

## REVIEW ARTICLE

# Literature review and mapping analysis of the economic factors contributing to Universal Healthcare Coverage in Brazil, Russia, India, and China

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## ABSTRACT

The objective of this study was to determine the economic factors and characteristics of universal healthcare development among Brazil, Russia, India and China (BRIC). A policy review was used to achieve this objective. This review established a comparative criterion of the key factors and characteristics of universal healthcare coverage development. Further, a comparison of three countries with established universal healthcare coverage, comprising of tax-based and social insurance models, was undertaken against BRIC healthcare systems. The decided upon factors and characteristics of developing and BRIC countries were used to inform and understand the development of process of universal healthcare coverage. The analysis found that continual economic growth and investment into the healthcare coverage are essential to successful universal healthcare coverage implementation and expansion. Understanding the models of healthcare systems along with the key economic factors and characteristics provides important context and understanding into the processes and mechanisms that drive successful universal healthcare coverage in developing countries. The factors and characteristics presented in this study provide a preliminary framework for understanding the conditions that contribute to universal healthcare coverage. This framework can be used as a template for a critical comparison and analysis that can be applied to all high, middle- and low-income countries in their effort to establish universal healthcare coverage.

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## INTRODUCTION

**A** current movement in global policy has been the push towards establishing universal healthcare coverage (Tediosi, Finch, Procacci, Marten & Missoni, 2016). This agenda was emphasized during the development of the United Nations Sustainable Development Goals in goal 3.8 “Achieving Universal Healthcare Coverage” (Tediosi et al., 2016). In 2001, British economist Jim O’Neill coined the term ‘BRIC’ (Brazil, India, Russia and China) claiming these countries as the next economic superpowers. In 1990, these countries represented 5.8% of the world economy. In 2015, that increased to 25.6%, and was projected to be between 25.6% and 40% of the world economy over the subsequent two decades (Siddiqui, 2016). These countries represent 21.6% of the world’s population, roughly 3 billion people (Tediosi et al., 2016). Recent economic growth has provided the opportunity for these countries to provide universal healthcare coverage (Wang, 2015).

Universal healthcare coverage has two main objectives: to provide everyone with the healthcare they need and protect people from catastrophic healthcare expenditure. Countries with universal healthcare coverage consistently have better population health, with the highest effects seen amongst the most impoverished populations (Moreno-Serra & Smith, 2012). However, there are many ways to design, finance and implement universal healthcare coverage.

Various economic factors are essential in the development and sustainability of universal healthcare systems (Borgonovi & Compagni, 2013). This study aims to identify economic factors and characteristics that contribute to universal healthcare development among emerging economies, especially understanding how these factors influence the two goals of universal healthcare coverage: access to necessary healthcare and financial protection from catastrophic healthcare spending.

All four BRIC countries have made political commitments towards universal healthcare coverage (Marten et al., 2014). However, the results of universal healthcare coverage expansion in BRIC countries varies. An analysis of the economic factors and characteristics is required to better identify and understand factors that enable and hinder universal healthcare development in BRIC countries. In addition, three countries were selected to be mapped against the BRIC countries; Canada, Germany, and the United Kingdom. These countries provide a baseline and standard of measurement for analysing and comparing the healthcare systems of BRIC countries. These four countries are examples of how the national and social insurance models can be used to finance universal healthcare coverage. The purpose of the analysis is to understand how the economic factors and characteristics of BRIC countries contribute to the goals of universal healthcare coverage.

## METHODS

This paper consists of reviewing both literature and policy papers. The purpose of the first component of the literature review was to understand universal healthcare coverage and healthcare systems. This consisted of reviewing literature on healthcare system financing designs. The purpose of the second component was to identify the common themes and gaps surrounding the economic factors and characteristics. This included a broad search aimed at finding important economic characteristics and factors commonly arose as important measures used to determine the overall performance and successful healthcare system development. A policy and literature review were then undertaken to summarize and compare the healthcare systems of individual countries. This included reviewing the current healthcare system policies of all BRIC countries and identifying both success and gaps across each country. These reviews were used to inform the analysis. No framework was used but rather a collection of indicators was used to identify the key economic factors and characteristics in the development of universal healthcare coverage in BRIC countries.

## REVIEW

### Universal healthcare coverage

The World Health Organization (WHO) defines universal healthcare as the meaning “that all people and communities can use the promotive, preventive, curative, rehabilitative and palliative health services they need, of sufficient quality to be effective, while also ensuring that the use of these services does not expose the user to financial hardship” (World Health Organization, 2010). The motivation behind universal healthcare coverage is to provide everyone with access to necessary healthcare services and offer protection from catastrophic financial healthcare expenditure. Effective universal healthcare coverage contributes to the development process by reducing disease burdens and offering financial protection from health-related events (Frenk & de Ferranti, 2012). Typically, assessment and measurement of universal healthcare systems are primarily concerned with the economic costs (Borgonovi & Compagni, 2013). Economic factors inform the processes involved in creating sustainable, effective universal healthcare coverage (Borgonovi & Compagni, 2013).

### Models of healthcare systems

A ‘healthcare system’ is comprised of service delivery, financing and economic policy. The combination of these mechanisms and policies lead to healthcare access and can be built upon to achieve universal healthcare coverage (Kulesher & Forrestal, 2014). Historically, two broad models of healthcare systems financing are typically used to provide publicly universal healthcare coverage: the national health model and the social insurance model (Kulesher & Forrestal, 2014).

The national health insurance model provides healthcare coverage for all citizens through the central government (Kulesher & Forrestal, 2014). Typically, central governments create policies and regulations and care is delivered through local and regional governments (Hejduková & Kureková, 2016). National insurance models are primarily financed through tax revenue that is collected and pooled, then allocated to local and regional governments.

The second type of healthcare system is the social insurance model (Bloom, Khoury, & Subbaraman, 2018). The social insurance model covers citizens under mandatory or compulsory health insurance. These insurance plans are financed through an employee and employer tax or contribution. Individuals may have a mandated insurance plan based on their occupation, or the option to select an insurance plan based on their preferences (Kulesher & Forrestal, 2014). Unlike the national health insurance model, insurance funds are managed independently (Hejduková & Kureková, 2016).

The third type of healthcare system financing is private healthcare spending. This can be in the form of private healthcare insurance offered by a company or paying for healthcare directly out-of-pocket (OOP). Typically, this is reserved for services outside of the scope of public healthcare and is rarely used as a primary driver of universal healthcare coverage. However, supplementary and complimentary private insurance are commonly found among publicly funded healthcare systems.

Universal healthcare coverage can be achieved using these models individually or in combination. National health insurance typically covers citizens by entitling citizens with the right to healthcare coverage while the social insurance model requires citizens to select a compulsory insurance plan delivered through non-governmental actors. Universal coverage is achieved by governments ensuring that all people are entitled to healthcare insurance.

Canada, Germany, and The United Kingdom are examples of how these models can be used to achieve universal healthcare coverage. Canada primarily uses the national insurance model, Germany primarily uses the social insurance model, while the United Kingdom uses a combination of both. All three countries have some level of private and out-of-pocket expenditure.

### Economic considerations

Sufficient economic growth and resources are prerequisites to universal healthcare coverage (Russo, Bloom, & McCoy, 2017; Wang, 2015). Sufficient economic growth must be accompanied by a rise in healthcare expenditure (Hall & Jones, 2007). This means that a country should increase healthcare expenditure as its economic growth increases. A standard measure of economic growth is the Gross Domestic Product (GDP). A particular measure of healthcare expenditure is the proportion of GDP spent on healthcare. The proportion of GDP spent on healthcare measures the strength of the country’s economy and how much a country spends on healthcare relative to other goods and services (OECD, 2017). There is no exact measure for how much GDP a country should spend on healthcare. However, the WHO noted: “It is difficult to get close to universal coverage at less than 5% of GDP”. In 2017, the OECD average of healthcare expenditure as a proportion of GDP was 9.0% (OECD, 2017). These two measures provide a baseline for assessment when comparing BRIC countries.

A key economic characteristic that measures financial protection is the percentage of healthcare coverage that is financed publicly. Public expenditure on healthcare demonstrates a government’s level of commitment to providing universal healthcare coverage,

as well as the progress that each country has made in achieving financial protection by increasing share of public health expenditure over out-of-pocket (World Health Organization, 2017). This is measured by the percentage of public healthcare expenditure. Another economic measure used to assess universal healthcare coverage is health expenditure per capita. Healthcare expenditure per capita provides insight into the resources a country has devoted to healthcare and how spending has changed in context to social and economic factors. It also provides insight into the financing mechanism and the organizational structure of a healthcare system (OECD, 2017).

While there are no exact measures for per capita spending, the WHO found that improvements in healthcare service coverage occurred when countries spent \$40 to \$80 per capita on healthcare. However, to achieve both health and financial protection, public expenditure needed to be greater than \$200 per capita (World Health Organization, 2010). Among OECD countries, the average health expenditure per capita was \$4003.00 in 2016 (OECD, 2017). The WHO's \$200.00 per capita will be used to determine if countries are spending enough to provide adequate health and financial protection. While the OECD average of \$4000 per capita will be used to compare BRIC countries against developed countries with high achieving universal healthcare coverage.

Lastly, two measures of out-of-pocket expenditure are used to determine catastrophic health expenditure; out-of-pocket spending exceeding 10% and 25% of household income. Spending 15-20% or more of an individual or family's annual income on healthcare has been shown to significantly increase the chances of impoverishment from healthcare costs (World Health Organization, 2017). These measures are important to understanding if universal healthcare coverage is achieving its goal of protecting people from catastrophic healthcare expenditure.

#### BRIC healthcare systems: Brazil

Brazil's healthcare system is both funded and delivered publicly and privately (Kulesher & Forrestal, 2014). In 1998 Brazil developed the Unified Health System (UHS), offering free care at the point of delivery. The UHS covers 75% of the population (Jakovljevic, 2014).

The UHS is financed and delivered on the national, provincial and municipal levels, most closely resembling the National Health Insurance Model. Funding is designated from a value-added tax and social security contributions (Reich et al., 2016). From 2000 to 2014, Brazil increased healthcare spending from 7.0% to 8.3% of GDP, along with an increase in per capita spending on healthcare from \$263 to \$947 (Massuda, Hone, Leles, Castro, & Atun, 2018). The distribution of Brazil's healthcare spending is split between the public and private sector. Free, government funded healthcare is offered to the population, but this only accounts for 46.0% of all healthcare spending. While the private sector, which primarily consists of people paying out-of-pocket for healthcare services, comprises 54% of all healthcare spending (Massuda et al., 2018). Out-of-pocket spending is still high in Brazil, with 25.6% of the population still spending 10% of their income and 3.46% spending more than 25% of their income on healthcare (World Health Organization, 2017).

#### BRIC healthcare systems: Russia

The Russian healthcare system does not use a National or Social Insurance model. Instead, the healthcare system is delivered through the Semashko model of healthcare. The model is an entirely universal system, entitling all citizens to free healthcare. The main characteristics of this model are publicly funded medical facilities, salaried healthcare workers, and high amounts of government administration (Sheiman, Shishkin, & Shevsky, 2018).

Currently, Russia contributes 3.5% of its GDP to healthcare, spending \$1474 per capita on healthcare. Further, 61% of healthcare expenditure was public (OECD, 2017). Russia does the best job of financial protection among BRIC countries, with 4.9% of the population spending 10%, and 0.60% of the population spending 25% or more of their income on out-of-pocket health expenditure (World Health Organization, 2017).

#### BRIC healthcare systems: India

In 1983, India mandated "health for all" through the establishment of the National Health Policy (NHP) (Agarwal & Tofighi, 2016). India's healthcare system covers people through three streams; Rashtriya Swasthya Bima Yojana for people who fall below the poverty line, the Employee State Insurance for factory workers, and Scheme and the Central Government Health Scheme for civil servants (Mossialos, 2017). Through these three schemes, healthcare coverage extended to approximately 20% of the population. India's healthcare system is predominately financed through taxes on the national, state and provincial level (Mossialos, 2017).

In 2015, the World Bank reported that India spent 3.9% of its GDP on healthcare, a decrease from 4.0% spent in 2000 (World Bank, 2018). In 2015, India spent \$238 per capita on healthcare. 17.3% of people spend 10% of their income, and 3.9% of people spend 25% or more on health expenditure (World Health Organization, 2017).

#### BRIC healthcare systems: China

In 2005 less than 50% of the Chinese population was covered by some form of health insurance. By 2011, 95% of Chinese citizens had access to public healthcare, marking the largest expansion of health insurance coverage in human history (Yu, 2015). The central government is responsible for health legislation, policy, and administration. Every citizen is entitled to receive a basic, pre-set package of healthcare services (Mossialos, 2017).

China's healthcare system is comprised of three public insurance schemes; New Rural Co-Operative Medical Scheme, Urban Resident Basic Medical Scheme, and Urban Employee Basic Medical Insurance (Yu, 2015). All citizens are required to put forth \$30 to \$50 annually to subsidize public health insurance (Yip et al., 2012).

WHO reports that China has increased healthcare spending from 2000 to 2016 from 4.49% to 5.32% of GDP (World Bank, 2019) and spends \$761 per person on healthcare (World 2019). In 2014, 38% of China's healthcare system was financed publicly (Mossialos, 2017). Out-of-pocket spending is still high in China, with 17.3% of people spending 10% of their income, and 4.8%

of their population spend 25% or more on healthcare services (World Health Organization, 2017).

### Analysis

Recent economic development has poised BRIC countries to develop and expand universal healthcare coverage (Rao, Petrosyan, Araujo, & McIntyre, 2014). All four countries exceed the WHO's \$40 to \$80 per capita to achieve adequate health protection and the \$200 per capita mark set for health and financial protection. However, BRIC nations lag per capita healthcare expenditure when compared to the listed developed countries and the OECD average, as all BRIC fall far below the OECD average of \$4003.00 per capita. Russia, China, and Brazil spend around 20% of the OECD average, while India spent less than 10% (OECD, 2017). When comparing this measure against the lowest of the listed developed countries; the United Kingdom (\$4245.50), BRIC countries are still far behind. The proportion of GDP spent on healthcare is a way to measure of a countries commitment to providing public healthcare services. Brazil stands out, spending 8.3% of their GDP on healthcare, relatively close to the 9.0% of OECD average, but still far behind Canada, Germany which spend close to or more than 10% of their GDP on healthcare.

To examine financial protection, it is important to examine the proportion of healthcare expenditure coming from of out-of-pocket. With the exception of Russia; BRIC Countries have a considerably higher proportions their populations who spend 10% of their income on healthcare services when compared against countries who predominately provide universal healthcare coverage through the National and Social Health Insurance models such as Canada, Germany, and the United Kingdom. Further, Canada, Germany, and the United Kingdom all have less than 1% of their population paying more than 25% of their income on healthcare. In Brazil, China, and India range from 3.5 to 4.8% of their population paying more than 25% of their income on healthcare.

These numbers are highly suggestive of the progress that needs to be made in Brazil, China, and India to protect people from catastrophic healthcare expenditure. These numbers can be more informative when analysed in the context of the proportion of healthcare spending that is publicly financed. In Brazil, Russia, India, and China, less than 50% of the healthcare GDP expenditure is publicly financed. In Canada, Germany and the United Kingdom, the public GDP expenditure ranges from 69.8% to 78%. This suggests the possibility of a strong relationship between public financing and a reduction in catastrophic healthcare expenditure. This relationship is further supported by research suggesting that financial protection does not increase directly with a rise in the proportion of GDP spent on healthcare. Rather, financial protection is more strongly associated through the pathways of healthcare spending (Wagstaff et al., 2018). This finding along with the low proportion of catastrophic healthcare expenditure in Canada, Germany and the United Kingdom strengthens the case for building universal healthcare coverage around the publicly funded national and social insurance models (Bloom et al., 2018).

Each BRIC country faces a unique set of challenges in their efforts

towards achieving universal healthcare coverage. The findings in this review suggest that BRIC countries should prioritize modelling their healthcare systems after publicly funded national and social insurance healthcare financing models. The success these models in Canada, Germany and the United Kingdom, along with the relative success achieved in China and Brazil, demonstrates that these models could be effectively used towards achieving universal healthcare coverage.

The sustainability of universal healthcare systems has come into question in the developed world due to rising costs. It is essential that BRIC countries prioritize their budgets and focus on risk pooling to increase the efficiency of revenue collection. Pooling revenue is a highly effective method towards achieving and sustaining universal healthcare coverage. Also, pooling funds are an essential part of all national and social insurance models (Reich et al., 2016). Pooling funds allow finances and risk to be spread and shared across an entire population. This prevents catastrophic health expenditure by This leads to more affordable and equitable services and prevents catastrophic healthcare expenditure which ultimately results in improved population health (Lagomarsino, Garabrant, Adyas, Muga, & Otoo, 2012; Moreno-Serra & Smith, 2012). Pooling funds builds system capacity by creating a more unified healthcare system that enables a responsive healthcare system which can invest in the specific needs of populations. In addition to pooling funds, BRIC countries should focus on innovative ways to finance their healthcare systems to continue investing in their healthcare systems. For example, countries have added taxes to items such as sugar-sweetened beverages and tobacco (Mossialos, 2017) that are earmarked to raise revenue specifically for their healthcare systems. These mechanisms have been found to increase revenue for the healthcare systems but also encourage health promoting behaviours. Investment into healthcare systems needs to be continuous and persistent in order to each universal healthcare coverage. Healthcare systems that are not reliant on one source of funding are more likely to be sustainable and resilient through times economic, political and social change.

### CONCLUSIONS

BRIC countries are all at different levels of universal healthcare coverage. All four countries have taken different approaches during implementation and coverage expansion. However, progress in all BRIC countries is required before universal coverage can truly be achieved. Ideally, BRIC countries should prioritize modelling their public healthcare systems after the national and social insurance models through the development of pooling financial resources and finding innovative ways to finance their healthcare systems.

Further research and analysis to support the preliminary analysis of this review would be beneficial. In particular, establishing statistical correlations between the selected indicators and healthcare coverage expansion would add legitimacy to the arguments in this paper. Also, an examination of the selected factors over more extended periods (longitudinal) analysed would increase the depth of this study. Lastly, this approach could be applied to further developing economies, such as Mexico, Indonesia, Nigeria and Turkey (MINT), which have been identified as growing

economies undergoing reform towards expanding healthcare coverage.

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## TABLES

Table 1: mapping of economic factors of BRIC and developed countries

Country	Health expenditure as % of GDP	Public financing as % of health expenditure	Health expenditure per capita (US\$)	Spending 10%+ of income OOP	Spending 25%+ of income OOP
Canada	11.30%	69.8%	\$4,826.30	2.64%	0.51%
Germany	11.14%	74.0%	\$5,728.50	1.14%	0.07%
U.K.	9.60%	78.8%	\$4,245.50	1.64%	0.48%
Brazil	8.30%	46.0%	\$947.00	25.56%	3.46%
Russia	3.50%	61.0%	\$1474.00	4.87%	0.60%
India	3.89%	21.0%	\$238.00	17.33%	3.90%
China	5.32%	38.0%	\$762.00	17.33%	4.77%