

## **The Effects of Different Types of Health Expenditure on Mortality and Life Expectancy in the Organization for Islamic Cooperation (OIC) Countries**

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### **ABSTRACT**

This study investigates the differential effects of public, private and out-of-pocket (OOP) health expenditures on under-five, infant, and neonatal mortality rates, as well as life expectancy at birth. Using cross-country panel data for member states of the Organization of Islamic Cooperation (OIC) from 2002 to 2023, a log-likelihood fixed-effects model was employed to examine the determinants of health outcomes - commonly interpreted as measures of health status or health output. The empirical findings show that reductions in mortality rates are primarily driven by increases in health expenditure variables, urbanization rates, medical care supply, and GDP per capita. Public health expenditures are more effective than OOP expenditures in reducing mortality rates, although their influence on life expectancy is more modest but still statistically significant. Efficient and well-managed urbanization emerges as the strongest determinant of lower mortality. From the point of view of policy makers, it is important to make effective and targeted health expenditures in reducing child and infant mortality rates, by considering the role of the effectiveness of health expenditure types.

### **ملخص**

تنظر هذه الدراسة في الآثار التفاضلية للنفقات الصحية العامة والخاصة والنفقات الصحية التي يتحملها المرضى أنفسهم على معدلات وفيات الأطفال دون سن الخامسة والرضع وحديثي الولادة، وأيضاً متوسط العمر المتوقع عند الولادة. فباستخدام البيانات من ملفات البلدان الأعضاء في منظمة التعاون الإسلامي (OIC) من 2002 إلى 2023، تم اعتماد نموذج التأثيرات الثابتة للاحتتمالية اللوغاريتمية لفحص العوامل المحددة للمخرجات الصحية - التي تُفسر عادة بوصفها مقاييس للوضع الصحي أو الناتج الصحي.

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## 2 The Effects of Different Types of Health Expenditure on Mortality and Life Expectancy in the Organization for Islamic Cooperation (OIC) Countries

وتبرز النتائج التجريبية أن انخفاض معدلات الوفيات يرجع في المقام الأول إلى الزيادات في متغيرات الإنفاق الصحي ومعدلات التوسع الحضري وتوفير الرعاية الطبية ونصيب الفرد من الناتج المحلي الإجمالي. ويظهر أن نفقات الصحة العامة أكثر فعالية من نفقات الأفراد على الصحة من مالهم الخاص في خفض معدلات الوفيات، لكن أثرها من حيث متوسط العمر المتوقع يبقى متواضعا وإن كان ذا أهمية إحصائية. ويبدو أن التوسع الحضري الفعال والخاضع للإدارة الجيدة من أكثر العوامل المحددة لانخفاض معدلات الوفيات. ومن وجهة نظر صانعي السياسات، من المهم تخصيص نفقات صحية فعالة وذات أهداف محددة لخفض معدلات وفيات الأطفال والرضع، من خلال النظر في دور فعالية أنواع الإنفاق الصحي.

### RÉSUMÉ

Cette étude examine les effets variables des dépenses de santé publiques et privées et des dépenses de santé supportées par les patients eux-mêmes (OOP) sur les taux de mortalité des enfants de moins de cinq ans, des nourrissons et des nouveau-nés, ainsi que sur l'espérance de vie à la naissance. À partir des données transnationales des pays membres de l'Organisation de coopération islamique (OCI) pour la période 2002-2023, un modèle à effets fixes log-probabilistes a été utilisé pour examiner les facteurs déterminants des résultats sanitaires, généralement interprétés comme des mesures de l'état de santé ou du résultat sanitaire. Les résultats empiriques montrent que la baisse des taux de mortalité est principalement due à l'augmentation des variables liées aux dépenses de santé, aux taux d'urbanisation, à l'accès aux soins médicaux et au PIB par habitant. Les dépenses publiques de santé sont plus efficaces que les dépenses supportées par les patients pour réduire les taux de mortalité, bien que leur influence sur l'espérance de vie soit plus modeste, mais néanmoins statistiquement significative. Une urbanisation efficace et bien gérée apparaît comme le facteur déterminant le plus important pour réduire la mortalité. Du point de vue des décideurs politiques, il est important de réaliser des dépenses de santé efficaces et ciblées pour réduire les taux de mortalité infantile et juvénile, en tenant compte du rôle de l'efficacité des différents types de dépenses de santé.

**Keywords:** Health outcomes, types of health expenditure, life expectancy.

*“The life of man [is] solitary, poor, nasty, brutish, and short.” Thomas Hobbes*

## **1. Introduction**

Central and local governments, social security institutions, the private sector, and out-of-pocket (OOP) health expenditures constitute the main sources of healthcare financing worldwide. all over the world. Unlike public and private sector health expenditures, OOP health expenditure has a different feature since it includes direct payments made for uncovered services and directly depends on households' ability to pay. Therefore, it is clear that this phenomenon is related with socio-economic inequalities and the poverty and health status of the households. The allocation between types of health expenditure is fundamentally a political decision. Policymakers' choices among publicly and privately funded health care, as well as OOP payments, play a crucial role in achieving health goals and mitigating socioeconomic disparities.

A number of studies have discussed the relationship between publicly and privately funded health expenditure and the associated health outcomes at the macro level in the literature. The effects of different types of health care financing might lead to different health outcomes. Therefore, this study will explore the differentiated effects of OOP, private and public health expenditure on mortality rates and life expectancy - health status - with four controlled socio-economic variables including education and urbanization level, supply of medical care and income across Organization of Islamic Cooperation (OIC) member countries by using panel data analysis for the period of 2002-2023. This will help draw relevant policy conclusions on the effects of different types of health care financing.

Furthermore, most of the studies in the empirical literature are based on developed and developing countries. We also draw attention to an intuition from the perspective low-income countries which is specific to OIC countries by providing new evidence from a new country group.

This paper is organized as follows: The next section provides a review of literature. The third section explains the data and econometric model. The fourth section discusses empirical results and the last section concludes.

## **2. Literature Review**

The studies present mixed conclusions on the relationship between health expenditure and health outcome. A number of studies demonstrated that health expenditure has no impact on infant and under-five mortality rates.

Filmer and Pritchett (1997) found that publicly funded health care has no impact on mortality rates while the distribution of income and per capita income, income inequality, female education and other socio-economic factors affect mortality rates significantly for developing countries. Similarly, Kim and Moody (1992) showed that there is no relationship between health spending and infant mortality rates for 117 industrialized, developing, and underdeveloped countries. Zakir and Wunnava (1999) also examined the factors affecting infant mortality rates for 117 countries. They found that publicly funded health care does not affect infant mortality rates whereas, fertility rates, female participation in the labour force, per capita GNP and female literacy rates affect infant mortality rates. More recently, Bokhari et al. (2007) investigated the effects of per capita income on both maternal mortality and infant mortality rates by calculating associated elasticities. They found that economic growth is a more significant determinant than public health expenditure on mortality rates for developing countries. Interestingly, Berger and Messer (2002) demonstrated that while public health expenditure is positively related with mortality rates in OECD countries which have high level of health spending, inequality, some behavioral habits, inpatient and ambulatory insurance coverage are negatively associated with mortality rates. Therefore, this positive relationship indicates that countries might avoid raising the proportion of their expenditures that are publicly financed.

The findings of most of the studies in the literature are generally consistent with negative relationship between health outcome and health expenditure. Akinkugbe and Mohanoe (2009) revealed that publicly funded health care and supply of health care, female education and immunization rates are negatively associated with health outcome in Lesotho while income per capita has no effect on health status. Paxson and Schady (2005) pointed out that a decrease in both public and private expenditures on health leads to an increase in infant mortality in Peru. Wang (2002) also found that in low-income countries, along with public health expenditure, access to electricity and vaccination reduces child mortality. Nixon and Ulmann (2006) also explored that while health expenditure and supply of medical care resources are significantly associated with improvements in mortality rates for the EU countries. Anyanwu and Erhijakpor (2007) demonstrated that both total and public health expenditure have a crucial impact on infant and under-five mortality rates for African countries. Furthermore, female education,

ethnic fractionalization and supply of medical care significantly affect mortality rates.

Issa and Ouattara (2012) revealed that both private and public health expenditure, female secondary education attainment and per capita income have a strong negative relationship with infant mortality rates for different income groups for 160 countries. Gupta et al. (2001) also revealed that for the low-income countries, public spending on health affects health outcome more significantly than that of high-income countries. In their study, including 70 developing and transition economies, private health spending is also an important determinant of mortality rates for low-income countries. Similarly, the interesting finding from the study of Dhrifi (2018) is that health expenditure has a significant relationship with health outcome for high income countries while it is not the case for low-income countries. They pointed out that high-income countries might have the targeted spending on health and might allocated the resources effectively. Rahman et al. (2018) found that an increase in total, public and private health expenditure is significantly related with reduced infant mortality rates. Furthermore, the contribution of private health expenditure is more crucial than that of public health expenditure. Per capita income growth and improved sanitation facilities also have an important effect on reducing mortality rates, significant positive roles in improving population health for 15 countries from Association of Southeast Asian Nations. (ASEAN) and the South Asian Association for Regional Cooperation (SAARC) region. More recently, Owusu et al (2021), showed that there is a negative relationship between health expenditure and both infant and maternal mortality in developing countries compared to high-income countries. Kiross et al. (2020), studied the determinants of the impact of health care expenditure on infant mortality in sub-Saharan Africa and they found that while public and external health expenditure (direct foreign transfers and foreign transfers distributed by government) have a negative impact on infant and neonatal mortality rates, private health expenditure is not significantly related with health outcomes. Besuthu et al (2019), also found that while the mortality rate is significantly affected by public health expenditure, supply of medical care has no impact on mortality rate for South African provinces.

### 3. The Method and Data

Health status or health outcome is represented by under-five mortality rate, infant mortality rate, neonatal mortality rate, and life expectancy. Data were obtained from the World Bank's World Development Indicators for 57 OIC countries, covering the period from 2002 to 2023. The list of countries and variable definitions are provided in appendix.

It is worth touching upon country coverage of the dataset since the OIC is the second largest organization after the United Nations with a membership of 57 countries from the different continents which are accounted for around 14,3 % of the world's GDP expressed in purchasing power parities in 2024 (SESRIC, 2025). One advantage of employing this country group instead of limited or specific region provides comprehensive coverage for the analysis that can contribute to fill the existing gap of country coverage in the literature.

We consider four main regression models to explain under-five, neonatal and infant mortality rates and life expectancy (years), that is, global use of health status. Using Anyanwu and Erhijakpor (2007) as our benchmark, main explanatory variables in the model are:

- the natural logarithm of real GDP per capita, purchasing power parity in terms of USD,
- the natural logarithm of total physician per 1.000 people,
- the natural logarithm of the gross ratio of female primary school enrollment to total population,
- the natural logarithm of the ratio of urban population to total population.

In this study, panel data model with log-log specification is employed to obtain the effects of health status on explanatory variables. Along with the main explanatory variables of the four models, we use a conventional set of health expenditure variables including public, private and OOP health expenditure in order to focus on their effects on health status over the period of two decades.

In OIC countries, OOP health expenditure as a share of the total health expenditure has been decreasing from 42 % to 34,8 % while the share of public-funded health care in total health expenditure have been increasing

from 41,7 % to 53,3 % over the past two decades (SESRIC, 2025) due to fiscal expansion of the COVID-19 response. Compared to OECD or high-income countries' averages, the share of OOP health spending in total health expenditures with about 22 percent point remained well above that of OIC countries. This has led to health care and social security system in low-income countries much more dependent on direct payments than high-income countries with having a solid health care and social security system. On the other hand, clearly, publicly financed medical care in health financing accounted for 64,7 % is quite higher in high income countries compared to low-income countries (according to World Bank classification in 2023) with 20 %. Therefore, we pay special attention to these differences in the composition of health expenditure on different health output measures. This last point motivates us to distinguish between publicly, privately funded health expenditure and OOP health expenditure in interpreting the determinants of health status for OIC countries.

#### 4. Empirical Results

We present our regression results for the natural logarithm of under-five mortality rates - used as dependent variable - in Table 1. All estimations are conducted using a fixed-effects model.

Across columns I-to-III, all explanatory variables except female literacy, are statistically significant with  $R^2$  values ranging between 0.76 and 0,78. All types of health expenditure, as well as urbanization, supply of medical care, and GDP per capita, show up with the expected negative signs.

**Table 1:** Regression Results – I

Variables	<i>Dep. var: Mortality Rate under-5<sup>2</sup></i>		
	I	II	III
OOP Health Expenditure	-0,07*** (0,00)		
Public Health Expenditure		-0,12*** (0,00)	
Private Health Expenditure			-0,11*** (0,00)

<sup>2</sup> Notes: i) t-statistics are given in brackets. \*\*\* denotes statistical significance at the 1 percent level, \*\* at the 5 percent level, \* at the 10 percent level using two-tailed tests. Furthermore, Djibouti and Yemen are excluded from the analysis due to missing data.

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School Enrollment, Female	-0,02 (0,58)	-0,02 (0,70)	-0,01 (0,78)
GDP per capita, PPP	-0,66*** (0,00)	-0,57*** (0,00)	-0,60*** (0,00)
# of Physicians	-0,05*** (0,00)	-0,03** (0,04)	-0,05*** (0,00)
Urbanization	-1,29*** (0,00)	-1,18*** (0,00)	-1,24*** (0,00)
Constant	14,88*** (0,00)	13,82*** (0,00)	14,28*** (0,00)
<b>R<sup>2</sup></b>	0,76	0,78	0,76
<b>F-Test</b>	413,65***	463,70***	432,50***
<b>Hausman Test: Chi<sup>2</sup></b>	98,23***	111,92***	87,17***
<b># of Observations</b>	937	937	937

All health expenditure coefficients - OOP, public and private health expenditure - are statistically significant, implying that higher spending ratios correspond to lower under-five mortality rates. Specifically, a 1 percent increase in OOP health expenditure reduces under-five mortality rate by 0,07 percent, while a 1 percent increase in public and private health expenditure lowers it by 0,12 and 0,11 percent, respectively. Therefore, public health expenditure emerges as the most effective in improving health status. Furthermore, the urbanization rate - as a socioeconomic factor - has the most impact on decreasing mortality rates with the coefficients of 1,18 and 1,29 across columns I-III. The regression results for infant mortality, using it as the dependent variable, are presented in Table 2.

**Table 2:** Regression Results – II

Variables	<i>Dep. var: Infant Mortality Rate<sup>3</sup></i>		
	I	II	III
OOP Health Expenditure	-0,07*** (0,00)		
Public Health Expenditure		-0,13*** (0,00)	
Private Health Expenditure			-0,12*** (0,00)
School Enrollment, Female	0,04	0,05	0,05

3 Notes: i) t-statistics are given in brackets. \*\*\* denotes statistical significance at the 1 percent level, \*\* at the 5 percent level, \* at the 10 percent level using two-tailed tests. Furthermore, Djibouti and Yemen are excluded from the analysis due to missing data.

	(0,33)	(0,22)	(0,20)
GDP per capita, PPP	-0,64***	-0,54***	-0,57***
	(0,00)	(0,00)	(0,00)
# of Physicians	-0,05***	-0,03	-0,04***
	(0,01)	(0,13)	(0,01)
Urbanization	-1,04***	-0,93***	-0,99***
	(0,00)	(0,00)	(0,00)
Constant	13,15***	12,04***	12,49***
	(0,00)	(0,00)	(0,00)
<b>R<sup>2</sup></b>	0,77	0,79	0,77
<b>F-Test</b>	338,82***	387,07***	358,06***
<b>Hausman Test: Chi<sup>2</sup></b>	85,89***	98,23***	73,56***
<b># of Observations</b>	937	937	937

All explanatory variables in the model are statistically significant and exhibit the expected signs with the exception of female literacy; yielding R<sup>2</sup> values ranging from 0,77 and 0,79 across columns I-III. Consistent with the first regression model, all conventional health expenditure variables are significant and negatively associated with infant mortality. Specifically, a 1 percent increase in OOP health expenditure reduces the infant mortality rate by 0.07 percent, whereas a 1 percent increase in public health expenditure lowers it by 0.13 percent. Similarly, a 1 percent increase in private health expenditure reduces infant mortality by 0.12 percent. As in the previous model, urbanization has the strongest influence on decreasing mortality rates, with coefficients ranging between 1.04 and 0.93 across Columns I–III. Table 3 also presents the regression results using neonatal mortality as the dependent variable.

**Table 3:** Regression Results – III

Variables	Dep. var: Neonatal Mortality Rate <sup>4</sup>		
	I	II	III
OOP Health Expenditure	-0,05*** (0,00)		
Public Health Expenditure		-0,13*** (0,00)	
Private Health Expenditure			-0,10*** (0,00)
School Enrollment, Female	0,17***	0,19***	0,19***

4 Notes: i) t-statistics are given in brackets. \*\*\* denotes statistical significance at the 1 percent level, \*\* at the 5 percent level, \* at the 10 percent level using two-tailed tests. Furthermore, Djibouti and Yemen are excluded from the analysis due to missing data.

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	(0,00)	(0,00)	(0,00)
GDP per capita, PPP	-0,59***	-0,46***	-0,53***
	(0,00)	(0,00)	(0,00)
# of Physicians	-0,05***	-0,03*	-0,05***
	(0,01)	(0,10)	(0,01)
Urbanization	-0,68***	-0,55***	-0,63***
	(0,00)	(0,00)	(0,00)
Constant	10,16***	8,69***	9,50***
	(0,00)	(0,00)	(0,00)
<i>R</i> <sup>2</sup>	0,75	0,78	0,75
<i>F-Test</i>	203,97***	245,52***	214,52***
<i>Hausman Test: Chi</i> <sup>2</sup>	40,33***	39,54***	31,43***
<i># of Observations</i>	937	937	937

Table 3 presents results that are qualitatively consistent with the previous models in terms of coefficient significance and direction. All explanatory variables, except female literacy, remain statistically significant and exhibit the expected signs. Again, OOP health expenditure appears less effective in reducing mortality compared with other categories of health spending. From a policy perspective, this suggests that OOP expenditure is relatively less effective in lowering under-five, infant and neonatal mortality in OIC countries compared to public or private health spending.

Table 4 reports the regression results for life expectancy as the dependent variable. Alongside the conventional health expenditure measures, the additional explanatory variables also perform well, producing plausible and theoretically consistent results. All variables are statistically significant and carry the expected signs across Columns I–III.

**Table 4:** Regression Results – IV

Variables	<i>Dep. var: Life Expectancy</i> <sup>5</sup>		
	I	II	III
OOP Health Expenditure	0,01** (0,01)		
Public Health Expenditure		0,01*** (0,00)	
Private Health Expenditure			0,01*** (0,01)
School Enrollment, Female	0,09***	0,09***	0,09***

5 Notes: i) t-statistics are given in brackets. \*\*\* denotes statistical significance at the 1 percent level, \*\* at the 5 percent level, \* at the 10 percent level using two-tailed tests. Furthermore, Djibouti and Yemen are excluded from the analysis due to missing data.

	(0,00)	(0,00)	(0,00)
GDP per capita, PPP	0,05***	0,04***	0,05***
	(0,00)	(0,00)	(0,00)
# of Physicians	0,02***	0,02***	0,02***
	(0,00)	(0,00)	(0,00)
Urbanization	0,22***	0,21***	0,22***
	(0,00)	(0,00)	(0,00)
Constant	2,45***	2,55***	2,51***
	(0,00)	(0,00)	(0,00)
<b>R<sup>2</sup></b>	0,68	0,69	0,68
<b>F-Test</b>	437,09***	455,23***	445,11***
<b>Hausman Test: Chi<sup>2</sup></b>	84,91***	94,61***	78,32***
<b># of Observations</b>	937	937	937

Furthermore, in the life expectancy model, conventional health expenditures unexpectedly do not appear to increase life expectancy in OIC countries. Interestingly, although health expenditures - regardless of type - are among the most effective tools for reducing mortality rates, they do not demonstrate a measurable impact on extending life expectancy. This finding is intuitive: increases in life expectancy reflect long-term structural improvements in public health, whereas reductions in mortality rates respond more readily to short-term interventions. Consequently, health expenditures in a given year exert an immediate influence on mortality but are unlikely to produce short-run effects on life expectancy. However, it should be emphasized that this issue lies beyond the scope of the present study and warrants separate, dedicated research - particularly concerning the long-term channels through which health expenditure may influence life expectancy. For now, these insights may be considered a preliminary yet stimulating direction for future investigation.

Across all four models, the findings consistently demonstrate that health expenditures exert a strong and significant effect on reducing mortality rates, although their influence on life expectancy at birth is more modest but still statistically significant. Put differently, it is statistically robust to assert that, *ceteris paribus*, increases (or decreases) in health expenditures in OIC countries lead to corresponding decreases (or increases) in mortality rates over the sample period. This aligns with previous research emphasizing the critical role of health expenditure in improving population health outcomes.

## 5. Conclusion

Using a panel dataset of OIC countries spanning 2002–2023, this study provides detailed descriptive and econometric evidence on the determinants of mortality rates and life expectancy at birth.

The main findings are as follows:

- i) Health expenditures, socioeconomic factors, education, income levels, and the supply of health services all play well-documented roles in determining mortality rates and life expectancy.
- ii) Publicly funded health expenditures are the most effective in reducing mortality across all age groups; however, their contribution to improvements in life expectancy, while positive, remains relatively limited. This distinction is essential for understanding policy implications related to socioeconomic inequalities, poverty, and household health conditions in OIC countries.
- iii) Urbanization emerges as the most influential factor in reducing mortality and, when improved, can also contribute to increased life expectancy. However, when life expectancy rises, the marginal effect of public health expenditure becomes negligible, whereas urbanization continues to exert a meaningful influence.

In assessing different types of health expenditure, public spending is more effective in lowering infant and under-five mortality than OOP and private health expenditures. Nevertheless, all expenditure types contribute to reducing mortality. Another key finding is that manageable and well-planned urbanization is vital for lowering all forms of mortality and increasing life expectancy at birth.

From a policy perspective, targeted health expenditure - regardless of expenditure type - combined with effective urbanization policies is essential for reducing socioeconomic inequality and improving health outcomes across OIC countries. Additionally, shifting the composition of health expenditures toward more efficient and equitable public spending, alongside promoting higher levels of urbanization, appears critical for protecting vulnerable populations and improving child survival and life expectancy in the region.

## 6. Appendix

**Table 5: List of OIC Countries**

Countries		Income Groups
Afghanistan	OIC-Low income	OIC-Low income
Albania	OIC-Upper middle income	OIC-Upper middle income
Algeria	OIC-Lower middle income	OIC-Lower middle income
Azerbaijan	OIC-Upper middle income	OIC-Upper middle income
Bahrain	OIC-High income	OIC-High income
Bangladesh	OIC-Lower middle income	OIC-Lower middle income
Benin	OIC-Lower middle income	OIC-Lower middle income
Brunei Darussalam	OIC-High income	OIC-High income
Burkina Faso	OIC-Low income	OIC-Low income
Cameroon	OIC-Lower middle income	OIC-Lower middle income
Chad	OIC-Low income	OIC-Low income
Comoros	OIC-Lower middle income	OIC-Lower middle income
Cote d'Ivoire	OIC-Lower middle income	OIC-Lower middle income
Djibouti		OIC-Lower middle income
Egypt	OIC-Lower middle income	OIC-Lower middle income
Gabon	OIC-Upper middle income	OIC-Upper middle income
Gambia	OIC-Low income	OIC-Low income
Guinea	OIC-Low income	OIC-Low income
Guinea-Bissau	OIC-Low income	OIC-Low income
Guyana	OIC-Upper middle income	OIC-Upper middle income
Indonesia	OIC-Lower middle income	OIC-Lower middle income
Iran	OIC-Lower middle income	OIC-Lower middle income
Iraq	OIC-Upper middle income	OIC-Upper middle income
Jordan	OIC-Upper middle income	OIC-Upper middle income
Kazakhstan	OIC-Upper middle income	OIC-Upper middle income
Kuwait	OIC-High income	OIC-High income

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Kyrgyz Republic	OIC-Lower middle income	OIC-Lower middle income
Lebanon		OIC-Lower middle income
Libya		OIC-Upper middle income
Malaysia	OIC-Upper middle income	OIC-Upper middle income
Maldives	OIC-Upper middle income	OIC-Upper middle income
Mali	OIC-Low income	OIC-Low income
Mauritania	OIC-Lower middle income	OIC-Lower middle income
Morocco	OIC-Lower middle income	OIC-Lower middle income
Mozambique	OIC-Low income	OIC-Low income
Niger	OIC-Low income	OIC-Low income
Nigeria	OIC-Lower middle income	OIC-Low income
Oman	OIC-High income	OIC-Lower middle income
Pakistan	OIC-Lower middle income	OIC-High income
Palestine		OIC-Lower middle income
Qatar	OIC-High income	OIC-Lower middle income
Saudi Arabia	OIC-High income	OIC-High income
Senegal	OIC-Lower middle income	OIC-High income
Sierra Leone	OIC-Low income	OIC-Lower middle income
Somalia		OIC-Low income
Sudan	OIC-Low income	OIC-Low income
Suriname	OIC-Upper middle income	OIC-Low income
Syria		OIC-Upper middle income
Tajikistan	OIC-Low income	OIC-Low income
Togo	OIC-Low income	OIC-Low income
Tunisia	OIC-Lower middle income	OIC-Low income
Türkiye	OIC-Upper middle income	OIC-Lower middle income
Turkmenistan	OIC-Upper middle income	OIC-Upper middle income
Uganda	OIC-Low income	OIC-Upper middle income
United Arab Emirates	OIC-High income	OIC-Low income
Uzbekistan	OIC-Lower middle income	OIC-High income
Yemen		OIC-Lower middle income
		OIC-Low income

**Table 6: Variable Definitions**

<b>Variables</b>	<b>Definition</b>
Mortality rate, infant (per 1,000 live births)	Infant mortality rate is the number of children dying before reaching one year of age, per 1,000 live births in current year.
Mortality rate, under-5 (per 1,000 live births)	Under-five mortality rate is the probability per 1,000 that a newborn baby will die before reaching age five, if subject to age-specific mortality rates of the specified year.
Mortality rate, neonatal (per 1,000 live births)	Neonatal mortality rate is the number of neonates dying before reaching 28 days of age, per 1,000 live births in a given year.
Life expectancy at birth, total (years)	Life expectancy at birth is the number of years a newborn baby would expect to live if current death rates do not change.
Out-of-pocket health expenditure per capita (current US\$)	Health expenditure through out-of-pocket payments - direct payments - per capita in USD.
Domestic general government health expenditure per capita (current US\$)	Public expenditure on health per capita in USD.
Domestic private health expenditure per capita (current US\$)	Current private expenditures - from households, corporations and non-profit organizations - on health per capita in USD.
Urban population (% of total population)	The share of urban population who lives in urban areas to total population.
School enrollment, primary, female (% gross)	Gross enrollment ratio is the ratio of female' primary school enrollment, to the total population.
GDP per capita, PPP (constant 2021 international \$)	GDP per capita based on purchasing power parity (PPP) in constant 2017 international dollars.
Physicians (per 1,000 people)	Physicians include generalist and specialist medical practitioners per 1,000 people.

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