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Evidenced Formal Coverage Index and universal healthcare enactment: A prospective longitudinal study of economic, social, and political predictors of 194 countries

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ABSTRACT

Determinants of universal healthcare (UHC) are poorly empirically understood. We undertook a comprehensive study of UHC development using a novel Evidenced Formal Coverage (EFC) index that combines three key UHC elements: legal framework, population coverage, and accessibility.

Applying the EFC index measures (legislation, ≥90% skilled birth attendance, ≥85% formal coverage) to 194 countries, aggregating time-varying data from 1880–2008, this study investigates which macro-economic, political, and social indicators are major longitudinal predictors of developing EFC globally, and in middle-income countries.

Overall, 75 of 194 countries implemented legal-text UHC legislation, of which 51 achieved EFC. In a country-year prospective longitudinal analysis of EFC prediction, higher GDP-per-capita (per GDP-per-capita doubling, relative risk [RR] = 1.77, 95% CI: 1.49–2.10), higher primary school completion (per +20% completion, RR = 2.30, 1.65–3.21), and higher adult literacy were significantly associated with achieving EFC. Results also identify a GDP-per-capita of I$5000 as a minimum level for development of EFC. GDP-per-capita and education were each robust predictors in middle-income countries, and education remained significant even controlling for time-varying GDP growth. For income-inequality, the GINI coefficient was suggestive in its role in predicting EFC ($p = 0.024$). For social and political indicators, a greater degree of ethnic fractionalization (per +25%, RR = 0.51, 0.38–0.70), proportional electoral system (RR = 2.80, 1.22–6.40), and dictatorships (RR = 0.10, 0.05–0.27) were further associated with EFC.

The novel EFC index and this longitudinal prospective study together indicate that investment in both economic growth and education should be seen of equal importance for development of UHC. Our findings help in understanding the social and political drivers of universal healthcare, especially for transitioning countries.

1. Introduction

Universal healthcare coverage (UHC) is gaining increased attention in low- and middle-income countries, witnessed by several recent major reports on this topic and the second Global Symposium on Health Systems Research in Beijing 2012 [1–3]. As development aid for health (DAH) for health systems strengthening still constitutes less than 5% of overall DAH [4–6], and as the health challenges of

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the 21st century shift toward chronic conditions, countries are looking for solutions to provide adequate, sustainable, and affordable healthcare for their populations [7,8]. For example, China committed to providing universal healthcare coverage by 2020; Mexico, Thailand and South Africa are working toward the goal of universal healthcare coverage; a recent conference discussed the road to universal coverage in 30 African countries [8]; and the United States passed the Affordable Care Act for, in principle, universal health insurance access by 2015 [9].

Despite this renewed global interest in UHC, the empirical evidence and quantitative cross-country comparisons of the economic, social, and political conditions associated with successful UHC implementation are scarce. The herein presented study aims to address this gap by proposing a multi-dimensional composite indicator for universal coverage (termed evidenced formal coverage, EFC) based on a comprehensive literature review on common definitions and components of universal coverage. We classify all WHO countries based on this indicator, and subsequently analyze the macro-economic and political predictors of EFC. Further, this paper provides, to the authors' knowledge, the first comprehensive set of countries and start years of universal healthcare legislation (Appendix A).

1.1. Existing evidence on predictors of universal healthcare coverage

Few political economy analyses of UHC exist, and the few that exist focus on high-income countries. Of these analyses, only three are of empirical nature [10–12]. In the first, Cutler and Johnson examined which economic predictors and social theories best accounted for the emergence of social insurance (both health and old age insurance). They found a negative effect of the level of GDP per capita on social insurance implementation, and that ethnically heterogeneous countries were slower in adopting insurance systems. Another finding was that Catholic countries were more likely to adopt social insurance systems [10]. Rather than choosing a point in time when full/universal coverage was reached, Cutler and Johnson decided to use the first year in which legislation for coverage was passed as the start year of social insurance. A particular limitation of these findings was that only 20 countries were examined. The second analysis that examined determinants of universal healthcare coverage was based on coverage data provided by WHO [12]. Carrin and James showed that GDP per capita, secondary school net enrolment ratio, the GINI coefficient, and the political rights index were associated with the existence of UHC [12]. However, this particular analysis focused on predicting which other countries might acquire UHC in the near future, rather than looking at the relative predictive power of the various indicators. In the third identified empirical analysis, Roemer studied the correlation between life expectancy and three health system variables (doctor supply, government health expenditure, and hospital bed supply) as well as three national society indicators (female literacy, access to water, and GNP per capita). Roemer found that two society variables, female literacy and access to water, were most strongly correlated with life expectancy in 142 countries [11].

In addition to empirical analyses of UHC determinants, several studies theoretically explored the social and political phenomena that might explain mechanisms of welfare redistribution. Few of these studies focus on low-income countries, but those that do adopt a broad approach regarding government involvement and market forces as a zero sum game [13]; most work builds on a recognition that political processes are integral to the development of UHC [14]. Factors identified include the level and type of health funding (as well as organization), social redistributive policies, and underlying social inequalities [15]. These theories are often referred to as 'heterogeneity theories'. For example, Alesina and Glaeser's research shows that the relative strength of the political left, the degree of racial or ethnic fractionalization, geographic factors of proximity, and the ability to unionize, are strong predictors of the successful implementation of social redistributive policies [15]. Other relevant research has focused on the role of ethnic and linguistic fractionalization as an impediment to universal systems of social protection and redistribution [10]. The intuitive explanation is that ruling groups that differ linguistically, ethnically, or religiously from the rest of the population are unwilling to share resources, or are at least suspicious of equitable resource allocation. Another theory relevant to study of the emergence of UHC is the path dependence theory (also: historical institutionalism). In its loosest definition, it states that history matters, and that institutions determine the trajectories of legislation and social movements. Power relations and social systems come into existence and are shaped by existing institutions, and paths only break away from current trajectories at critical conjunctures [16]. The path dependency theory has come into fashion to examine health system changes since the mid-1980s, often explaining why, once established, systems 'show significant continuity rather than change or convergence' [17].

In summary, current theoretical and empirical evidence suggests that economic, social, and political factors all play an important role in a country's success in adopting UHC. Among these factors, the most important indicators that have been empirically or theoretically associated with UHC are GDP per capita, the type of political regime, proportional representation, level of unionization, ethnic fractionalization, social cohesion, education, and adult literacy, based on a thorough review of the political science literature of UHC.

Quantitatively assessing the theoretical predictors of UHC might not only be able to validate existing theories, but also provide policy lessons on questions at what level of social, economic, and political development it is feasible to press ahead in the implementation of UHC, issues that will be discussed in tandem with the presentation of the results.

2. Methods

2.1. Literature search to determine key UHC components

A comprehensive literature on PubMed, Google Scholar, WorldWide Political Science Abstracts, World Bank