

EVALUATION OF SOCIOECONOMIC ASPECTS TRIGGERING HEALTH CARE SPENDING

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Abstract

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The research investigates the effect of various macroeconomic factors on health care spending using time series data for Albania for the period from 2000 to 2020. Health care expenditure is measured as a percentage of gross domestic product (GDP), out-of-pocket expenses, domestic private health expenditure, and external health expenditure per capita. Understanding what influences health spending is the main goal of the following study. In the study, explanatory variables are divided into two groups: demographic and socioeconomic determinants. These determinants include factors, such as GDP per capita, deposit interest rate, remittances, life expectancy, population rate growth, number of physicians, etc. Findings indicate that health expenditure expressed as a percentage of GDP is negatively affected by deposit interest rate and positively influenced by population aged 65 years old and over, life expectancy, mortality rate, and number of physicians for 1,000 people. On the other hand, remittances positively affect household out-of-pocket expenditure and external health expenditure. Remittance flows are significant in driving health care expenditures when compared to income such as GDP per capita. These income flows from abroad may contribute to stabilization in the use of health care services by poorer households or those households lacking health care coverage. This paper certainly contributes to the larger discussion about the relationship between socioeconomic factors and the welfare state.

Keywords: Health Care Expenditure, Out-of-Pocket Expenses, Remittances

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1. INTRODUCTION

Health care expenditure analysis has become central recently due to the pandemic crises of COVID-19. Nevertheless, the debate on the nature of health care expenditure, if it belongs to the group of luxury or necessity goods, is quite older (Parkin et al., 1987; Blomqvist & Carter, 1997; Getzen, 2000; Sen, 2005; Costa-Font et al., 2011). Using different data and

methodologies, previous empirical studies have investigated the income elasticity of health care expenditure both at the micro and macroeconomic levels of analysis.

Relying on studies both in developed and developing countries, results show that the variance in per capita health care expenditure can be explained by variation in per capita gross domestic product (GDP) or income and that health care

expenditure results with an elasticity greater than 1 (Clemente et al., 2004; Wang & Rettenmaier, 2007). Still, there are few studies showing that the elasticity of income is lower than 1 (Baltagi & Moscone, 2010; Mehrara et al., 2012). Besides the income level behind health care expenditure, there is a myriad of factors acting both at the micro and macro level, such as public expenditure, inflation rate, life expectancy, birth rate, technological development, individual characteristics, etc.

Since theoretical and empirical analyses of the factors affecting health care expenditure are controversial, it is crucial to further investigate the causes behind the behavior of health care expenditure in a development context, such as in Albania. The paper contributes to the limited empirical literature on the factors driving health care expenditure in Albania, including, and testing in new macroeconomic variables in the model. The mandatory health insurance system, which is run by a single purchasing organization called the Mandatory Health Insurance Fund (MHIF), provides access to health care coverage. Only about two-thirds of the population is covered by the MHIF. Since 2013, those without insurance have been entitled to free emergency care, a free basic health checkup once a year, and free visits to general practitioners. All other medical services must be paid for by them out of pocket. Informal payments are common, especially for inpatient treatment, and place a significant financial burden on poorer households, according to the Institute of Statistics (INSTAT, 2021). This paper's goal is to fill a gap in the literature by doing an empirical analysis of the dynamics of health care spending and answer the research question:

RQ: Which are the economic and social factors affecting health care spending?

In order to determine the macroeconomic relationship between socioeconomic factors and health care spending, we estimate multivariate regression in our study.

The study is organized as follows. A short introduction is represented in the first section. The second section provides a literature review of the factors affecting health care expenditure. Data and methodology are described in the third section. While the fourth section presents the empirical results, conclusions and discussions are presented in the fifth section of the study.

2. LITERATURE REVIEW

The cost of health care in Albania is among the lowest in Europe, according to Eurostat (2022), and this trend persisted in the pandemic year of 2020. The nominal expenditures per capita in the health sector are over 10 times lower than the average for the European Union (27 nations), which is EUR2,614. They are second lowest in Europe only to Northern Macedonia (EUR 255). Both the economy and population health management in Albania have been significantly impacted by the COVID-19 pandemic. In developing nations, private financing of healthcare is typically higher than public spending.

At the microeconomic level, the current literature on determinants of health care expenditure has widely focused on studying the topic principally using survey data. Bredenkamp et al. (2011) use Living Standards and Measurement Surveys (LSMS)

period from 2000 to 2005 for Albania, Bosnia and Herzegovina, Montenegro, Serbia, and Kosovo to investigate the influence of health care expenditure on household welfare. They find that catastrophic and impoverishing effects of health care expenditures are serious in Albania and Kosovo. In Albania and Serbia, transportation expenditure accounts for a large share of total health care expenditures. Informal payments are considerable in all Western Balkan countries and tend to be high in Albania. Using household surveys, Kalaj (2015) investigates the impact of remittances on health care expenditure through instrumental variable and propensity score matching methodology. The findings indicate that households increase their expenditure on medicines and other health services in the presence of remittance income. The positive effect is significant in the case of remittance-receiving households living in the rural area. Using a cross-sectional data survey of 2526 patients from all the Italian regions, Ruggeri et al. (2020) investigate the determinants of health care expenditures. In their study, Italian regions were clustered according to three criteria: geographic, income- and performance-based. They use Heckman decomposition and control for age, education, and severity, individual health care expenditures have the tendency to increase in southern regions where per capita income and the performance of the health care services are lower if compared to the rest of Italy.

From the macroeconomic point of view, empirical studies link health care expenditure to economic and social variables. The relationship between per capita health expenditures and income, age distribution, and time is assessed by Di Matteo (2005). Real per capita health expenditures are positive to income, time, and an aging population for time series from the USA and Canada. Simple models of health expenditures find that the increase in the percentage of the population aged 65 years old and over is the reason for the increase in health spending. Models that use a more complex specification for age and time indicator variables find that time is a more important variable. Grigorakis et al. (2018) use panel data for the period from 1995 to 2013 for 26 Organisation for Economic Co-operation and Development (OECD) countries to examine macroeconomic determinants of health care financing. They find that public spending and unemployment positively affect health care financing by using fixed/random effects and dynamic panel data methodology. The causality between economic growth and health care expenditure are in the center of the study of Xhindi et al. (2020). They use data for Albania for the period from 1996 to 2017. Autoregressive distributed lag (ARDL) bounds testing approach for co-integration and Granger causality test are the methodology used to give answer to the research question. The ARDL model estimations confirm the positive relationship between the two variables.

The cost of health care after a pandemic is a topic of rising literature. The COVID-19 pandemic has exerted demand on the welfare state, potentially more so in the healthcare sector. Health care systems have been experiencing considerable stress as a result of the pandemic. Busemeyer (2023) examines the dynamics of individual-level support for increased health care spending using survey data that was gathered in Germany in three waves: April/May, November 2020, and May 2021.

The COVID-19 pandemic has not yet led to a major change in health care spending decisions, especially at the aggregate level. Moreover, a more comprehensive analysis reveals that performance evaluations and, to a smaller degree, general political trust, strongly influence individual-level support for increased health care spending. McWilliams et al. (2021) evaluated FAIR Health spanning multi-payer deidentified claims during the pandemic period. According to their study, a significant drop in medical expenses for those with private insurance was linked to the early stages of the COVID-19 pandemic. Expenditure reductions for seniors, who are more likely to require hospitalization for COVID-19, were similarly significant in high-activity states. Results for low-activity states indicate a link between increased concern about viral transmission and less frequent use of medical services.

More research is needed to gain insight into the dynamics of factors affecting health care spending because studies pertaining to health care

costs in Albania during normal and pandemic periods are largely unavailable.

3. METHODOLOGY

In our study, we use time series from Albania for the period from 2000 to 2019. In Table 1 and Table 2, the variables and respective sources are described. Budgetary expenses totaling EUR134.8 million were made in 2020 to address the COVID-19 pandemic's consequences on the economy and public health. This amount represented 3.1% of the overall budgetary expenses for 2020. Only 19% of the total money (134 million euros) intended to respond to the pandemic's consequences was allocated to pay for medical expenses, while 11 million euros were used to stimulate the economy through two relief packages. The budget that finances the health needs in 2021 was 6.1% higher than the actual expenditures of 2020 (INSTAT, 2021).

Table 1. Description of dependent variables

Dependent variables	Source	Description
Current health expenditure (% of GDP)	World Health Organization (WHO)	Level of current health expenditure expressed as a percentage of GDP. Estimates of current health expenditures include health care goods and services consumed during each year. This indicator does not include capital health expenditures such as buildings, machinery, IT, and stocks of vaccines for emergencies or outbreaks.
Out-of-pocket expenditure		Share of out-of-pocket payments of total current health expenditures. Out-of-pocket payments are spending on health directly out-of-pocket by households.
Domestic private health expenditure		Share of current health expenditures funded from domestic private sources. Domestic private sources include funds from households, corporations, and non-profit organizations.
External health expenditure per capita		External sources are composed of direct foreign transfers and foreign transfers distributed by the government encompassing all financial inflows into the national health system from outside the country.

Source: <https://www.who.int/albania>.

Table 2. Description of explanatory variables

Explanatory variables	Source	Description
Demographic indicators		
Population growth (annual %)	World Bank	The annual population growth rate for year t is the exponential rate of growth of the midyear population from year $t-1$ to t , expressed as a percentage. The population is based on the de facto definition of population, which counts all residents regardless of legal status or citizenship.
Population ages 65 years old and above		Population aged 65 years old and above as a percentage of the total population. The population is based on the de facto definition of population, which counts all residents regardless of legal status or citizenship.
Life expectancy at birth		Life expectancy at birth indicates the number of years a newborn infant would live if prevailing patterns of mortality at the time of its birth were to stay the same throughout its life.
Mortality rate, infant		Infant mortality rate is the number of infants dying before reaching one year of age, per 1,000 live births in a given year.
Socioeconomic indicators		
GDP per capita	World Bank	GDP per capita is gross domestic product divided by midyear population. GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products.
Inflation, GDP deflator		Inflation as measured by the annual growth rate of the GDP implicit deflator shows the rate of price change in the economy as a whole. The GDP implicit deflator is the ratio of GDP in current local currency to GDP in constant local currency.
Deposit interest rate		The deposit interest rate is the rate paid by commercial or similar banks for demand, time, or savings deposits. The terms and conditions attached to these rates differ by country, however, limiting their comparability.
Personal remittances (% of GDP)		Personal remittances comprise personal transfers and compensation of employees. Personal transfers consist of all current transfers in cash or in kind made or received by resident households to or from nonresident households. Personal transfers thus include all current transfers between resident and nonresident individuals.
Exchange rate (LCU per US\$)		Official exchange rate refers to the exchange rate determined by national authorities or to the rate determined in the legally sanctioned exchange market. It is calculated as an annual average based on monthly averages (local currency units relative to the U.S. dollar).
Physicians (per 1,000 people)	Physicians include generalists and specialist medical practitioners.	

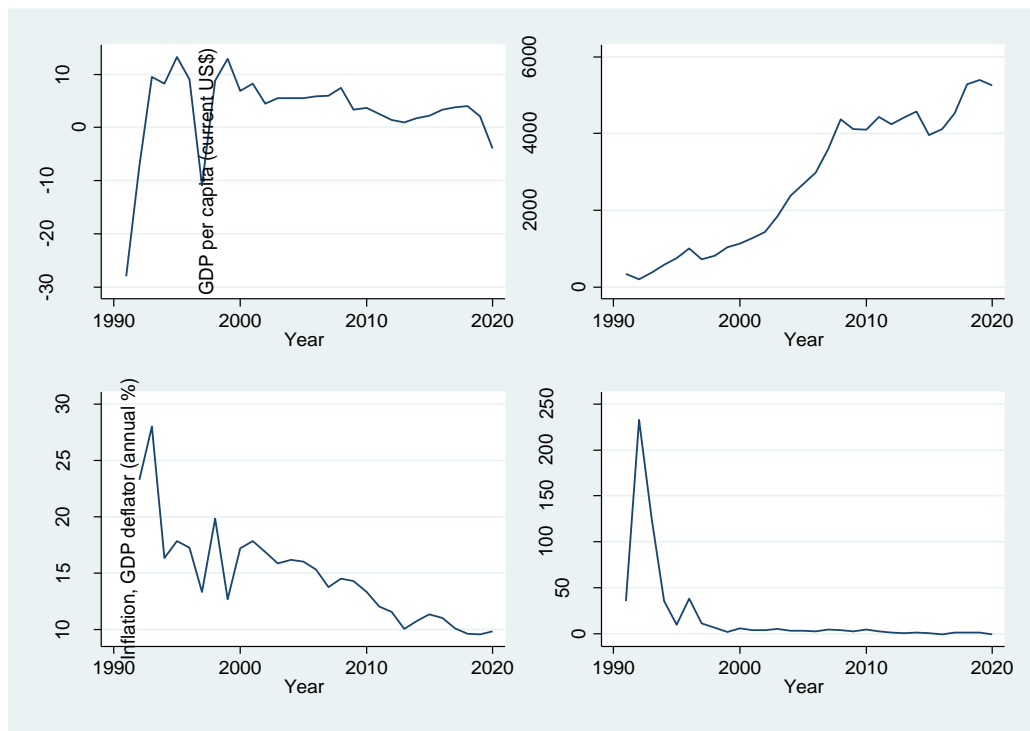
Source: <http://data.worldbank.org/indicator>.

The main economic indicators and their trend are shown in Figure 1. GDP growth and GDP per capita are estimators of the economic performance of the country. Understanding the variables that clarify the relationship between real GDP growth and the dynamics of health spending in developing countries today is the focus of a broad spectrum of healthcare economic studies (Jakovljevic et al., 2020). In their study, Jakovljevic et al. (2020) find that only when represented as a percentage, real GDP growth had a positive impact on out-of-pocket spending. Although it is widely assumed that health care spending is a function of real per capita GDP, there are some considerations that suggest there may be a bilateral relationship because population health is an input to the macroeconomic production function (Bedir, 2016). There are some explanations for why there might be a bilateral relationship between health care expenses and real per capita income. Firstly, by definition, health expenses are contingent upon the finances (wealth or income) that are

available. Secondly, a reverse causal relationship between income and health care spending also has a theoretical foundation because the former affects both labor supply and productivity and human capital.

In the analysis, the out-of-pocket expenditure is included. Health-related out-of-pocket expenses are those that households pay for themselves. From the figure, we can depict the increasing tendency of both indicators over time. Since the 1990s, there has been significant emigration from Albania, with almost one-third of the population now living abroad. As a result, the level of remittances has significantly exceeded the level of foreign direct investment (FDI) received in the country by three times (Duval & Wolff, 2010). However, remittances have a cyclical behavior and tend to decrease over time as shown in Figure 1. Additionally, empirical literature supports their capacity to function as a “stabilizer” during times of extreme real economic turbulence (Sayan, 2004).

Figure 1. Main economic indicators for the period 1991-2020

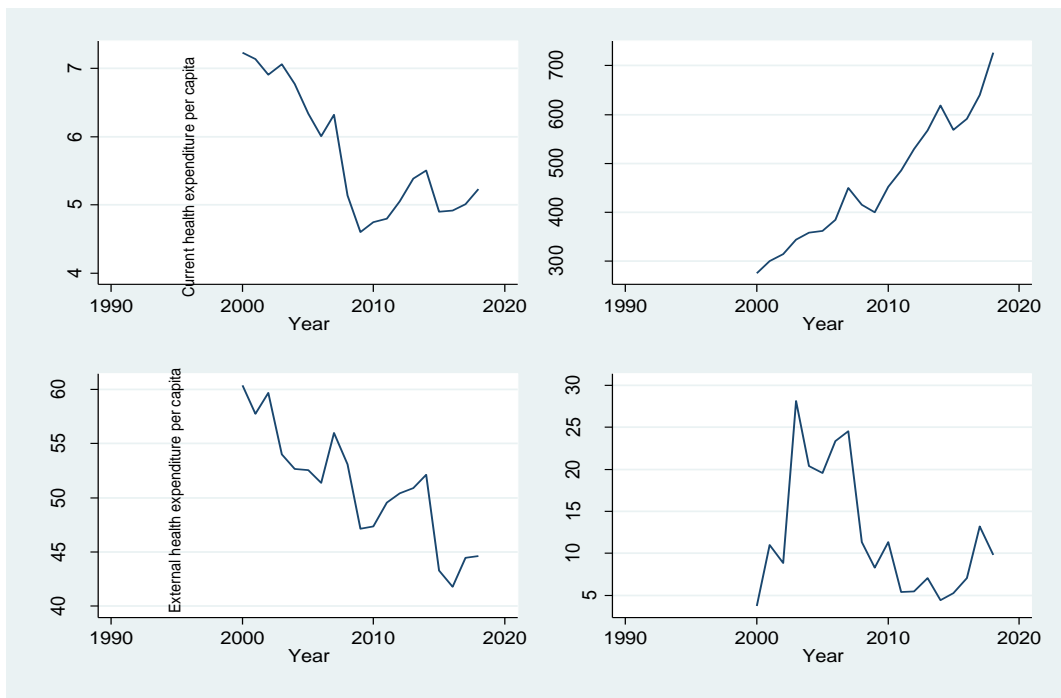


Source: Authors' calculation.

According to INSTAT (2022), the health service in Albania is organized into three levels: primary care, secondary hospital care, and tertiary care. The public sector provides the majority of health services, while the private sector covers services like pharmaceuticals, dentistry, specialist clinics, and hospitals. Health expenditure per capita has been increasing in nominal terms as shown in Figure 2. However, when compared to the neighboring nations, health care spending as a percentage of GDP is still

quite low in Albania. The relationship between health spending and population health reinforces the idea that policy interventions should be focused on reducing health disparities between population groups. It is important to investigate further the reasons behind the behavior of expenditures on health care in development contexts like Albania because theoretical and empirical evaluations on the factors that affect health care spending are controversial.

Figure 2. Main health care indicators for the period 1991–2020

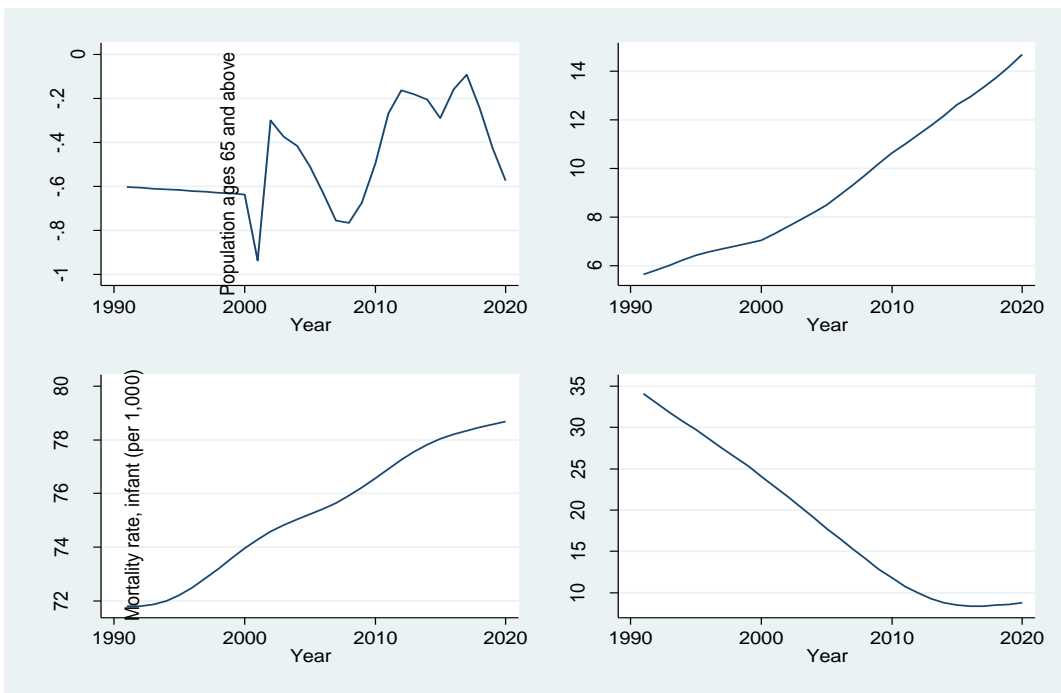


Source: Authors' calculation.

In Figure 3, we represented the main demographic indicators for the period from 1991 to 2020. Albania saw significant economic and social transformations following the demise of the communist dictatorship in 1990. Massive migration, births, and deaths were all impacted by the shift from a centrally planned economy to an open market one in Albania. It can be observed that since 1991, annual population growth has been negative. The median age of the Albanian population was influenced by these changes, rising by gender

to 36.8 for men and 38.6 for women in 2021. The aging of the population is now a globally known worldwide phenomenon. The driving factors of this demographic transformation are increased life expectancy, greater early childhood survival rates, and the inclusion of women in the workforce. A falling young labor force and an increase in the elderly and retired are two significant adverse consequences. The demand for medical services and the expense of offering healthcare increase as the proportion of elderly people rises.

Figure 3. Main demographic indicators for the period 1991–2020



Source: Authors' calculation.

According to INSTAT (2022), in 2021, the population of Albania was 2.83 million with a decrease of around 2.7 percent compared to the year 2011. Life expectancy at birth has been increasing during 2019, with 75.2 years for males and 79.6 years for females (INSTAT, 2022), but life expectancy at birth dropped in 2020, because of the increase in the number of deaths due to the COVID-19 pandemic. There is a bidirectional connection between the magnitude of health care spending and life expectancy at birth (Jaba et al., 2014; Chiu et al., 2021). Jaba et al. (2014) estimate life expectancy as a function of health care spending, using a panel data analysis. They used data from 1995 to 2010 for 175 nations, divided into groups based on location and income level.

The results collected suggested a substantial correlation between expenses for healthcare and life expectancy.

4. EMPIRICAL RESULTS

To provide a response to the RQ about the variables influencing health care spending, regression results are obtained and shown in Table 3. The selection of these dependent variables was motivated by a requirement to obtain a more comprehensive view of health care spending from both public and private perspectives. In our study, we estimate multivariate regression to identify the macroeconomic relationship between socioeconomic characteristics and health care spending.

Table 3. Regression estimation on health care expenditure

Dependent variables	(1) Health expenditure (% of GDP)	(2) Out-of-pocket expenditure	(3) Domestic private expenditure	(4) External health expenditure
GDP per capita	0.001 (0)	0.01*** (0.002)	-0.007** (0.003)	-0.008 (0.007)
Inflation	0.096 (0.084)	0.28 (0.617)	-0.919 (0.703)	2.527 (1.869)
Deposit interest rate	-0.171* (0.086)	-0.016 (0.639)	0.278 (0.728)	-1.318 (1.935)
Remittances (log)	-0.943 (0.802)	22.078*** (5.928)	9.714 (6.749)	45.288** (17.948)
Population growth	-0.574 (0.55)	-2.401 (4.061)	3.073 (4.624)	-1.748 (12.296)
Population over 65 years old	1.797** (0.694)	12.384** (5.126)	16.68** (5.836)	-11.214 (15.52)
Life expectancy	3.144* (1.501)	13.238 (11.089)	23.977* (12.625)	31.292 (33.574)
Mortality rate	0.419** (0.164)	0.65 (1.212)	-2.051 (1.38)	4.619 (3.67)
Physicians	32.509** (13.638)	3.144* (1.501)	0.12 (0.297)	0.419** (0.164)
_cons	-203.782 (116.151)	-414.769 (858.318)	1559.475 (977.234)	-3250.052 (2598.825)
Observations	19	19	19	19
R-squared	0.952	0.921	0.93	0.63

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

In the first column, we find the coefficients for the socioeconomic variables affecting the level of current health expenditure expressed as a percentage of GDP. This variable covers health goods and services but excludes capital health expenditures such as those on buildings, machinery, IT, and other items, as we have already indicated in the text. The only statistically significant coefficients are those deposit interest rate, the population aged 65 years old and over, life expectancy, mortality rate, and the number of physicians for 1,000 people. The positive relationship with the former coefficients is straightforward and in line with the literature. From an economic point of view, the negative sign for the deposit interest rate finds the rationale for the increased cost of capital for the government inducing the health care expenditure cut in the public sector.

The determinants are different when we investigate the share of out-of-pocket payments of total current health expenditures. Out-of-pocket payments are spendings on health paid directly by the households. Coefficients show that there is a positive significant relationship between GDP per capita and remittances received from abroad. The magnitude of remittances on household health

expenditure is evident and greater if compared to the income per capita. During 2021, remittances were worth 184 million euros, an increase by 8.9 percent compared to the first quarter of last year (Bank of Albania [BoA], 2022). This value also represents the highest level recorded for this period of the year, since 2008.

According to the Bank of Albania, about a quarter of Albanian households receive remittances, while about 6 percent of households declare remittances as the only source of income. Meanwhile, households receiving remittances spend about 69 percent of their monthly income on food and similar goods. In this context, we can presume that for many Albanian families, remittances are the resource of income that guarantees survival. This positive correlation between remittances and health expenditure is validated in other countries as well (Amuedo-Dorantes & Pozo, 2011). Remittances are less volatile than other foreign currency flows, and they appear not to be systematically impacted by changes in the business cycle. Furthermore, during times of severe macroeconomic fluctuation, such as those driven by unexpected pauses and financial crises, remittances generally remain constant (Kalaj, 2009; Narayan et al., 2011).

We discovered a comparable direction of association for the estimates of domestic private health spending and external health expenditure per capita, with remittances received, life expectancy at birth, and the population over 65 years old remaining statistically significant. Also, we can see that physicians have an important and statistically significant impact on the chosen dependent variables (Table 3). Papanicolas et al. (2018) realized that despite spending roughly twice as much on health care as ten high-income nations, the United States did worse on key population health outcomes. The differences in spending appear to be primarily caused by the expenditures of personnel and supplies, including equipment and pharmaceuticals. Aging populations and rising health care costs are related, and this is a growing problem in the Balkan countries (Stepovic et al., 2023). In their study, Stepovic et al. (2023) observed that there are more medical professionals, including nurses, doctors, pharmacists, and dentists, which suggests that governments are spending more on public health. Additionally, in their analysis, they anticipated that this growing tendency will last through 2025.

5. CONCLUSION

In our analysis of determinants of health care expenditure measured as a percentage of GDP and out-of-pocket expenses, we use time series data for the period from 2000 to 2020 for Albania. Following previous literature on the topic, the explanatory variables are divided into two groups: demographic and socioeconomic factors. Regression results for health expenditure measured as a percentage of GDP show that income level measured in terms of GDP per capita is statistically significant but the magnitude is quite low. The proportion spent on healthcare as a percentage of GDP rises together with GDP overall. Theoretically, a healthy individual can devote greater amounts of time to productive activities in addition to working more effectively and efficiently. Since healthcare spending is an important component of human capital investment, the trend toward increased healthcare spending would likely have a beneficial effect on general welfare, quality of life, and labor productivity.

Life expectancy to birth, population over the age of 65 years old, and the number of physicians have positive and statistically significant effects on the health care expenditure by the public sector. Interesting is the negative and significant effect of the deposit interest rate. The rationale for this relationship can be found in the public finance

reasoning since Albanian public debt has reached levels of 80.1 percent of GDP in 2021 establishing a record in three decades.

On the other side, remittances positively affect household out-of-pocket expenditure and external health expenditure. We first look at how these monetary inflows affect both the chance of having health care expenses and the amount spent in Albanian lek on health care to acquire some insight into how remittances affect health care spending. Remittance flows are significant in driving health care expenditures when compared to income, such as GDP per capita. This income from abroad may contribute to stabilization in the use of health care services by poorer households or those households lacking health care coverage. Remittances are an economically significant factor that affects how much is spent on healthcare. When compared to other sources of household income, remittances are also important in determining health care spending.

According to the theory, the increased share of the population aged 65 years old and above is reflected in higher health expenditure. This is confirmed in our model as well. The negative sign of coefficients appears controversial when we include population growth. However, this result is explained by the negative population rate growth since 1991. The increased number of doctors per thousand people positively affects health care expenditure either at the governmental level or private level.

The empirical results of our study shed light on policy implications first related to the public debt decrease since, as we have noticed, the cost of capital expenditure is concurrent with health care expenditure. Second, better use and management of remittances from abroad is needed to reinforce their role in the increased well-being of households. These findings have important implications for the post-pandemic politics of health care reform. Studies in the past have shown that there is strong support for raising health care spending. Still, further investigation is needed to evaluate factors affecting health care expenditure by using alternative methods such as the ARDL model or including variables that capture medical technological changes or health care informal payments.

There are two major limitations in this study that could be addressed in future research. First, while the study concentrated on the outcomes of multiple regression, another methodology may have been applied. Second, individual choice behavior may affect how much is spent on healthcare, which means that household-level microeconomic statistics may have an impact.

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