the level of *urbanisation*, measured by the percentage of urban population (World Bank, 2015), should influence the coverage rate of pension systems. The poor and rural population is often hard to reach and access might be limited to urban workers and exclude rural workers (Holmqvist, 2011; Midgley, 2013). (← p. 12) A further key variable is the *dependency ratio* given by the number of people aged over 65 in relation to the total working-age population (World Bank, 2015). A high dependency ratio should be reflected in a high coverage rate of old-age pensions.

Furthermore, the inclusiveness of national retirement schemes should also depend on international factors. First, the level of *globalisation*, as the sum of exports and imports in relation to GDP, should exhibit a negative influence on old-age pension coverage due to the competitive pressure on social security arising from embeddedness in the international market (Rudra, 2008). A contrasting argument emphasises that globalisation could lead to the expansion of social protection to compensate for its harmful effects (Katzenstein, 1985).

Additionally, the *statutory pensionable age* is included, since it is not identical across the countries in the sample and points to differences in eligibility thresholds. A high statutory pensionable age should result in high coverage rates as the share of people entitled to benefits decreases.

Furthermore, robustness checks were conducted to check the sensitivity of the empirical results. First, the existence of other types of retirement scheme was considered (i.e.,

⁴ The models were also estimated using the logarithm of GDP per capita. The results of the main variables remained the same. Since using log GDP per capita has almost no effect on the distribution of the residuals, and given the fact that the correlation between log GDP per capita and the other socioeconomic variables is high, it was decided to report the results for the absolute values.

the *existence of NCPs* when explaining the inclusiveness of CPs and vice versa, see Models 1 and 2, Table A1) as a control variable in the robustness estimations. Moreover, the results' sensitivity to changes in the periodisation was checked and the averages for the independent variables were calculated using different time spans. The results remained stable across different periodisations. The results are reported using 15-year instead of 10-year averages of the time-varying independent variables (Models 3 and 4, Table A1). Models 5 and 6 show the results of the Heckman models, which re-estimate the basic models of Table 2. The coefficient of the inverse Mill's ratio was statistically insignificant, i.e., there was no evidence for sample selection bias.

In Table A2 in the Appendix, the influence of the *unemployment rate* as a rough proxy for the size of the informal labour market, measured by the proportion of unemployed individuals as a percentage of the labour force (World Bank, 2018), was controlled for, which should have a negative effect on the coverage rates of retirement schemes (Table A2, Models 1 and 2).⁵ Moreover, the possible influence of *size of a country* in terms of population (log) on the coverage rate was checked. In large countries, it should be more difficult to have inclusive retirement schemes than in smaller ones.

In Models 3 and 4, tax revenues as a percentage of GDP (World Bank, 2018) are additionally controlled for, since it should be easier to expand coverage when tax revenues are high. However, including tax revenues reduces the number of observations, since data for this indicator are restricted. Therefore this variable was included only in the robustness section. To test whether the results are sensitive to alternative measures of democracy and corruption, the *polyarchy index* provided by the 'Varieties of Democracy Dataset' instead of the polity

⁵ In some studies, the share of self-employment was used as a proxy for the size of the informal labour market (Fiess et al., 2010; Loayza & Rigolini, 2011). However, since data are available for only a limited number of countries, and given the fact that self-employment covers only certain aspects of informality, the unemployment rate was used as a proxy, since it also covers forms of informal labour and the data quality and availability are better.

measure was used. The polyarchy index includes several aspects of an electoral democracy, such as electoral competition, free operation of political and civil society organisations, free elections, freedom of expression and an independent media (for more details, see Coppedge et al., 2016, VDem Codebook). Moreover, the index of *Corruption Control* included in the World Governance Indicators and provided by the World Bank was used, since this captures the extent to which public power is influenced by different forms of corruption (for details see World Bank, 2018).

Further sensitivity checks were run including actor variables,⁶ the existence of a private pillar in the pension system as well as ethnic fragmentation, and whether the International Labour Organisation influences old-age protection coverage was tested. Since the results for these variables were close to zero in all models, they are not reported here. Descriptive information for all variables is available in Table A3 in the Appendix.

Empirical results

Table 1 presents the results for the overall coverage by pension scheme in LMICs. Model 1 integrates the level of democracy, while Model 2 re-estimates Model 1, including the variable for political corruption. Models 3 and 4 add the timing of CP (Model 3) and NCP (Model 4) introduction. (← p. 13)

The results for the main variables of theoretical interest reveal several interesting patterns. The type of retirement scheme existent in a country is crucial for the large variation

⁶ Scholars have argued that organised labour does not seem to be a driving force in developing countries for the establishment of retirement schemes (see e.g. Williamson & Pampel, 1991). Including strike activity as a proxy for the organisation of labour interests proved to be statistically insignificant and thus supported this view. The same holds true for political actors, since parties in LMICs mostly do not fit into the right–left categories. The influence of the government’s ideology was controlled for using information from the ‘Database of Political Institutions’ for 56 countries for which data were available. The results for the actor variables are available on request.

in the inclusiveness of old-age schemes across LMICs. The overall coverage rate in countries with a combination of contributory and non-contributory pension systems as well as in countries that rely exclusively on NCPs is estimated as being substantially higher, *ceteris paribus*, than in countries that have only a CP system. For example, in Model 1 the estimated coverage rate for countries that have only an NCP is estimated to be 36.3 percentage points higher than the coverage rate in all other countries, whereas for countries with both systems the coverage rate is only 16 percentage points higher. The coefficients for the NCP-dummy are positive and statistically significant at the 1% level in all four models. The existence of a non-contributory pension system has a clear positive influence on the overall inclusiveness of the retirement scheme independently of the type of NCP. In countries that have only a CP, the estimated coverage rate is about 20 percentage points lower than in all other countries. In both cases (NCP and CP), the number of years the respective retirement scheme has been in place is positively related to the coverage rate. With every year of the programme being in place, the inclusiveness of old-age schemes is estimated to be 0.46 percentage points higher in the case of CPs and 0.70 percentage points in the case of NCPs. Introducing a social protection scheme, even when it covers only a small portion of the population in the beginning, seems to be a first step towards a gradual expansion to more social or professional groups. This finding is not self-evident, since social protection legislation in LMICs is often assumed to be a paper tiger that is not translated into practice. Interestingly, the coefficients of the level of democracy and political corruption are statistically insignificant in two of four cases. Democratic regimes with low levels of political corruption seem not to have more inclusive old-age protection than their autocratic counterparts, at least when analysing the total coverage rate. In Model 1 the coefficient of democracy and in Model 4 the coefficient of political corruption even has a negative statistically significant effect on old-age protection coverage, indicating that autocratic regimes with a high level of political corruption have more inclusive old-age schemes. Table 2 shows that this result is driven by the fact that the

influence of effective democratic institutions on the inclusiveness of social protection differs highly between CPs and NCPs.

Table 2 presents the estimations obtained by using the coverage rates of CPs (Models 1 and 3) and NCPs (Models 2 and 4) separately. Moreover, Models 1 and 2 include the level of democracy, while Models 3 and 4 use the level of political corruption as one main independent variable.

Table 2 reveals⁷ that many explanatory factors have a different influence on the coverage rate of CPs and NCPs. First, the dependency ratio, which has clearly been identified as driving overall coverage, seems to be relevant only for the coverage rate of contributory pensions and not for non-contributory ones. The coefficient in Models 1 and 3 is positive and statistically significant at least at the 1% level. An ageing population only promotes the inclusiveness of contributory pensions. The effect of the dependency ratio on the coverage rate of NCPs tends to be the reverse, although not reaching statistical significance. The influence of urbanisation also differs between NCPs and CPs. Contributory retirement schemes are more inclusive in urbanised countries whereas, in contrast, the inclusiveness of NCPs is particularly high in countries with large rural territories. This finding is explainable because many formal jobs are in urban areas, while in countries with large rural territories, NCPs are the only option for extending the inclusiveness of old-age protection. Interestingly, the statutory pensionable age is relevant only for NCPs and not for CPs. In the case of NCPs, a high pensionable age leads to high coverage rates, since it implies that a smaller proportion of older people are entitled to benefits, while in contributory systems the sign is even negative, although not statistically significant. Privileged groups in exclusive systems tend to

⁷ All models analysing the coverage of NCPs additionally include a dummy variable for whether a country has a means-tested retirement scheme or not, since means testing could hamper an easy expansion of NCPs, for example due to administrative requirements.

have an interest in the entitlement age being as low as possible. The effect of economic wealth is consistently positive.

The results for the variables capturing the level of democracy and political corruption are particularly interesting. The respective coefficients show the opposite signs with regard to the coverage rates of NCPs and CPs, indicating a reverse influence on the inclusiveness of social protection. Democratic political institutions lead to more inclusive social protection only in the case of non-contributory old-age protection. Political leaders in democratic systems seem not to extend CPs, but rather use NCPs as an instrument to cover the broad mass of less privileged societal groups (Overbye, 2005). This applies in particular to the level of political corruption. The progression from the lowest possible value of political corruption to the highest is estimated to be associated with an increase in the coverage rate of 40 percentage points. Expanding NCPs seems to be a popular strategy for democratic policymakers when the judiciary, the legislature and (**← p. 14**) the executive are non-clientelistic and non-corrupt (Brooks, 2015; Huber & Stephens, 2012). In contrast, the coverage rate for CPs is higher in more autocratic countries. Non-democratic institutions seem to create incentives for political leaders to make use of CPs to compensate powerful groups in order to stabilise the political system. Retirement benefits are particularly suitable, since old age is a social risk that all parts of society are faced with, including important actors such as civil servants, military personnel and urban industrial workers. These results are in line with qualitative findings supporting the view that the extension of social protection is one instrument for authoritarian regimes to maintain political stability and secure loyalty (Lloyd-Sherlock & Artaraz, 2014). The level of political corruption is less important for the coverage rates of CPs than of NCPs. A possible explanation is that high levels of political corruption at several levels (namely executive, legislative, public sector and judicial level) could imply the availability of multiple channels for influencing political decisions. This in turn might have the consequence that many privileged groups seek the benefits provided by contributory

systems. This might counteract the negative effects of autocratic settings on coverage rates. However, further research is needed to elucidate the causal mechanism behind this finding.

The overall model fit is very high (R-squared ranges from .54 to .81) and the results presented above have been sustained by several robustness checks (see Tables A1 and A2 for details).

Overall, the estimations reveal the following patterns. First, the type of social protection is crucial for its inclusiveness. In LMICs, the coverage rate for NCPs is much larger than that of CPs. Second, socioeconomic factors, such as the dependency ratio and urbanisation, affect the coverage rate of CPs and NCPs differently. Third and most importantly, democratic institutions with low levels of political corruption realise positive and favourable effects on social protection coverage only in the case of NCPs, while CP coverage is particularly high in autocratic regimes. In democratic institutional settings, political decision-makers have the incentive to opt for more universal NCPs, while political leaders in authoritarian regimes rather tend to make use of CPs to secure the political loyalty of powerful groups. All three results stand in sharp contrast to findings for OECD countries.

Conclusion

Social protection is assumed to be a central instrument for providing financial security to people in the case of income loss due to old age, unemployment or sickness. It is guaranteed as a social right by the 1944 UN Declaration of Human Rights. However, the inclusiveness of social protection systems varies considerably between countries, particularly beyond the OECD. The literature does not provide a satisfactory explanation for this large variation. This study aims to bridge this gap by analysing the inclusiveness of social protection in 100 low- and middle-income countries using retirement schemes as an example. A self-coded data set on old-age protection programmes was compiled including information provided by the ILO, HelpAge International and the World Bank. Most LMICs first introduced contributory

schemes during the second half of the 20th century to provide social protection for older-aged people. Since the 1990s, more and more countries have introduced non-contributory forms of social protection. In contrast to contributory schemes, they are independent of an individual's previous earnings or contributions. The inclusiveness of old-age protection in LMICs varies considerably between contributory and non-contributory schemes. Non-contributory systems are much more inclusive than contributory ones. In countries with high levels of poverty, large informal markets and low industrialisation, non-contributory social protection often provides the only avenue for achieving widespread protection from social risks. Moreover, the effects of socioeconomic and political factors on the inclusiveness of social policies differ between contributory and non-contributory social protection in relation to the specific conditions present in a given LMIC. It has been shown that the finding for OECD countries that effective democratic institutions affect welfare state coverage (Rothstein & Teorell, 2008; Rothstein et al., 2012) has to be differentiated in relation to LMICs. Democratic institutions characterised by low levels of political corruption only fuel the expansion of non-contributory social protection, whereas in autocratic regimes political leaders seem to provide contributory social benefits to powerful groups in order to stabilise their political systems.

One of the implications of these results is that existing theories developed mainly in relation to Western democracies should be carefully reformulated and adjusted to LMICs to capture the effects that social protection schemes have in countries beyond the OECD. Social protection systems in LMICs have emerged in different contexts and function on their own terms, not merely as late adopters of the Western model. Since this analysis can be regarded as a step towards enhancing knowledge on the effectiveness of social protection in LMICs, it raises several subsequent questions. A central aspect is whether social protection is an effective instrument for reducing poverty and social inequality, as strongly emphasised by international organisations, and if yes, whether (**← p. 15**) all types of social protection are equally effective in fighting poverty and inequality. The empirical results of the few studies

that exist so far reveal highly heterogeneous results. Some scholars state that benefit levels are too low, too poorly targeted or too limited in coverage to effectively reduce poverty (Midgley, 2013), while others take an opposing stance (Mahon et al., 2015). A more comprehensive understanding of social protection in the Global South is a prerequisite for understanding the ongoing struggle against poverty and social inequality, especially within the poorest nations of the world. (← p. 16)

References

- Abu Sharkh, M. (2010). Warum ratifizieren Länder Kinderarbeitskonventionen? *Zeitschrift für Sozialreform*, 56, 207–231.
- Alesina, A., Develeeschauwer, A., Easterly, W., Kurlat, S., & Wacziarg, R. (2003). Fractionalization. *Journal of Economic Growth*, 8, 155–194.
- Barrientos, A. (2009). Social pensions in low-income countries. In: Holzmann, R., Robalino, D. A. & Takayama, N. (Ed.) *Closing the Coverage Gap. The Role of Social Pensions and Other Retirement Income Transfers* (pp. 73-83.) Washington: World Bank.
- Barrientos, A., Gorman, M., & Heslop, A. (2003). Old age poverty in developing countries: contributions and dependence in later life. *World Development*, 31, 555–570.
- Brooks, S. M. (2015). Social Protection for the Poorest: The Adoption of Antipoverty Cash Transfer Programs in the Global South. *Politics & Society*, 43, 551–582.
- Bueno de Mesquita, B., Morrow, J. D., Siverson, R. M., & Smith, A. (2002). Political Institutions, Policy Choice and the Survival of Leaders. *British Journal of Political Science* 32, 559–590.
- Carnes, M. E. & Mares, I. (2013). Coalitional realignment and the adoption of non-contributory social insurance programmes in Latin America. *Socio-Economic Review*, 12, 695–722.
- Casey, B. & Mckinnon, R. (2009). Social pensions and policy learning: The case of southern Africa. *International Social Security Review*, 62, 81–102.
- Coppedge, M., Gerring, J., Lindberg, S., Skaaning, S.-E., Teorell, J., Andersson, F., Marquardt, K.-L., Mechkova, V., Miri, F., Pemstein, D., Pernes, J., Stepanova, N., Tzelgov, E. & Wang, Y.-T. (2016). *V-Dem [Country-Year/Country-Date] Dataset v6*. Varieties of Democracy (V-Dem) Project.

- Eckert, A. (2004). Regulating the Social: Social Security, Social Welfare and the State in Late Colonial Tanzania. *The Journal of African History*, 45, 467–489.
- Esping-Andersen, G. (1997). Hybrid or Unique?: The Japanese Welfare State between Europe and America. *Journal of European Social Policy*, 7, 179–189.
- Fiess, N., Fugazza, M., & Maloney, W. (2010). Informal self-employment and macroeconomic fluctuations. *Journal of Development Economics*, 91, 211–226.
- Fiszbein, A., Kanbur, R. & Yemtsov, R. (2014). Social Protection and Poverty Reduction: Global Patterns and Some Targets. *World Development*, 61, 167–177.
- GINNEKEN, W. V. (2003). Extending social security: Policies for developing countries. *International Labour Review*, 142, 277–294.
- Holliday, I. (2000). Productivist Welfare Capitalism: Social Policy in East Asia. *Political Studies*, 48(4), 706–723.
- Holmqvist, G. (2011). Fertility impact of high-coverage public pensions in sub-Saharan Africa. *Global Social Policy*, 11, 152–174.
- Huber, E. & Stephens, J. D. (2012). *Democracy and the left*, Chicago, Chicago University Press.
- ILO 2014. *World Social Protection Report. Building economic recovery, inclusive development and social justice*. Geneva: ILO.
- Johnson, J. & Williamson, J. B. (2006). Do universal non-contributory old-age pensions make sense for rural areas in low-income countries? *International Social Security Review*, 59, 47–65.
- Johnson, J. & Williamson, J. B. (2008). Universal Non-Contributory Pension Schemes for Low-Income Countries: An Assessment. In: P. A. Kemp, K. Van dan Bosch, & L. Smith (Eds.), *Social Protection in an Ageing World* (pp. 195-209). Antwerp: Intersentia.
- Juurikkala, O. (2008). Old-age security in less development countries: formal versus informal. In: P. Booth, O. Juurikkala, & N. Silver (Eds.), *Pension Provision: Government Failure around the World* (pp. 265-287). London: The Institute of Economic Affairs.
- Kangas, O. E. (2012). Testing old theories in new surroundings: The timing of first social security laws in Africa. *International Social Security Review*, 65, 73–97.
- Katzenstein, P. (1985). *Small States in World Markets: Industrial Policy in Europe*. Ithaca: Cornell University Press.
- Kaufmann, D. & Kraay, A. (2015). *Worldwide Governance Indicators*. Washington, DC: World Bank.

- Knutsen, C. H. & Rasmussen, M. (2014). *The Autocratic Welfare State: Resource distribution, credible commitments and regime survival*. Working paper for APSA Annual Conference 2014.
- Leisering, L. & Barrientos, A. (2013). Social citizenship for the global poor? The worldwide spread of social assistance *International Journal of Social Welfare*, 22, 50–67.
- Lloyd-Sherlock, P. (2000). Old Age and Poverty in Developing Countries: New Policy Changes. *World Development*, 28, 2157–2168.
- Lloyd-Sherlock, P. & Artaraz, K. (2014). Pension Reform in Bolivia: Two Models of Income Security in Old Age. In: K. Hujo (Ed.), *Reforming pensions in developing and transition countries* (pp. 182–205). Basingstoke: Palgrave Macmillan.
- Loayza, N. & Rigolini, J. (2011). Informal Employment: Safety Net or Growth Engine. *World Development*, 39, 1503–1515.
- López-Cariboni, S. & Menéndez, I. (2015). *When do Outsiders Matter? Informality, Employment Protection and Noncontributory Social Policy in the Developing World*. Montevideo: Catholic University of Uruguay.
- Magaloni, B., Diaz-Cayeros, A., & Estévez, F. (2006). Clientelism and portfolio diversification: a model of electoral investment with applications to Mexico. In: H. Kitschelt & S. I. Wilkinson (Eds.), *Patrons, clients, and policies. Patterns of democratic accountability and political competition* (pp. 182-205). Cambridge: Cambridge University Press.
- Mahon, A., McNeill, K., & Heymann, J. (2015). Pension Programs Around the World: New Comparative Global Policy Data. *Journal of Comparative Policy Analysis*, 17, 192–207.
- Marshall, M. G., Gurr, T. R., & Jaggers, K. (2014). *Polity IV Project. Political Regime Characteristics and Transitions, 1800–2012*. Dataset Users' Manual.
- Mesa-Lago, C. (1978). *Social Security in Latin America. Pressure Groups, Stratification, and Inequality*. Pittsburgh: University of Pittsburgh.
- Midgley, J. (2013). Social protection in countries experiencing rapid economic growth: goals and functions. In: J. Midgley & D. Piachaud (Eds.), *Social Protection, Economic Growth and Social Change* (pp. 7-25). Cheltenham: Edward Elgar.
- Overbye, E. (2005). Extending social security in developing countries: a review of three main strategies. *International Journal of Social Welfare*, 14, 305–314.
- Palacios, R. & Knox-Vydmanov, C. (2014). The growing role of social pensions: history, taxonomy and key performance indicators. *Public Administration and Development*, 34, 251–264.

- Pelham, L. (2007). *The politics behind non-contributory old age social pensions in Lesotho, Namibia and South Africa*. CPRC Working Paper 83. Chronic Poverty Research Centre.
- Rofman, R., Apella, I., & Vezza, E. (2015). *Beyond Contributory Pensions. Fourteen Experiences with Coverage Expansion in Latin America*. Washington, D.C.: World Bank.
- Rothstein, B., Samanni, M., & Teorell, J. (2012). Explaining the welfare state: power resources vs. the Quality of Government. *European Political Science Review*, 4, 1–28.
- Rothstein, B. & Teorell, J. (2008). What is Quality of Government? A Theory of Impartial Government Institutions. *Governance*, 21, 165–190.
- Rudra, N. (2004). Openness, Welfare Spending, and Inequality in the Developing World. *International Studies Quarterly*, 48, 683–709.
- Rudra, N. (2008). *Globalization and the race to the bottom in developing countries. Who really gets hurt?* Cambridge: Cambridge University Press.
- Schmitt, C. (2015). Social Security Development and the Colonial Legacy. *World Development*, 70, 332–342.
- Schmitt, C., Lierse, H., Obinger, H., & Seekopf, L. (2015). The Global Emergence of the Welfare State: Explaining Social Policy Legislation 1820–2013. *Politics & Society*, 43, 503–524.
- Seekings, J. (2012). Pathways to Redistribution: The Emerging Politics of Social Assistance across the Global 'South'. *Journal für Entwicklungspolitik*, XXVIII, 14–34.
- Seekings, J. (2013). Social Policy. In: N. Cheeseman, D. Aderson, & A. Scheibler (Eds.), *Routledge Handbook of African Politics* (pp. 309-321). London: Routledge
- Usui, C. (1994). Welfare State Development in World System Context: Event History Analysis of Forst Social Insurance Legislation among 60 Countries, 1880–1960. In: S. Janoski & A. Hicks (Eds.), *The Comparative Political Economy of the Welfare State* (pp. 254-277). Cambridge: Cambridge University Press.
- Wibbels, E. & Ahlquist, J. S. (2011). Development, Trade, and Social Insurance. *International Studies Quarterly*, 55, 125–149.
- Williamson, J. B. & Howling, S. (2003). The notional defined contribution approach to public pension reform: implications for women and low-wage workers. *International Journal of Sociology and Social Policy*, 23, 1–18.
- Williamson, J. B. & Pampel, F. C. (1991). Ethnic Politics, Colonial Legacy, and Old Age Security Policy: The Nigerian Case in Historical and Comparative Perspective. *Journal of Aging Studies*, 5, 19–44.
- World Bank (2015). *World Development Indicators*. Washington, DC: World Bank.

World Bank (2018). *Worldwide Governance Indicators*. Washington, DC: World Bank.

APPENDIX

Table A1. Robustness checks I. (← Table A1 p. 18)

Dependent variable	(1)	(2)	(3)	(4)	(5)	(6)
	Coverage rate of CPs	Coverage rate of NCPs	Coverage rate of CPs	Coverage rate of NCPs	Coverage rate of CPs Heckman model	Coverage rate of NCPs Heckman model
Globalisation	-0.016 (0.053)	-0.015 (0.113)	-0.017 (0.050)	-0.008 (0.115)	-0.008 (0.051)	-0.021 (0.086)
Dependency ratio	5.093*** (0.431)	-1.595 (1.463)	5.473*** (0.464)	-1.604 (1.504)	5.138*** (0.575)	-1.510 (1.153)
GDP per capita	0.001 (0.001)	0.001 (0.002)	0.001 (0.001)	0.001 (0.002)	0.001 (0.001)	0.001 (0.001)
Urbanisation	0.200 (0.123)	-0.177 (0.299)	0.247** (0.117)	-0.240 (0.297)	0.202 (0.141)	-0.176 (0.272)
Statutory pensionable age	-0.594 (0.677)	3.226** (1.212)	-0.659 (0.699)	3.650*** (0.729)	-0.628 (0.697)	3.630*** (0.962)
Means-tested pension		-46.630*** (9.584)		-46.160*** (9.297)		-46.480*** (6.980)
Polity	-1.082** (0.435)		-1.014** (0.440)		-1.273* (0.652)	
Political corruption		-38.970* (22.330)		-40.580* (21.460)		-42.350** (20.050)
Existence of CP		-8.257 (14.860)				
Existence of NCP	5.965 (4.934)					
Inverse Mills ratio (λ)					14.180 (30.58)	4.538 (13.09)
Constant	19.640 (39.970)	-81.090 (86.110)	20.140 (41.980)	-111.700* (57.340)	23.190 (40.880)	-114.300* (65.490)
Observations	84	34	84	34	89	93
R-squared	0.652	0.776	0.636	0.775		
F/Wald Chi2	46.47***	18.32***	44.69***	22.68***	110.50***	140.38***

Notes: Robust standard errors in parentheses, ***p<.01, **p<.05, *p<.1; Models 5 and 6 are sample selection models (Heckman). The models include independent variables emphasised in the literature to explain the existence of NCPs (e.g. GDP per capita and level of democracy) in the first stage selection equation. Censored observations in Model 5 = 6 and in Model 6 = 59.

Table A2. Robustness checks II.

Dependent variable	(1) Coverage rate of CPs	(2) Coverage rate of NCPs	(5) Coverage rate of CPs	(6) Coverage rate of NCPs
Globalisation	0.018 (0.062)	-0.070 (0.147)	-0.117* (0.067)	0.026 (0.176)
Dependency ratio	5.102*** (0.470)	-1.449 (1.621)	4.378*** (0.552)	-0.160 (1.737)
GDP per capita	0.000 (0.001)	0.001 (0.002)	0.000 (0.001)	0.000 (0.002)
Urbanization	0.210 (0.139)	-0.276 (0.347)	0.394** (0.161)	-0.645 (0.474)
Statutory pensionable age	-0.615 (0.711)	3.648*** (0.837)	-1.246 (0.817)	3.155*** (1.117)
Means-tested pension		-45.240*** (9.570)		-43.670*** (9.181)
Democracy (polity)	-0.924** (0.407)			
Political corruption		-38.330* (21.500)		
Democracy (polyarchy)			-28.860** (12.160)	
Corruption control (WB)				21.620** (7.747)
Tax revenue (% GDP)			0.628** (0.273)	0.702* (0.386)
Unemployment rate	0.340 (0.321)	0.0890 (0.603)		
Population size (log.)	1.459 (1.488)	-1.330 (2.280)		
Constant	-8.236 (44.020)	-86.25 (73.220)	56.30 (51.350)	-130.5*** (46.06)
Observations	83	34	66	32
R-squared	0.648	0.775	0.648	0.815
F	38.13***	18.21***	31.69***	19.05***

Notes: Robust standard errors in parentheses, ***p<.01, **p<.05, *p<.1

(← Table A2 p. 19)

Table A3. Descriptive statistics for all variables. (← Table A3 p. 19)

Variable	Observations	Mean	SD	Min	Max
Dependent variable					
Total coverage	105	40.260	34.774	0	100
Coverage CP	98	26.014	27.031	0	98
Coverage NCP	39	37.592	33.595	0	100
Central independent variables					
Existence of CP	111	0.919	0.274	0	1
Existence of NCP	111	0.360	0.482	0	1
Introduction CP	102	1961.765	17.342	1912	2011
Introduction NCP	39	1996.425	16.508	1928	2011
Level of democracy	98	12.646	5.682	2	21
Political corruption	101	0.653	0.185	0.157	0.940
Control variables and Variables of the Robustness Section					
Globalisation	108	76.473	36.936	1.245	204.091
Dependency ratio	107	8.303	3.841	4.404	24.285
GDP per capita	108	5367.609	4471.396	572.853	22599.990
Urbanisation	110	43.964	19.033	8.265	85.893
Unemployment rate	98	9.284	6.514	0.600	34.454
Statutory pensionable age	103	59.112	3.014	50	70
Population size (log)	111	15.844	2.070	9.919	21.00666
Tax revenue as % of GDP	66	16.244	6.557	3.182	45.544
Democracy (polyarchy)	101	0.47650	0.206	0.099	0.924
Corruption control (WB)	109	-0.052	0.510	-1.578	0.833