Joint Learning Network
For Universal Health Coverage

Public Expenditure on Health in Ghana: A Narrative Summary

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This narrative summary analyzes trends in government spending on health in Ghana from 2000 to 2019. It demonstrates how policymakers can summarize historical data to have a more informed within-country dialogue on issues related to domestic resource mobilization (DRM) for health. This analysis is meant to be illustrative, demonstrating how such information can be used to form the basis for setting the stage in assessing DRM options for health through a better understanding of (a) where the country is and where it has come from in terms of broader health financing trends and (b) how these trends have interacted with the Ghana's overall macro-fiscal context.

KEY TAKEAWAYS

- Ghana's economic growth has accelerated since 2011, with an average increase in GDP per capita of 4% between 2011-2019.
- In parallel, general government expenditure, as a share of GDP, also increased from 13% in 2000 to 21% in 2019. As a result, per capita public spending on health increased on average by 8.7% over the 2000-2019 period.
- The health share of public expenditure decreased from 8% to 7% of total government budget between 2000 and 2019, suggesting a de-prioritization of health.
- Ghana is within a health financing transition phase with an increasing per capita public spending on health (of 8.7%) and a decreasing per capita OOP spending on health (3.7%).

BACKGROUND

Ghana is a member of the World Bank's (WB's) Sub-Saharan Africa (SSA) region. It is the second most populous country in West Africa after Nigeria, with a population of more than 31 million in 2020[1] Its estimated per capita income of US$2,230 in the year 2020 was comparatively higher than many of the countries in the subregion, apart from Cote d'Ivoire and Cabo Verde (Figure 1). Ghana is currently classified as a lower-middle-income (LMI) country. As of 2016, about 25.3% of the population lived below the US$2.15 per day poverty threshold, and 48.9% lived below the US$3.65 per day poverty threshold for LMI countries.[2]

Generally, Ghana has experienced a steady growth in per capita Gross Domestic Product (GDP) over the

Figure 1. Per capita income (US$), Ghana and comparator countries
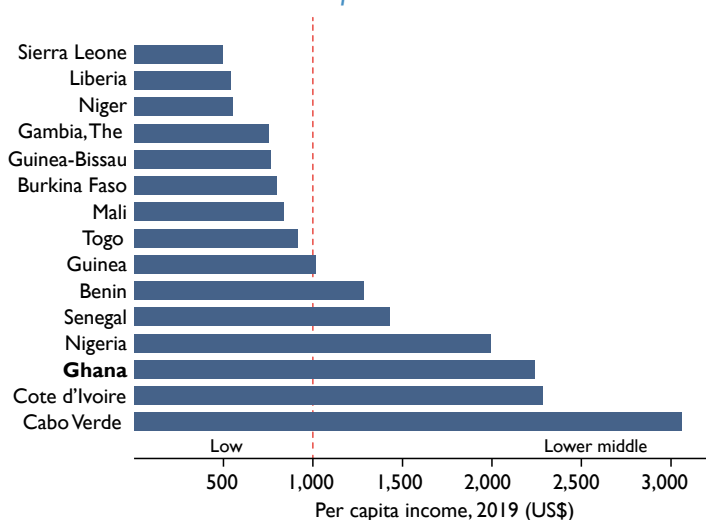
Source: The World Development Indicators, 2020.

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[1]   World Bank 2022. World Development Indicators Dataset. Last accessed: November 11, 2022.
[2]   Estimates are based on 2016 household data with 2017 base year and can be found in the World Bank World Development Indicators Dataset. 2022. Last accessed: November 11, 2022.

Figure 2: Per capita GDP in Ghana
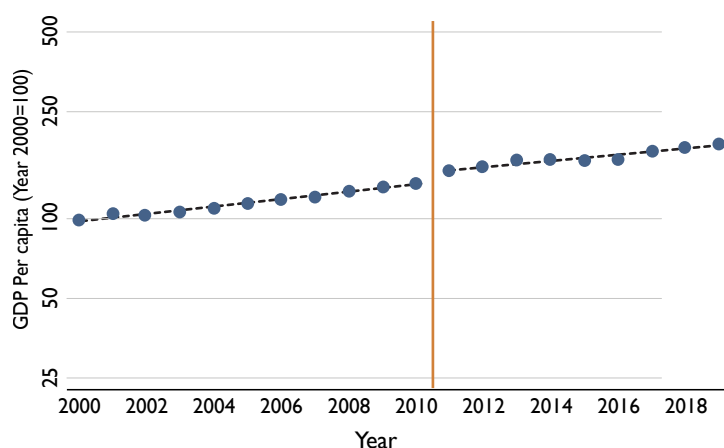
Source: Authors' calculations using IMF World Economic Outlook (October 2021 edition)
Note: Y-axis expressed in logarithmic scale.

Figure 3. Government Revenues and Expenditure in Ghana

Source: IMF World Economic Outlook (October 2021 edition), IMF World Revenue Longitudinal Dataset.

Table 1: Comparison of government expenditures, revenues, deficit, and surplus (as share of GDP)

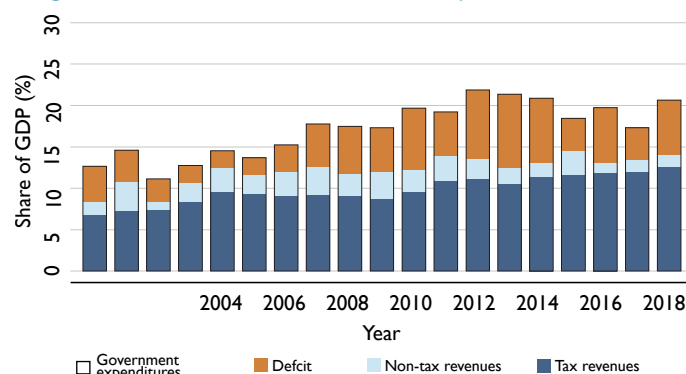| Country	Government expenditures	Government revenues Total	Tax*	Government deficit/surplus
Ghana	**21**	**13**	**13**	**-7**
Benin	15	14	11	-1
Burkina Faso	23	20	15	-3
Cabo Verde	31	29	22	-2
Cote d'Ivoire	17	15	12	-2
The Gambia	24	21	10	-3
Guinea	15	14	12	0
Guinea-Bissau	19	15	9	-4
Liberia	33	29	12	-5
Mali	23	21	12	-2
Niger	22	18	11	-4
Nigeria	13	8	5	-5
Senegal	24	20	15	-4
Sierra Leone	21	18	12	-3
Togo	16	18	17	2
SSA	23	20	14	-3
LMIC	29	26	17	-3

Source: IMF World Economic Outlook (October 2021 edition), IMF World Revenue Longitudinal Dataset.
*Notes: * Latest available data is from 2018.*

last 19 years, averaging 3.5% per year (Figure 2). The 'Pritchett Landscape' of Ghana's per capita growth trajectory can be categorized as an 'accelerator', meaning growth rates in GDP per capita were less than 3% per year before 2011, where a statistically-determined break[3] (indicated by the orange line in Figure 2) in trend marked a new growth rate of over 3%.[4] Annual economic growth rates averaged 2.9% in per capita terms over 2000-2010, but accelerated to 4.0% over 2011-2019. As a result, in cumulative per capita terms, the size of Ghana's economy almost doubled over the period of 2000-2019.

General government expenditures as a share of GDP indicates the size of government spending relative to the economy (Figure 3). Between the period of 2000 to 2018, Ghana's total government expenditure ranged between 11% to 22% of the GDP. At 21% of GDP, total government expenditures as a share of GDP were low relative to other member countries in the subregion (Table 1), driven largely by low total government revenues (13% of GDP) which primarily stemmed from low tax revenues (12.8% of GDP in

2018) (Table 1). Ghana's tax revenue is below the 15% benchmark necessary for sustaining economic growth according to a study by the International Monetary Fund (IMF).[5] Ghana's tax to GDP ratio is below the average for the sub-region and LMI countries.

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[3] While some countries have experienced consistently steady linear growth in per capita public spending on health, others show systematic variations in the growth rates over 2000-2019. These large shifts in trends can be captured statistically and a policy-relevant "break-point"—a year when a break in trend for per capita public spending on health—can be identified. Capturing this instability in the growth rates is important in understanding the growth dynamics of public spending for health

[4] Pritchett, L. 2000. "Understanding Patterns of Economic Growth: Searching for Hills among Plateaus, Mountains, and Plains." World Bank Economic Review, 14 (2): 221–250.

[5] Gaspar, V., L. Jaramillo, and P. Wingender. 2016. "Tax Capacity and Growth: Is there a Tipping Point?" IMF Working Paper WP/16/234, Washington, DC: International Monetary Fund.

HEALTH SYSTEM

Ghana's health system consists of all the organizations, institutions and people who work in a coordinated effort to promote and maintain health. In the health sector, the Ministry of Health is responsible for the formulation of health policy and the design of appropriate strategies for implementation by the Ghana Health Service and other actors in the health sector. The Ghana Health Service delivers services through a five-tiered gate-keeper referral system across the five levels of the health system starting from the community level to the sub-district, district, regional, and to the national level. Ghana established a National Health Insurance Authority in 2003 to finance the healthcare of the poor and vulnerable.[6]

Other ministries such as the Ministry of Sanitation and Water Resources, Ministry of Education, and the Ministry of Agriculture operate their own budget and policies, and impact population health with their program. The private sector, non-governmental organizations, and international organizations also impact positively on the health outcome of the population. Government health system actors, alongside the private sector, non-governmental organizations, and international organizations have been instrumental in: (1) introducing the free Senior High School in 2017 to promote a healthy lifestyle for the youth; (2) the creation of a government flagship agricultural program that promotes food security and employment to minimize impoverishment; and (3) securing World Bank support of USD125 million in September 2020 to improve sanitation and water supply in low-income urban communities in Greater Accra and Greater Kumasi Metropolitan areas during the COVID-19 pandemic.[7,8,9]

At the community level, Community-Based Health Planning Services (CHPS) unit serves a population of 5,000 and is mandated to provide preventive health services and treat minor ailments. CHPS are managed by Community Health Officers and midwives. At the sub-district level, each Health Center is headed by a physician assistant, services a population of about 20,000 and provides basic curative and preventive services, minor surgical services, outreach services, basic laboratory and delivery services.[10,11]

District Hospitals operate at the district level and serve as referral centers by providing basic and emergency health services to a population of about 100,000 to 200,000. Regional Hospitals cater to a population of about 1.2 million, provide specialized healthcare, and serve as referral centers for each region. At the apex of the referral system (national) are the Teaching Hospitals which manage complex health problems and undertake research and training of staff and health care professionals.

Ghana's health service delivery has had positive impacts on key health indicators due to improvements in health infrastructure, financing, governance, information system, medical supplies, logistics, and an increased human resource workforce, For example, the number of CHPS units has increased from 190 in 2005 to 5,580 in 2021.[12,13] Further indicative of the strength of the health system, is the international commendation given to Ghana's innovative and evidence-based approach in managing the early stages of the COVID-19 pandemic.[14] In 2022, the World Bank is supporting the government of Ghana to implement Networks of Practice to strengthen the primary healthcare services at the sub-district level. This intervention aims to improve

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[6]   Republic of Ghana. (2003). The Ghana National Health Insurance Act of 2003, Act 650.

[7]   Republic of Ghana. (2017). Free Senior High School Ghana Policy.

[8]   Republic of Ghana Ministry of Food and Agriculture. (2018). Planting for Food and Jobs Programme.

[9]   World Bank.(2020). Ghana Additional Financing for Greater Accra Metropolitan Area Sanitation and Water Project. Project ID P171620.

[10] Asamani, J.A., Christmals, C. D. and Reitsma, G. M. (2021). Modelling the supply and need for health professionals for primary health care in Ghana: Implications for health professions education and employment planning. PLoS One. 2021 Sep 28;16(9):e0257957.

[11] Adatara, P. (2018). Presentation on "Ghana's Health System: Institutional Arrangement and Health Policy". Presented: December 2018.

[12] University of Ghana School of Public Health. (2018). State of the Nation's Health Report. Accra: The University of Ghana.School of Public Health.

[13] Republic of Ghana Ministry of Health. (2021). Health Sector Annual Programme of Work 2021 Holistic Assessment Report: Accra: Ministry of Health.

[14] Taylor, A and M. Berger. (2020). "When it comes to coronavirus response, superpowers may need to study smaller nations". The Washington Post Online. Publication date: May 16, 2020.

access to healthcare services, equity, and the quality of service delivery to accelerate the country's progress toward achieving UHC.[15]

To protect the poor and the vulnerable against catastrophic health expenditure, Ghana introduced the National Health Insurance Scheme (NHIS) in 2003 as a health financing strategy. Membership has increased from 1.3 million people in 2005 to 16.8 million people in 2021, or 54.4% of the population.[16] Outpatient utilization of health services has increased from 0.45 visits per person in 2000 to 1.13 visits per person in 2021.[17,18] The effect of this is the reduction in out-of-pocket expenditure from 51.09% in 2003 to 36.22 % in 2019. Despite these efforts, government allocation to the health sector stands at 3% of the GDP, thus falling short of the 15% of annual budget in respect of the Abuja Declaration of 2000 and WHO's recommendation that countries allocate 5% of GDP toward health.[19,20]

The National Health Insurance Authority is developing an electronic system to handle telemedicine and e-pharmacy, which will be completed in 2023. These would improve access to healthcare services for residents in every corner of the country to facilitate the achievement of UHC by 2030.

The health workforce in Ghana has increased from 28,662 in 1999 to 148,390 in 2021.[21,22] Consequently, the national doctor-to-population ratio has improved from 1:20,036 in 2001 to 1:5,707 in 2021. Similarly, the national nurse-to-population ratio saw an improvement from 1:1,728 in 2001 to 1:530 in 2021.[23,24] The improvements are a result of training of more health professionals over the last two decades to meet the health needs of the growing population. These improvements notwithstanding, Ghana has only 67% of the required number of health workers.[25] The availability of emergency medical services, medicines, vaccines, and logistics has also increased. The number of ambulances under the National Ambulance Service increased from 55 in 2016 to 362 in 2019, increasing the ambulance-to-population ratio from 1:524,000 in 2016 to 1:84,000 in 2019.[26]

In 2016, Ghana started the implementation of an information management system called the National Health Data Centre and Electronic Medical Records. The first of its kind in sub-Saharan Africa, the system seeks to provide real-time bio-surveillance to support the fight against disease outbreaks and the spread of communicable diseases by giving early warning signals. The system will integrate with the claims management system of the NHIS for real-time member eligibility validation and electronic claims submission. It will provide needed health statistics for more effective decision-making at each level of the health continuum and build capacity in epidemiology, surveillance, and disease control in Ghana and in the sub-region.

[15] World Bank. (2022). "World Bank Supports Ghana to Improve Primary Health Care, Resource Mobilization, and Accountability for Better Service Delivery". Press Release No: 2022/079/AFW. Published: June 10, 2022. Last accessed: November 11, 2022.
[16] Ghana National Health Insurance Authority (NHIA) Statistical Bulletin. (2021).
[17] Republic of Ghana Ministry of Health. (2011). The Health Sector in Ghana: Facts and Figures. Accra: Ghana Ministry of Health
[18] Republic of Ghana Ministry of Health. (2021). Health Sector Annual Programme of Work 2021 Holistic Assessment Report: Accra: Ministry of Health.
[19] The Organisation of African Unity. Abuja Declaration on HIV/AIDS, Tuberculosis and other related infectious diseases. 24-27 April 2001, Abuja, Nigeria. The African Summit on HIV/AIDS, Tuberculosis and other related Infectious Diseases.
[20] The World Health Organization. (2010). The World Health Report: Health Systems Financing: the Path to Universal Coverage. Geneva: The World Health Organization.
[21] University of Ghana School of Public Health. (2018). State of the Nation's Health Report. Accra: The University of Ghana.School of Public Health.
[22] Asamani JA, Christmals CD, Reitsma GM (2021) Modelling the supply and need for health professionals for primary health care in Ghana: Implications for health professions education and employment planning. PLOS ONE 16(9): e0257957.
[23] Republic of Ghana Ministry of Health. (2011). The Health Sector in Ghana: Facts and Figures. Accra: Ghana Ministry of Health.
[24] Republic of Ghana Ministry of Health. (2021). Health Sector Annual Programme of Work 2021 Holistic Assessment Report: Accra: Ministry of Health.
[25] Asamani JA, Christmals CD, Reitsma GM (2021) Modelling the supply and need for health professionals for primary health care in Ghana: Implications for health professions education and employment planning. PLOS ONE 16(9): e0257957.
[26] Republic of Ghana Ministry of Health. (2019). "President Akufo-Addo Commisions 307 Ambulances". Last accessed: November 11, 2022.

Switching from the paper-based patient folder to the electronic system is estimated to save the health sector about GHS3.00 million (USD680,000) per annum.[27]

Ghana also introduced drone technology in 2019 to provide essential medical services (medicines, vaccines, and blood products) expected to serve 14 million people especially those in the rural, deprived, remote and hard-to-reach communities.[28]

POPULATION HEALTH

Ghana has made progress in improving maternal and child health outcomes. The maternal mortality rates (MMR) declined from 484 death per 100,000 live births in 2000 to 308 deaths per 100,000 live births in 2017. This rate as of 2017 was lower than the rate in the sub-region but higher than the average for LMI countries. The under-five mortality rate fell from 99.7 deaths per 1,000 live births in 2000 to 46 deaths per 1,000 live births in 2019. Given the slow rate of decrease in the

MMR and the under-five mortality rate in recent years and due to COVID response and recovery efforts, Ghana may fall short of the Sustainable Development Goal (SDG) target of 70 maternal deaths per 100,000 live births by 2030 and 25 or fewer under-five deaths per 1,000 live births by 2030.[29]

With a life expectancy of 64 years and an adult survival rate of 64%, most population health outcomes in Ghana are below what is expected for its income level (Table 2).

Ghana scored 0.45 on WB's Human Capital Index (HCI), indicating that a child born in Ghana today is expected to be only 45% as productive as he/she could have been with complete education and full health. The figure is higher than the average for the SSA region but lower than the average for LMI countries. Ghana's HCI is expected to improve in the long-term, following implementation of the free Senior High School Education policy in 2017.

Table 2: Comparison of Health Outcomes

Country	Population (millions)	Life expectancy (years)	Total fertility rate (child per woman)	Under-five mortality (per 1,000 live births)	Adult survival rate	Maternal mortality (per 1,000 live births)	Childhood stunting (% of children 5 years and below)
Ghana	**31.1**	**64**	**4**	**46**	**64.1**	**308**	**14.2**
Benin	12.1	62	5	90	61.7	397	31.3
Burkina Faso	20.9	62	5	88	61.1	320	25.5
Cabo Verde	0.6	73	2	15	78.3	58	9.7
Cote d'Ivoire	26.4	58	5	79	51.4	617	17.8
The Gambia	2.4	62	5	52	61.2	597	16.1
Guinea	13.1	62	5	99	60.8	576	29.4
Guinea-Bissau	2.0	58	4	79	52.2	667	28.0
Liberia	5.1	64	4	85	64.4	661	28.0
Mali	20.3	59	6	94	58.5	562	25.7
Niger	24.2	62	7	80	62.5	509	46.7
Nigeria	206.1	55	5	117	49.0	917	35.3
Senegal	16.7	68	5	45	71.2	315	17.2
Sierra Leone	8.0	55	4	109	46.8	1,120	26.8
Togo	8.3	61	4	67	59.6	396	23.8
SSA	1,132.4	63	4	66	60.5	461	27.9
LMIC	3,330.7	69	3	39	70.8	210	22.1

Source: Estimates are from the World Bank World Development Indicators and are for the latest available year.

27　Republic of Ghana Ministry of Health. (2017). E-health Project Closeout Report. Accra: Ministry of Health.
28　Republic of Ghana Ministry of Health. (2019). "Ghana's Medical Drone Delivery System takes off". Last accessed: November 11, 2022.
29　The United Nations Department of Economic and Social Affairs. The Sustainable Development Goals. https://sdgs.un.org/goals/goal3. Access date: July 27, 2022.

Figure 4: UHC Service Coverage Index
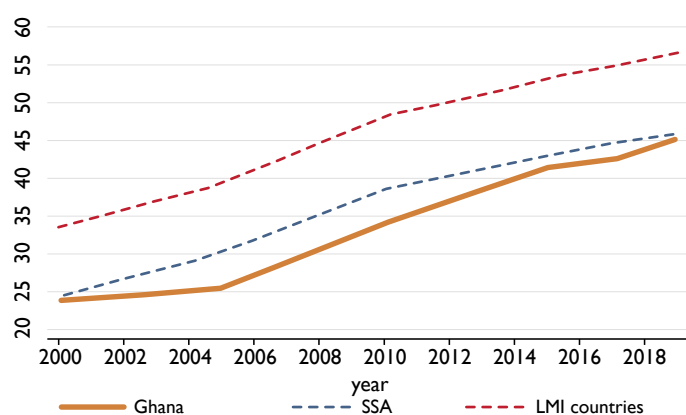
Source: World Health Organization and World Bank (2021). Tracking Universal Health Coverage: 2021 Global Monitoring Report.

Ghana has made steady progress on its Universal Health Coverage (UHC) service coverage index over the 2000-2019 period (Figure 4) in reproductive, maternal, newborn and child health, infectious diseases, noncommunicable diseases and service capacity and access. However, Ghana has been below the averages for both SSA countries and LMI countries. Regarding financial protection, there has been significant progress in reducing the reliance on out-of-pocket payments for health care (OOP). The share of OOP to total health spending in the country has decreased in recent years, from 52.6% in 2000 to 36.2% in 2019.[30] The introduction of the NHIS in 2003 to abolish the cash and carry system (OOP spending for health), may have contributed to Ghana's OOP spending being lower than the average for the SSA in 2019. Ghana requires sustainable financing from domestic sources to effectively expand the service coverage and improve financial risk protection towards UHC. This can be done by leveraging the Ghana Card to expand membership coverage of the NHIS which was at 54% of the population at the end of 2021. Effective monitoring, accountability and sanction regime are also needed to safeguard resources and to check the moral hazards of health care providers and minimize out of pocket spending.

Table 3: Comparison of Health Spending Across Countries, 2019

Country	Health spending						Public spending on health			
	Per capita (US$)	Share from Public Spending (%)	Share from OOP (%)	Share from external through private sector (%)	Share from other Sources (%)	Share of GDP (%)	Per capita (US$)	Share from domestic public revenue	Share from SHI	Share from external
Ghana	**75**	**46**	**36**	**6**	**12**	**3**	**34**	**81**	**7**	**12**
Benin	29	38	47	9	6	2	11	55	4	40
Burkina Faso	42	56	35	2	8	5	24	75	0	25
Cabo Verde	178	71	25	2	2	5	126	70	23	7
Cote d'Ivoire	75	38	37	6	18	3	29	75	1	24
The Gambia	30	56	23	16	4	4	17	48	0	52
Guinea	43	33	59	1	7	4	14	65	4	31
Guinea-Bissau	63	16	65	16	3	8	10	40	-	60
Liberia	53	22	54	19	5	8	12	73	0	27
Mali	34	43	31	24	2	4	15	58	20	22
Niger	31	49	46	2	3	6	15	71	2	28
Nigeria	71	19	71	10	1	3	13	74	11	15
Senegal	59	32	51	11	6	4	19	67	12	21
Sierra Leone	46	34	55	10	1	9	16	42	0	58
Togo	51	24	66	0.3	10	6	12	48	15	37
SSA	109	42	37	13	8	5	54	70	5	26
LMIC	133	50	37	7	6	5	76	73	14	14

Source: WHO Global Health Expenditure Database (December 2021 edition).

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[30] The World Health Organization. (2021). The Global Health Expenditure Database. Access date: July 25, 2022.

TRENDS IN PUBLIC SPENDING ON HEALTH

Despite the initial rapid growth in health expenditure, there is relatively low government budgetary spending on health and there has been a reduction in external assistance and high OOP health expenditure. Using data from WHO's Global Health Expenditure Database, the country's per capita spending on health in 2019 is roughly US$75 per person, which is four and half times the 2000 figure of US$ 16.6 per person and about 3% of GDP per capita (Table 3). The health spending as a share of GDP is below the sub-regional country average and the LMI country average and the per capita value is also below the country-group averages. Almost half of this is publicly sourced (46%, or US$34 per capita), while Social Health Insurance contributions from enrollees currently account for only 7% of public expenditures on health.[31,32] OOP spending stands at 36% of health spending, which is slightly lower than the average for the sub region and LMI countries. External financing for health accounts for 11% of health spending, with a share of this going through the government (12% of public expenditure on health in 2019).[33]

DOMESTIC RESOURCE MOBILIZATION FOR HEALTH EFFORTS

Ghana is currently digitizing its economy in order to formalize and widen its tax net. The unique identification numbers on the Ghana Card for residents is now being used as the Tax Identification number for every individual, which must be used when accessing essential services.

Ghana has earmarked funds to support the financing of health care through the NHIS. The earmarked funds comprise the National Health Insurance Levy which is 2.5 percent consumption tax on goods and services and Social Security Contributions which is 2.5 percentage points of each person's payroll contributions to the National Social Security Scheme. However, in 2017, the Earmarked Funds Capping and Realignment Bill (Act 947) was passed which capped or limited the amount of funds that could be allocated to the NHIS, and the health sector more generally.[34] The amount of money capped each year depends on the government's priority programs for that year. With the emergence of COVID-19, the country enacted a COVID-19 Health Recovery Levy in 2021 to generate additional revenue to support the fight against the pandemic.

The country is making efforts to mobilize more domestic resources to finance government expenditure rather than rely on external sources. To this end, an Electronic Transaction Levy of 1.5% on the value of electronic transactions was passed into law, effective May 2022. While the funds generated from this levy are not earmarked for the health sector, it will increase total government revenue and have the possibility of freeing the portion of the earmarked funds for health, which have, to date, been used for other priorities. Recently, the introduction of E-levy has suffered implementation challenges reducing the 2022 revenue target drastically from GHS 6.9 billion to GHS 611 million.[35] Other measures put in place to increase tax revenue include taxing e-commerce, gaming and betting industries, online filing of tax by large tax payers, and electronic value-added tax.[36] This will help the government meet the medium-term tax-to-GDP ratio of 20% by 2024.[37]

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[31] Social Health Insurance contributions to the NHIS are from employees, self-employed, employers on behalf of employees, non-employed persons who secure entitlement to social health insurance benefits, and contributions by the government as an employer, if public employees participate in the NHIS. This excludes government transfers from taxes to the NHIS.
[32] WHO Global Health Expenditure Database (December 2021 edition).
[33] Ibid.
[34] Republic of Ghana Parliament. (2017). Earmarked Funds Capping and Realignment Bill 2017 Act 947.
[35] Joy Business. (2022). "Government slashes E-levy target for 2022 to ¢611 million". Published online: July 27, 2022. Last accessed: November 9, 2022.
[36] S. Amade. (2022). "Ghana Revenue Authority (GRA) to begin Monitoring and Taxing of E-Commerce Businesses Starting April 1st, 2022". Published online: February 18, 2022. Last accessed: November 9, 2022.
[37] Republic of Ghana Revenue Authority. (2022). Electronic Transfer Levy Act, 2022 Act 1075. Last accessed: November 8, 2022.

TRENDS IN GOVERNMENT SPENDING ON HEALTH

In contrast to the GDP growth trends, Ghana's public spending on health saw a steady growth between 2000 and a statistically-determined break in 2010 (average of 43% per year) but slowed down between 2011 and 2019 (15% per year). Nominal government spending on health amounted to GHS 5,450 million (~US$1,045 million) in 2019, up from GHS 61 million (~US$113 million) in 2000: representing an overall average increase of 30% per year over 2000-2019 period (Figure 5).

Ghana has faced high levels of inflation in recent decades. Over the 2000-2019 period, the inflation rate was 15.4 % per year, which was much higher than the 6.0% average across all LMI countries over the same period (Figure 6). At 2.5 % average annual population growth, Ghana's population growth is higher than the 1.7 average for all LMI countries. This means that to keep public spending on health in per capita constant terms, nominal increases in public spending on health would need to exceed at least 17.9% (inflation of 15.4%+ population growth of 2.5%) per year to keep the levels the same in per capita constant terms.

Adjusting for inflation and population growth shows that, in per capita constant terms, government spending on health in Ghana has grown by three times since 2000 in cumulative terms, averaging an annual growth rate of 8.7 % per year (Figure 7), greater than the increase in the size of the economy over the same period by more than 5 percentage points (Figure 2). In 2019, per capita government spending on health amounted to GHS 179 (~US$34 per capita), up from only GHS 58 (~US$11 per capita) in 2000 (using 2019 prices). Ghana is considered a 'mountain' country for its 'Pritchett Landscape' of per capita public spending on health as growth exceeded higher rates at 3% per year before its statistically determined breakpoint in 2011 (13.1% per year), but declining afterwards by -3.8% per year. Constant per capita government spending on health was highest in 2011 at GHS 243 (~US$47 per capita).

Figure 5: Nominal public spending on health in Ghana
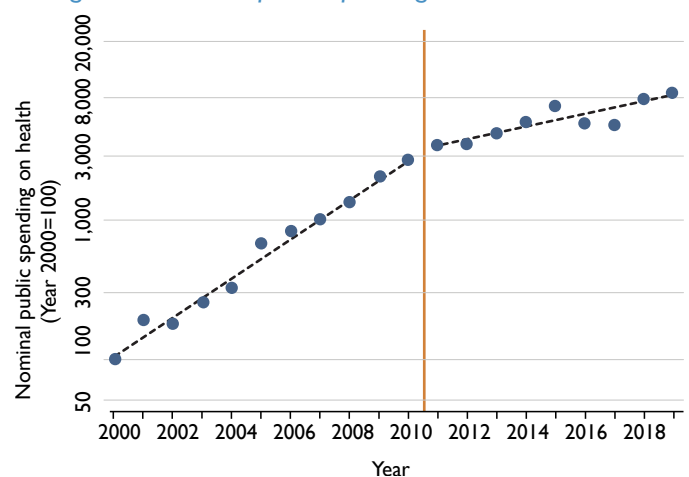
Source: Authors' calculations using data from WHO Global Health Expenditure Database (October 2021 edition).

Figure 6: Average annual inflation against average annual population growth in Ghana and select countries
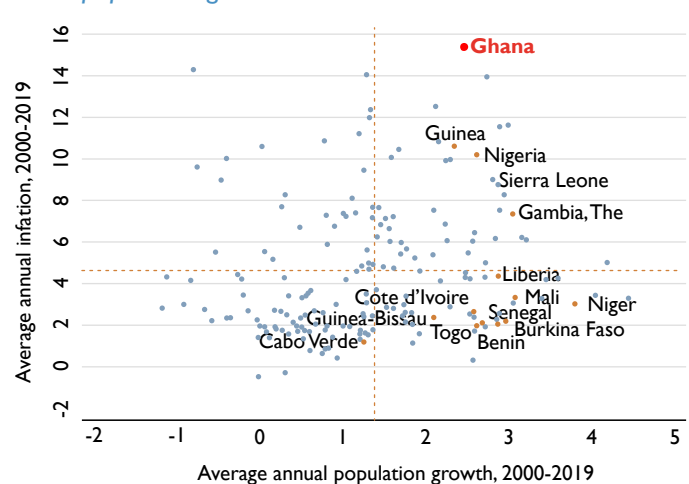
Source: IMF World Economic Outlook (October 2021 edition).
Note: Orange dashed lines indicate global averages.
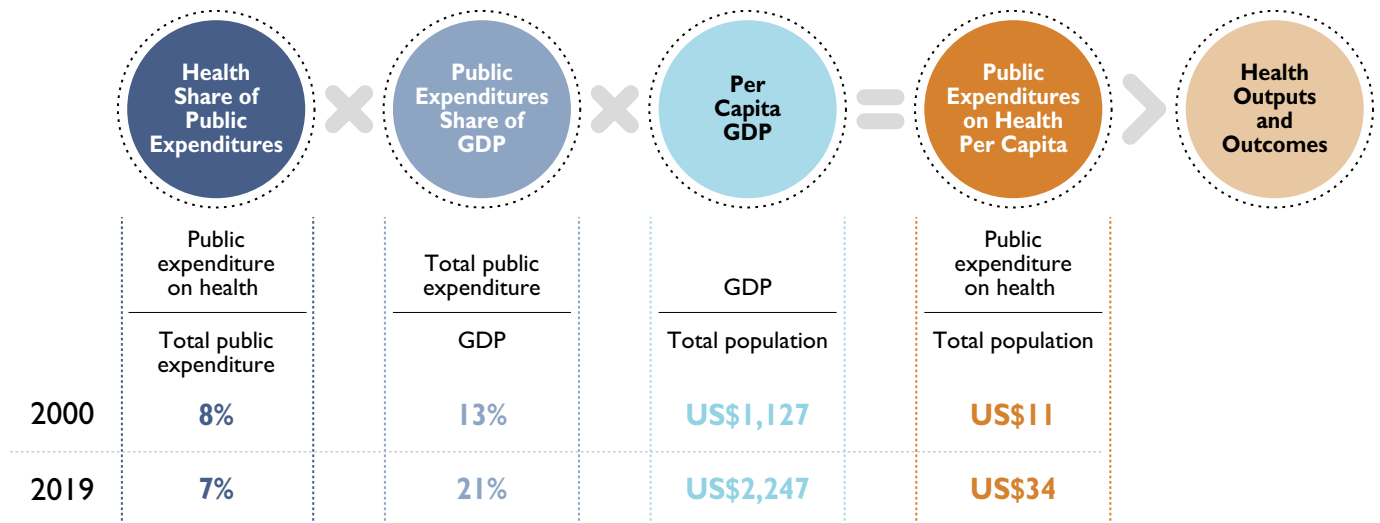
Figure 7: Per capita constant public spending on health, Ghana
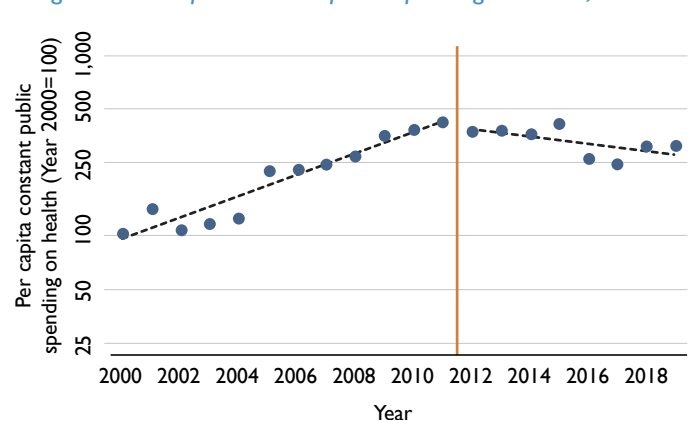
Source: Authors' calculations using data from WHO Global Health Expenditure (December 2021 edition).

Figure 8: Calculation of Per Capita Public Expenditure on Health in Ghana

	Health Share of Public Expenditures		**Public Expenditures Share of GDP**		**Per Capita GDP**		**Public Expenditures on Health Per Capita**		**Health Outputs and Outcomes**
	Public expenditure on health		Total public expenditure		GDP		Public expenditure on health		
	Total public expenditure		GDP		Total population		Total population		
2000	8%		13%		US$1,127		US$11		
2019	7%		21%		US$2,247		US$34		

Source: Authors' calculations using data from IMF World Economic Outlook (October 2021 edition) and WHO Global Health Expenditure Database (December 2021 edition).
Note: Product may differ due to rounding.

Per capita government spending on health is the product of three variables: health's share of total government spending, total government spending share of GDP, and per capita GDP. Over the 2000-2019 period, the 8.7% annual increase in per capita constant government spending on health was primarily due to economic growth (59% contribution) followed by higher general government expenditures as a share of GDP (43% contribution); reprioritization of health's share in government spending has on the other hand limited the growth of per capita constant government spending on health. A de-prioritization has occurred: health's share was 7% of the total government budget spending in 2019, slightly down from 8% in 2000.

BROADER TRENDS IN HEALTH FINANCING AND UHC

In 2019, Ghana's per capita GDP amounted to ~US$2,247. Of this, 21 % (~US$464) was total government spending (representing spending across all sectors, including for health) and only 7% of total government spending represented health's share (amounting to ~US$34 per capita) (Figure 8). In 2000, Ghana's per capita GDP was US$1,127 in constant

2019 prices, with 13% representing total government spending (~US$145 per capita), of which 8% was the share of health (amounting to ~US$11 per capita). This means that Ghana's per capita spending on health has increased more than three times from 2000 to 2019, showing an improvement in government spending per person.

Ghana's 7% share of health in total government expenditure is less than the regional average and the average for LMI countries. The education sector's

Figure 9: Total government expenditure as share of GDP compared to health share of total government expenditures, Ghana, 2000-2019
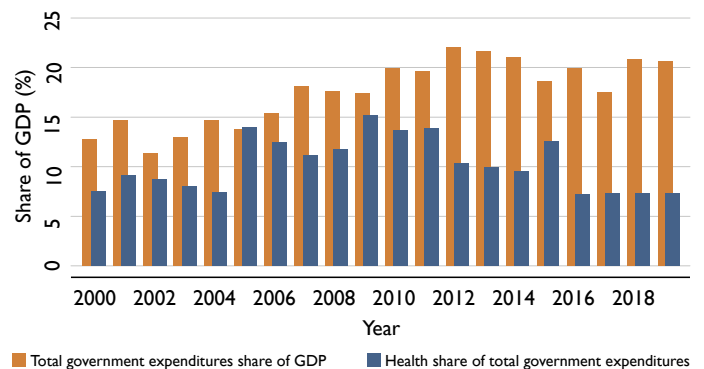
Source: IMF World Economic Outlook (October 2021 edition) and the WHO Global Health Expenditure Database (December 2021 edition).

share of total government expenditures is higher but less than the share going to debt service (Table 4).

The pace of increase in per capita public spending on health (8.7% per year) has exceeded that in per capita OOP spending on health (3.7% per year) (Figure 10). As a result, the OOP share of health spending in more recent years has trended downwards and while per capita public spending on health has been trending upwards. These observations indicate rapid progress is being made on Ghana's 'health financing transition' (i.e., the empirical trend that is observed when countries grow and develop when there is a tendency to increase levels of health spending but also increase the share from public sources and decrease the share from external and OOP sources).[38]

Table 4: Comparison of Total Government Expenditure by Country

Country	Share of total government expenditure			
	Health	Education	Military	Debt Service
Ghana	**7**	**19**	**2**	**27**
Benin	6	18	3	11
Burkina Faso	13	23	10	5
Cabo Verde	11	17	2	8
Cote d'Ivoire	7	15	5	9
The Gambia	9	11	3	13
Guinea	9	12	10	3
Guinea-Bissau	7	15	-	6
Liberia	6	8	2	3
Mali	7	14	12	4
Niger	13	13	9	5
Nigeria	5	6	4	13
Senegal	5	22	6	8
Sierra Leone	14	34	3	13
Togo	9	22	15	13
SSA	9	15	6	8
LMIC	9	15	6	9

Source: Authors' estimates using data from World Development Indicators, IMF World Economic Outlook (October 2021 edition), WHO Global Health Expenditure Database (December 2021 edition)

Note: Year varies depending on data availability, except for health share which is for 2019.

Figure 10: Public spending on health as share of GDP versus OOP share of health spending, Ghana, 2000-2019
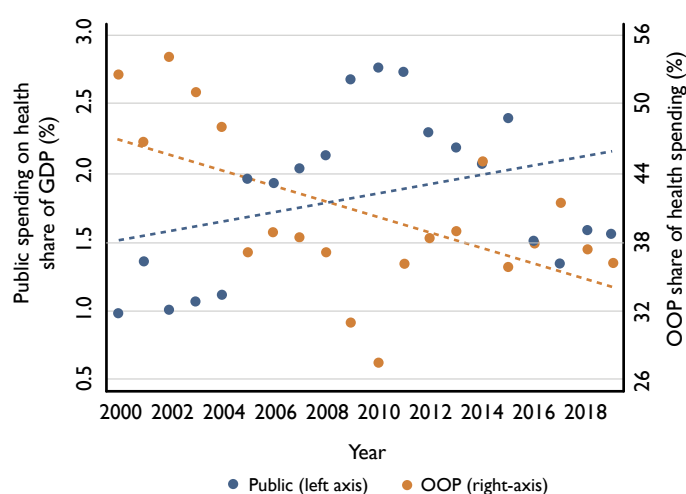
Source: WHO Global Health Expenditure Database (December 2021 edition).

[38] Fan, V. Y., and W. D. Savedoff. 2014. "The Health Financing Transition: A Conceptual Framework and Empirical Evidence." Social Science and Medicine 105: 112–121.

GLOSSARY & METHODS[1]

Catastrophic Health Expenditure (CHE): occurs when out-of-pocket health spending exceeds 10% or 25% of total household consumption or income).

Constant: Also referred to as 'real', refers to the value of a monetary variable with adjustments made to remove the impact of changes in prices of goods and services due to inflation. Constant series show the data for each year in the value of a particular base year. Thus, for example, data reported in constant 2017 prices show data for 2000 to 2017 in 2017 prices. Constant series are important as it is used to measure the true growth of a series (i.e., adjusting for the effects of inflation).

How to Convert a Time Series Variable from Nominal to Constant? Nominal time series data can be converted to constant time series data using a GDP deflator. Constant time series data is calculated by dividing nominal time series data by the GDP deflator (expressed in hundredths term):

$$\text{Constant time series} = \frac{\text{Nominal time series}}{\text{GDP deflator (in hundredths)}}$$

Debt Service Payments: Debt service is a type of government expenditure that covers the repayment of interest and principal on a debt or liability by the government for a particular period of time.

Domestic Resource Mobilization (DRM): the willingness and ability of countries to increase domestically-sourced public financing for health, ideally in an efficient, equitable, and sustainable manner.

Government Deficit/Surplus: The difference between total government revenue and expenditure is called government deficit (if expenditure is greater) or government surplus (if revenue is greater). This is an important fiscal account that measures the extent to which general government is lending financing resources (in the case of government surpluses) or borrowing financial resources from other sectors and nonresidents in order to finance government spending (in the case of government deficits).

Gross Domestic Product (GDP): is a monetary measure of the market value of all the final goods and services produced within a country's borders in a specific time period, often annually.

Gross National Income (GNI): is the sum of value added by all resident producers plus any product taxes (less subsidies) not included in the valuation of output plus net receipts of primary income (compensation of employees and property income) from abroad.

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[1] This glossary was adapted from "Glossary & Methods," in the JLN DRM Collaborative. Ministry of Health & Family Welfare Budgetary Spending in Bangladesh. Domestic Resource Mobilization Collaborative. Joint Learning Network for Universal Health Coverage, 2020. Definitions derived from the present text were added. Other sources consulted were the Global Monitoring Report on Financial Protection in Health (2019), the World Health Organization and the International Bank for Reconstruction and Development, and the World Bank World Development Indicators (2019).

Health Financing Transition: An empirically observed phenomenon that shows that as countries grow and develop there is a rise in health spending but that there is also a change in the composition of health spending with a higher share coming from public and other compulsory prepaid sources and a lower share from external and OOP sources.[2]

How to Account for Changes in Per Capita Public Spending on Health Over Time? There are different ways to account for changes in per capita public spending on health.[3] One way is to focus on uncovering the relative contributions from a sub-set of factors by exploiting a key macroeconomic identity that, in any given years t and t+1, the following must hold true:

$$P_t = H_t E_t Y_t$$
$$P_{t+1} = H_{t+1} E_{t+1} Y_{t+1}$$

where P is per capita public financing for health in constant local currency units (LCUs), H is health's share of public expenditure, E is the public expenditure share of GDP, and Y is real GDP per capita in LCUs. Taking the logarithmic difference in t+1 versus t (denoted by lowercase with 'hat') of public spending on health must mathematically equal the sum of the logarithmic growth rates in health's share of public expenditures, of aggregate public expenditures as share of GDP, and of GDP per capita:

$$\hat{p}_t = \hat{h}_t + \hat{e}_t + \hat{y}_t$$

In other terms, this implies that the growth rate of public financing for health ($\hat{p}_t$) over a given time period must be exactly accounted for by changes in GDP per capita (that is, by economic growth, or $\hat{y}_t$), changes in aggregated public expenditures as share of GDP ($\hat{e}_t$), and by changes in health's share in aggregate public expenditure ($\hat{h}_t$).

The log-difference method of calculating growth rates is frequently used in economic growth theory and calculates rates that are a very close approximations to the simple growth rates. The advantage of using this method is that it allows a multiplicative decomposition of the growth rate of a variable into the growth rates of its components.

High Income Countries (HICs): Are currently defined by the World Bank as those countries that in 2018 had per capita income of US$12,376 or higher.

Human Capital Index: A cross-country benchmarking exercise completed in 2018 by the World Bank Group Human Capital Project.[4] The index measures the amount of human capital that the average child born in 2018 expects to achieve.

Inflation: An increase in the prices of goods and services over time (a decline in prices is referred to as 'deflation'). Inflation is typically measured in terms of how prices of a representative basket of goods and services changes over time (referred to as changes in the consumer price index) or changes in the prices

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[2]   Fan, V. Y., and W. D. Savedoff. 2014. "The Health Financing Transition: A Conceptual Framework and Empirical Evidence." Social Science and Medicine 105: 112–121.

[3]   Tandon, A., J.S. Cain, C. Kurowski, and I. Postolovska (2018). Intertemporal Dynamics of Public Financing for Universal Health Coverage: Accounting for Fiscal Space Across Countries. HNP Discussion Paper. Washington, D.C.: World Bank Group. Available: http://documents.worldbank.org/curated/en/639541545281356938/Intertemporal-Dynamics-of-Public-Financing-for-Universal-Health-Coverage-Accountingfor-Fiscal-Space-Across-Countries.

[4]   World Bank Group. 2018. The Human Capital Project. Washington DC: International Bank for Reconstruction and Development.

of actual goods and services consumed in an economy over time (based on changes in the GDP deflator). The GDP deflator is defined as the ratio of the GDP at market prices in current U.S. dollars to the GDP at market prices in constant (2000) U.S. dollars.[5]

Low Income Countries (LICs): Are currently defined as those countries that in 2018 had per capita income of US$1,025 or less.

Lower Middle Income (LMI) Countries: Are currently defined by the World Bank as those countries that in 2018 had per capita income between US$1,026 and US$3,995.

Nominal: Also referred to as 'current', refers to the value of a monetary variable without any adjustments made for changes in prices of goods and services due to inflation.

Non-Tax Revenue: Revenue received by the general government from other revenue sources other than taxes. These include social contributions, grants, and other revenue such as property income, sales of goods and services, and fines, penalties, and forfeits.

Out-of-Pocket (OOP): Households' out-of-pocket expenditure is a direct payment for health care goods and services from the household primary income or savings (no third-party payer is involved). The payment is made by the user at the time of the purchase of goods or use of services.

Pritchett Landscape: is a way of classifying trend patterns in growth rates of any variable inspired by and building upon Pritchett (2000).[6] Statistically identifiable policy-relevant 'break points' are determined using Pritchett's method as the year when a break in trend for a variable can be identified by estimating the equation below and finding the breakpoint year (t^*) that minimizes the sum of squared errors over all t:

$$Y_t = a_1 * I(t \leq t^*) + b_1 t * I_1 \ (t \leq t^*) + a_2 * I(t > t^*) + b_2 t * I(t > t^*) + \varepsilon_t,$$

where Y is any variable of interest such as per capita GDP or per capita public spending on health, I() is an indicator function (1 if the argument holds; 0 otherwise), $t = [t_0, \ldots, T]$ where t_0 is 2000, T is 2017, t^* is the breakpoint year that is chosen subject to the constraint that each segment of the trend covers a minimum of three years (that is, $t^* - t_0 \geq 3$ and $T - t^* \geq 3$) and a and b are the intercept and time-trend slope, respectively, where the suffix 1 or 2 represent the estimates before and after the estimated breakpoint. Once the breakpoint is determined, the landscape of growth patterns is classified as follows:

Pattern	Growth rate	
	Before break	After break
Steep Hill	≥ 5 percent	≥ 5 percent
Hill	≥ 3 percent	≥ 3 percent
Accelerator	0 percent ≥ & < 3 percent	≥ 3 percent
Steep Valley	< 0 percent	≥ 5 percent
Plateau	≥ 3 percent	0 percent ≥ & < 3 percent
Valley	< 0 percent	0 percent ≥ & < 3 percent
Plain	0 percent ≥ & < 3 percent	0 percent ≥ & < 3 percent
Mountain	≥ 3 percent	< 0 percent
Cliff	0 percent ≥ & < 3 percent	< 0 percent
Slippery Slope	< 0 percent	< 0 percent

[5]   World Bank Group Data Catalog. https://datacatalog.worldbank.org/gdp-deflator-index-2000100-us-series.
[6]   Pritchett, Lant. 2000. "Understanding patterns of economic growth: searching for hills among plateaus, mountains, and plains (English)". The World Bank economic review. -- Vol. 14, no. 2 (May 2000), pp. 221-250.

Social Health Insurance (SHI): Social health insurance is a mandatory financing arrangement that ensures access to health care based on a compulsory payment of a non-risk-related contribution by or on behalf of the eligible person. Contributions are raised mainly through wage-related (and occasionally income-related) contributions that are shared between employers and employees. The social health insurance scheme is established by a specific public law, defining, among others, the eligibility, benefit package and rules for the contribution payment.

Tax Revenue: Revenue received by the general government from taxes. Taxes are compulsory, unrequited amounts receivable by government units from individuals, public enterprises, trade, royalties on natural resources and/or foreign aid.

Total Government Expenditure: Total expense and the net acquisition of nonfinancial assets by the government in order to fulfill their role of providing public goods and services and redistribution of income and wealth.

Total Government Revenue: Taxes, social contributions, grants receivable, and other revenue received by the government. Governments collect revenue in order to finance selected public goods and services that they provide to their citizens and to redistribute income and wealth by means of transfers.

Universal Health Coverage (UHC): As defined by the World Health Organization,[7] means 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.[8]

Universal Health Coverage (UHC) Service Coverage Index: Measures the average coverage of essential services that include reproductive, maternal, newborn and child health, infectious diseases, noncommunicable diseases and service capacity and access, among the general population (as well among the most disadvantaged population).

Upper Middle Income (UMI) Countries: Are currently defined by the World Bank as those countries that in 2018 had per capita income between US$3,996 and US$12,375.

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[7]   World Health Organization 2019. "Universal Health Coverage" Accessed September 2020. Last updated January 2021.
[8]   World Health Organization 2021. WHO Universal Health Coverage data portal. Accessed September 2020. Last updated January 2021.

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