

FUNDAÇÃO GETULIO VARGAS
ESCOLA DE ADMINISTRAÇÃO DE EMPRESAS DE SÃO PAULO

EDOARDO ZILIBOTTI

**COVID19 AND THE WORLD ECONOMY: POLICY RECOMMENDATIONS
FOR HEALTHCARE SYSTEMS IMPROVEMENTS AND BUILDING
SUSTAINABLE HEALTH SYSTEMS IN LATIN AMERICA**

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Trabalho de Conclusão apresentado à
Escola de Administração de Empresas de
São Paulo da Fundação Getulio Vargas,
como requisito para obtenção do título de
Mestre em Gestão e Políticas Públicas.

Orientador Prof. Dr., GESNER DE OLIVEIRA

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Banca Examinadora:

Prof. Dr. Gesner De Oliveira (Orientador)
– FGV-EAESP

Prof. Dr. Sérgio Goldbaum
FGV-EAESP

Prof. Dr. Geraldo Biasoto
Universidade de Campinas

Prof. Dr. Rafael Buralli
Ministério da Saúde

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RESUMO

Ensino Universal Culturalmente Responsivo A Saúde Pública é uma das maiores conquistas que um país pode alcançar. Este trabalho visa explorar a importância dos sistemas de saúde, em geral, particularmente em alguns países da América Latina, analisando o substancial impacto econômico e social que a pandemia teve nos países mais afetados. A organização e a governança dos sistemas de saúde são ativos fundamentais em emergências de saúde pública, mas muito pode ser feito para melhorar sua eficácia e eficiência. Este trabalho apresenta primeiro uma revisão da literatura sobre a forte ligação entre saúde e riqueza em todo o mundo, focando em particular a sua relação de ciclo de feedback positivo. A relevância dos investimentos em saúde pública é brevemente discutida. Em seguida, o trabalho foca na importância da Cobertura Universal de Saúde e propõe um conjunto de recomendações fundamentais necessárias para melhorar os sistemas de saúde em todo o mundo. Em particular, são tidos em conta muitos conceitos de economia da saúde, tais como a relevância da prevenção, a necessidade de políticas mais fundamentadas, a necessidade de cuidados primários e comunitários mais fortes, a importância da saúde digital como motor de investimento, implementação de um processo de decisão de cuidados rápidos, melhorando as infraestruturas de saúde e reforçando a responsabilidade individual pelo auto saúde. Finalmente, o trabalho foca nos países da América Latina e seu desafio de construir sistemas de saúde sustentáveis. Na conclusão, discute-se o papel do Brasil como líder regional e as recomendações finais.

Palavras-chave: Saúde Pública, Covid19, Sistema Único de Saúde, Políticas Públicas, Políticas de Saúde.

ABSTRACT

Universal Culturally Responsive Teaching Public Healthcare is one of the greatest conquests that a country may achieve. This work aims to explore the importance of healthcare systems, generally speaking, particularly in some Latin American countries, by analyzing the substantial economic and social impact the pandemic had on the most affected countries. Healthcare systems organization and governance are fundamental assets in public health emergencies, but much can be done to improve their effectiveness and efficiency. This work first presents a literature review regarding the strong link between health and wealth worldwide, focusing in particular on its positive feedback loop relationship. The relevance of public healthcare and health investments is briefly discussed. Then the work focuses on the importance of Universal Health Coverage and proposes a set of fundamental recommendations required in order to improve healthcare systems worldwide. In particular, many concepts of health economics are taken into account such as the relevance of prevention, the necessity of more evidence-based policy making, the need for stronger primary and community care, the importance of digital health as an investment driver, implementing a quick care decision making process, improving the health infrastructures and strengthening the individual responsibility for self-health. Finally, the work focuses on Latin American countries and their challenge to build sustainable healthcare systems. In the conclusion the role of Brasil as a regional leader and the final recommendations are discussed.

Keywords: Public Healthcare, Covid19, Sistema Único de Saude, Public Policy, Health Policy.

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Section 1: Introduction to Universal Healthcare

1.1 Introduction

Universal Culturally Responsive Teaching Public Healthcare can be one of the greatest conquests that a country may achieve. Galvani (2020) described universal healthcare as a situation whereby everyone has access to the health services they require anytime they require them without financial constraints¹. "Culturally responsive health care education is the process of learning to provide excellent health care to patients from diverse populations"². In Europe, and generally speaking in the whole Western world, Universal Healthcare was first introduced in 1946 in the United Kingdom: thanks to Aneurin Bevan's commitment, Attlee's government approved the establishing law of the National Health Service (NHS). "It has always been considered a gamble on the future; as Great Britain was suffering from adverse economic conditions, the welfare system proposed by the government was probably one of the most valiant efforts of economic planning, industrial recovery, and social reforms done in Europe." In particular, WWII had changed people's attitudes, as the necessity to treat many civilian casualties gave people access to the health care they had never experienced before. Moreover, after having controlled almost every aspect of people's lives during the conflict, the idea of the state taking care of citizen's health had primarily spread³. From an economic perspective, this reform involved social protection

¹ Galvani, Alison P., Alyssa S. Parpia, Abhishek Pandey, Charlotte Zimmer, James G. Kahn, and Meagan C. Fitzpatrick. "The imperative for universal healthcare to curtail the COVID-19 outbreak in the USA." *EClinicalMedicine* 23 (2020).

² <https://students.med.psu.edu/academics/culturally-responsive-health-care-education/>

³ <https://www.nationalarchives.gov.uk/cabinetpapers/alevelstudies/origins-nhs.htm>

policies that expanded the UK's public expenditure during an economic crisis. It is correct to speak of "the greatest revolution of civilization that the Western world remembers": "... despite the concerns about the economic and financial situation, to put the welfare of sick people before any other consideration." The precedent Prime Minister Winston Churchill was more concerned with the repayment of Britain's war debt. Still, due to the enormous majority the Labour Party held in the government, the political dispute over welfare programs was very limited. However, an expensive short-term choice, investing in health is a long-term remunerative choice. This was not just a socially good choice, but a piece of economic evidence too. The United Kingdom was the first, but not the last, as other countries in Europe, shared the experience, following similar causes; for example, in Italy, the Republican Constitution introduced in 1948 after WWII included the right to health, starting the process that thirty years later, in 1978, had led to the birth of Italian National Health Service, based on the principles of Universality, Equality, and Equity. In Brazil, for which Italy has always been a landmark for the political agenda, there has been a process of recognizing the right to health in a similar way. According to journalist Marcella Fernandes and Doctress Ana Maria Costa, the women's movement in 1987 was fundamental in raising requests for access to Public Health, thus contributing to the birth of the "Sistema Unico de Saúde" (the Brazilian health system) in 1988. This phenomenon is significant as it shows that in the Latin American country there has been some level of civil cultural influence over the concept of health, and in particular in the direction of a "culturally responsive teaching" health. Women's health is a key feature in a modern healthcare system: it has important consequences over many female centered diseases, like HPV and many other STD, and over children and infants' health.

1.2 Aims of the Study

This work aims to explore the importance of healthcare systems, generally speaking and particularly in some European and Latin American countries, by analyzing the substantial economic and social impact the pandemic had on the most affected countries. For each analysis one, or more clusters of countries among the following are considered:

1. Most affected countries worldwide in terms of total cases of Covid19: United States, India, Brazil, Russian Federation.
2. Top 5 most affected countries in terms of total cases of Covid19 at the European Level: France, The U.K., Italy, Spain, Germany.
3. Top 5 most affected countries in terms of total cases of Covid19 at the Latin American level: Brazil, Colombia, Argentina, Mexico, Peru.
4. Northern European Countries: Iceland, Norway, Sweden, Finland, Denmark.

The choice is based on the need to consider those health systems that had shown some critical points in managing the pandemic, in order to evaluate whether the challenges were previous to Covid19 or subsequent. The cluster number 4 (Northern European Countries) is used as a benchmark group, given the relevance and quality of the Northern European universal health systems.

"Governments have been operating in a context of high uncertainty and have been struggling with difficult trade-offs given the health, economic and social challenges Covid-19 raised. Beyond the health and human tragedy of the Coronavirus, it is now widely recognized that the pandemic triggered the most serious economic crisis in a century. Healthcare systems organization and governance are fundamental assets in public health emergencies, but much

can be done to improve their effectiveness and efficiency. We believe that Covid19 did not create new problems but violently brought to the surface many of the challenges healthcare systems have been facing for a long time." The last quote comes from an article written by Professor Rosanna Tarricone, from Bocconi University, and it immediately rises the debate over the precedent question.

1.3 Research Question

1. What is the relationship between Health and Wealth?
2. What is the relevance of Public Healthcare and Health Investments?
3. What is the importance of universal Healthcare and what recommendations for health systems improvements should be pursued?

1.4 Structure of this Research

Section 2 points out data about Covid19 diffusion in 2020 and the economic direct and indirect results of the pandemic. By "direct" we refer to the results which were straight coming from the pandemic, like total cases, casualties and economic loss. By "indirect" we refer to the effect that the spread of the pandemic and the resulting measures had worldwide. There have been countries which were only hit indirectly by Covid19: consider for example the case of Vietnam, where regardless the really low level of total cases (1.440 in 2020) the sustained economic growth of 2019 (7.00 %) has faced a significant slowdown in 2020 (2.9 %). Section 3 contains a literature review on the connection between Health indicators and Economic Performance at the country level. Again, graphs and data will support hypotheses and evidence. Moreover, Section 3.1 focuses on the historical economic and health data worldwide; Section 3.2 points out some arguments

in public healthcare. Section 4 lists and explains some general policy recommendations based on Professor Rosanna Tarricone's prestigious work. In contrast, Section 5 extends the previous analysis considering some typical Latin American health systems characteristics and their main challenges. Finally, Section 6 contains the key points of a stimulating discussion with Professor Biasoto, former secretary of investments in the Brazilian Health Ministry.

Section 2: Covid-19 and the World Economy

Covid19 (Coronavirus Disease, 2019) is a severe⁴ respiratory disease from SARS-CoV-2; the first official⁵ cases were noticed in December 2019 in Wuhan, China, and spread fast, causing a global pandemic. The epidemic had harsh consequences on the world's health and economy. All countries in the world were somehow hit either directly or indirectly by the effects of the disease and faced significant loss in terms of lives, GDP⁶, and Jobs. At the end of the 4th quarter of 2020 (27th December), more than **79 million cases** were registered worldwide, of which more than **75%** of the cases happened in the Western World⁷: **25.271 million** in Europe and almost half of the total patients (**34.403 million**) in the Americas⁸.

At the national level, the top hit countries in terms of absolute cases were United States, India, Brazil and Russian Federation, while Spain, France, United Kingdom, Italy, and Germany were the five most affected European ones. The total registered deaths for Coronavirus worldwide were **1,754,574**, of which **840,247 (48%)** happened only in the Americas. Table 1 below provides a synthetic overview of the current situation (27th December 2020).

Countries worldwide had enforced tight restrictions on movement to decelerate the fast spread of the Covid19 pandemic, bringing the economic activity to a near-standstill. The resulting economic damage is already

⁴ With Covid19, some patients can develop severe symptoms, which can be mortal.

⁶ *Gross Domestic Product*: is the standard measure of the value added created through the production of goods and services in a country during a certain period. As such, it also measures the income earned from that production, or the total amount spent on final goods and services (less imports) – OECD Data

⁷ By Western World we refer to Europe + Americas.

⁸ Coronavirus Disease (COVID-19) Situation Report n. 205, 12 of August 2020 – World Health Organization

conspicuous and consists of the most significant economic shock the world has experienced in decades⁹, since WWII.

Table 1 – Covid19 cases in the top hit countries Worldwide, Europe and Latin America in 2020

Country	Confirmed	Deaths	Case/Fatality	Deaths/1M Pop.
<i>Worldwide</i>				
US	18.6M	328,014	1.76%	991
India	10.1M	147,622	1.45%	107
Russia	3.0M	54,778	1.80%	375
<i>Latin America</i>				
Brazil	7.4M	190,488	2.56%	896
Colombia	1.5M	41,690	2.65%	819
Argentina	1.5M	42,422	2.69%	939
Mexico	1.3M	121,837	8.88%	945
Peru	1.0M	37,368	3.72%	1,133
<i>European Union</i>				
France	2.5M	62,197	2.48%	953
The U.K.	2.2M	70,405	3.12%	1,037
Italy	2.0M	71,620	3.51%	1,185
Spain	1.8M	49,824	2.69%	1,066
Germany	1.6M	29,778	1.81%	355

⁹ <https://www.worldbank.org/en/news/press-release/2020/06/08/covid-19-to-plunge-global-economy-into-worst-recession-since-world-war-ii>

Data: Coronavirus Disease (Covid19) Weekly Epidemiological Update, 27th December 2020 – WHO

*"The baseline forecast envisions a **5.2 percent** contraction in global GDP in 2020—the deepest global recession in decades. Per capita incomes in most emerging and developing economies will shrink this year¹⁰."* The statistical office of the European Union¹¹ estimated the economic loss in the first quarter of 2020 in **– 3.6 % (– 3.1 %)** in the Euro Area¹² and **– 3.2 % (– 2.5 %)** in the EU¹³ concerning the previous quarter (concerning the same quarter of the last year). However, the preliminary flash estimate for the second quarter of 2020 is expected to be even worse: **– 12.1 % (– 15 %)** in the Euro Area¹⁴ and **– 11.9 % (– 14.4 %)** in the EU¹⁵ concerning the previous quarter (concerning the same quarter of the last year). The 27 members of the European Union (EU27) lost **3.3 %** in the first quarter concerning the previous quarter and **11.4 %** in the second quarter of 2020 concerning the first quarter; the Euro Area lost **3.7 %** and **11.7 %**. Finally, according to the Autumn economic forecast, the European Union economy is expected to contract by **7.4%** in 2020. The Euro Area will face a total loss of **7.8%** every year. See *Table 2* for a synthetic overview of the economic estimates of each country.

¹⁰ *Global Economic Prospects* – The World Bank, June 2020

¹¹ *Eurostat* – 121/2020 – 31 July 2020

¹² *Euro area (EA19)*: Belgium, Germany, Estonia, Ireland, Greece, Spain, France, Italy, Cyprus, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Austria, Portugal, Slovenia, Slovakia and Finland.

¹³ *European Union (EU27)*: Belgium, Bulgaria, Czechia, Denmark, Germany, Estonia, Ireland, Greece, Spain, France, Croatia, Italy, Cyprus, Latvia, Lithuania, Luxembourg, Hungary, Malta, the Netherlands, Austria, Poland, Portugal, Romania, Slovenia, Slovakia, Finland and Sweden.

¹⁴ *Euro area (EA19)*: Belgium, Germany, Estonia, Ireland, Greece, Spain, France, Italy, Cyprus, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Austria, Portugal, Slovenia, Slovakia and Finland.

¹⁵ *European Union (EU27)*: Belgium, Bulgaria, Czechia, Denmark, Germany, Estonia, Ireland, Greece, Spain, France, Croatia, Italy, Cyprus, Latvia, Lithuania, Luxembourg, Hungary, Malta, the Netherlands, Austria, Poland, Portugal, Romania, Slovenia, Slovakia, Finland and Sweden.

Table 2 – Quarterly GDP Indicators after Covid19 (% variation with respect to previous quarter)

Country	Q4/2020	Q3/2020	Q2/2020	Q1/2020	Q4/2019
US	1.0 %	7.5 %	- 9.5 %	- 1.3 %	0.6 %
India	7.9 %	21.9 %	- 25.2 %	- 0.7 %	0.9 %
Russia	1.5 %	1.5 %	- 3.2 %	- 0.9 %	- 0.7 %
Brazil	3.2 %	7.7 %	- 9.7 %	- 2.4 %	0.5 %
Colombia	6.0 %	8.7 %	- 14.9 %	- 2.1 %	0.7 %
Peru*		29.9 %	- 26.8 %	- 6.2 %	0.7 %
Argentina		12.8 %	- 16.2 %	- 4.2 %	- 0.9 %
Mexico	3.3 %	12.1 %	- 17.1 %	- 1.2 %	- 0.6 %
Spain	0.4 %	16.4 %	- 17.8 %	- 5.3 %	0.4 %
France	- 1.4 %	18.5 %	- 13.8 %	- 5.9 %	- 0.2 %
The UK.	1.0 %	16.0 %	- 20.4 %	- 1.3 %	0.0 %
Italy	- 1.9 %	16.0 %	- 13.0 %	- 5.5 %	- 0.2 %
Germany	0.3 %	8.5 %	- 9.7 %	- 2.0 %	0.0 %

Source: OECD (2021), Quarterly GDP (indicator). doi: 10.1787/b86d1fc8-en (Accessed on 09 March 2021)

**Data on Peru from Instituto Nacional de Estadística e Informática through
tradingeconomics.com*

Section 3: Health and Wealth

Health is the greatest Wealth is an ancient Roman adage, which now is truthful like never before. The resulting economic damage of COVID19 is already conspicuous and, as we previously said, it consists in the largest economic shock the world has experienced in decades. However, the scientific literature has already gone further in discussing the importance of health and its impact over economic growth and Wealth. The “prize Pulitzer” Jared Diamond provides a significant analysis of this relationship in his famous essay "Guns, Germs and Steel" (1997). As the progress and development of every civilization in the world depends on its probability to succeed and survive, he argues how the most influencing factors for the human development have been, and still are, geography and climate, which, among other characteristics, affect directly the protection from disease and food production.

A strong correlation between Wealth and distance from the equator persists even in the modern world and Diamond explains the relevance of infectious disease and lower soil productivity as the main factors shaping this correlation. One of the most important factors, according to Professor Diamond, is the alternation of seasons, as frost significantly limits development and proliferation of bacteria and viruses, which in turn negatively affects the spread of infectious diseases. At the same time, soil productivity is considered to be higher in temperate countries, like European ones, by the author. However, there are other studies (Tasso Adamopoulos & Diego Restuccia, 2018) that claims that if countries produced current crops in each cell according to potential yields, the rich-poor agricultural yield gap would

virtually disappear, from more than 200 percent to less than 5 percent¹⁶. However, in terms of health, geography maintains its important role: other studies (Wilson, 2012) have deepened explored its relationship with infectious diseases¹⁷.

Not by chance, Singapore is an exception. Given the importance of health, and well conscious of its unlucky position, Singapore's Government has always stimulated the growth and progression of its Health System, either through public direct investment and by adopting principles and regulation favorable to market competition and innovation¹⁸. Besides, the presence of deadly communicable diseases¹⁹ is a serious threat to the development of many industries such as tourism sector which, for many countries, represents a significant share of GDP. The world faced this challenge for the first time in the era of globalization, as **100%**²⁰ of the travel destinations suffered from travel restrictions anti-Covid19. The World Tourism Organization estimated the economic loss in **80 US\$ billion** with **67 million** fewer international tourist arrivals just in the first quarter of 2020.

On the occasion of the 2004 OECD meeting of Health Ministers, an important article on the OECD observer by Julio Frenk, Mexican Minister of Health, said: "*Healthcare performance is strongly dependent on the economy,*

¹⁶ https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3167046

¹⁷ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7152081/>

¹⁸ <https://www.moh.gov.sg>

¹⁹ A communicable disease is any disease that passes between people or animals. People sometimes refer to communicable diseases as "infectious" or "transmissible" diseases. Pathogens, including bacteria, viruses, fungi, and protists, cause communicable diseases - <https://www.medicalnewstoday.com/articles/communicable-diseases>

²⁰ IMPACT ASSESSMENT OF THE COVID-19 OUTBREAK ON INTERNATIONAL TOURISM, World Tourism Organization, May 2020

but also on the health systems themselves. This link should not be underestimated.²¹"

1) *Health performance and economic performance are interlinked since wealthier countries have healthier Population, so poverty is a proximate cause of lower life expectancy (through child mortality and malnourishment).* According to this statement, populations that live in poor socio-economic conditions, particularly those in extreme poverty, are characterized by higher levels of child mortality²². This relationship may result from many factors, such as lousy sanitation, poor hygienic conditions, and lower access to food and water.

2) Lower life expectancy is a proximate cause of inadequate adult training and exiguous investment in human capital, thus gravely harming productivity. Conversely, longer life expectancy encourages educational investment (Jayachandran & Lleras-Muney, 2009)²³, (Fioroni, 2007)²⁴, which in turn improves life expectancy (Tamura, 2004)²⁵ and (Bleakley, 2010)²⁶.

Development, in particular sustained growth, is affected by health: economic evidence back in 2004 confirmed that a 10% improvement in life expectancy at birth causes a **0.3/0.4** percentage points rise in economic growth.²⁷

²¹ *Health and the economy: A vital relationship*, Julio Frenk, Mexican Minister of Health and Chair of the 2004 meeting of OECD Health Ministers ©OECD Observer No 243, May 2004

²² <https://ourworldindata.org/grapher/extreme-poverty-vs-child-mortality>

²³ <https://faculty.wcas.northwestern.edu/~sjv340/mmr.pdf>

²⁴ <https://etd.adm.unipi.it/theses/available/etd-07212007-175655/unrestricted/Tesi.pdf>

²⁵ <https://core.ac.uk/download/pdf/6924541.pdf>

²⁶ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3800109/>

²⁷ *Health and the economy: A vital relationship*, Julio Frenk, Mexican Minister of Health and Chair of the 2004 meeting of OECD Health Ministers ©OECD Observer No 243, May 2004

In June 2020, a study²⁸ published in The Journal of Economic Asymmetries confirmed that Health Improvements could increase total GDP. This effect occurs through the increase in Population, but mainly through the significant gains in Human and Physical capital, which improve productivity and GDP/capita. The result of the study proved not only that *the health standard of a country proxied by the life expectancy at birth has a positive and statistically significant effect on total and per capita income in the long run but also that this effect is similar in size for both men and women*²⁹ have taken individually. Moreover, the authors found bidirectional causality between income and life expectancy. This last evidence implies that improvements in health deliver improvements in the economic condition, which in turn may cause another improvement in investment in health, through the increase of the public and private investments, on available resources, and so on. So, the relationship between Health and Wealth can be described as a *positive feedback loop*.

"Investment in Health is a fundamental priority for every society, and they shall all consider the new challenges coming from aging populations, increasing prevalence of chronic illnesses and the need for costly technologies – Julio Frenk."

3.1 Health and Wealth worldwide

Table 3 below compares data on healthcare systems and economic performance of the selected countries. *The Healthcare Access and Quality*

²⁸ The impact of health on GDP: A panel data investigation – Aliona Neofytidou, Stilianos Fountas, The Journal of Economic Asymmetries, 21 (2020)

²⁹ The impact of health on GDP: A panel data investigation – Aliona Neofytidou, Stilianos Fountas, The Journal of Economic Asymmetries, 21 (2020)

Index (HAQI) is measured on a scale from 0 (worst) to 100 (best) based on death rates from 32 causes of death that could be avoided by timely and effective medical care (also known as 'amenable mortality')³⁰. It is one of the best measures to evaluate a health system, as it considers a country's capacity to properly treat amenable diseases. A death can be considered amenable if it could have been avoided through optimal quality health care, incorporating various characteristics like timeliness and effectiveness. GDP per capita (PPP) and GNP per capita (PPP) are used as indicators of the economic performance as a more realistic measure of a country's Wealth than aggregate GDP and GNP, which rather measure the total dimension of its economy. Per capita gross domestic product (GDP) is a metric that breaks down a country's economic output per person and is calculated by dividing the total GDP of a country by its Population³¹, while per capita gross national product (GNP) is the total value of all the goods and services produced by a country in a year including income from foreign investments, divided by the number of people living there: For countries which have a lot of foreign investments, GNP per capita is a more accurate economic indicator³². Finally, the measures are considered in terms of purchasing power parity (PPP), a popular metric used by macroeconomic analysts that compare different countries' currencies through a "basket of goods" approach, which allows comparing economic productivity and living standards between different countries³³.

The correlation between the different measures is clear: countries with higher Healthcare performances are those with higher level of Wealth. The case of Nordic countries is emblematic: these countries have very healthy

³⁰ <https://ourworldindata.org/grapher/healthcare-access-and-quality-index?time=2015>

³¹ <https://www.investopedia.com/terms/p/per-capita-gdp.asp>

³² <https://dictionary.cambridge.org/it/dizionario/inglese/gnp-per-capita>

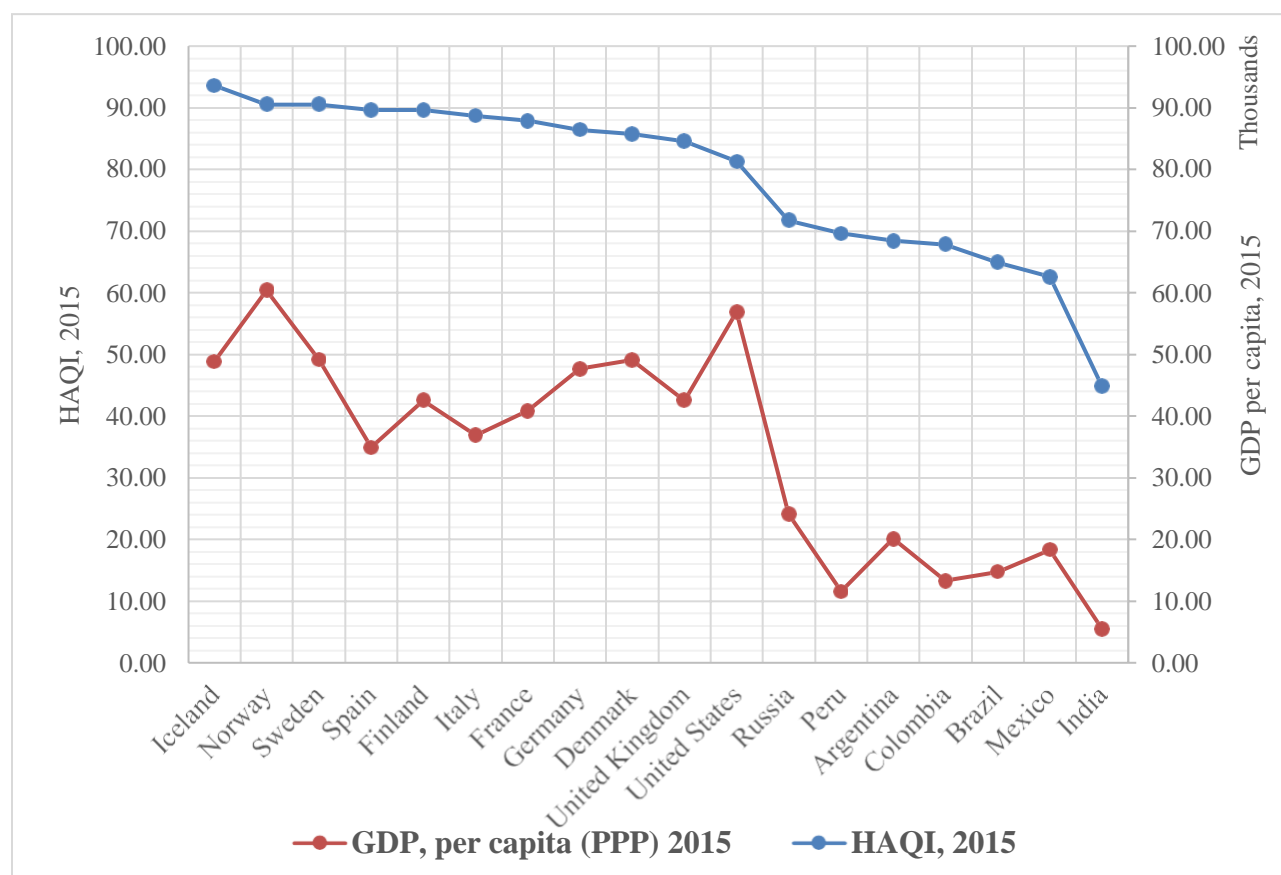
³³ <https://www.investopedia.com/updates/purchasing-power-parity-ppp/>

populations and are among the wealthiest countries in the world. Northern and Western Europe are, indeed, famous worldwide for their universal healthcare programs.

Table 3 – Healthcare Access and Quality Index vs. GDP per capita in 2015

Country	HAQI, 2015	GDP, per capita (PPP) 2015	GNI, per capita (PPP) 2015
Iceland	93.60	48,854.3	46,480.0
Norway	90.50	60,385.1	63,030.0
Sweden	90.50	49,116.3	49,370.0
Spain	89.60	34,912.5	34,900.0
Finland	89.60	42,509.1	42,930.0
Italy	88.70	36,909.3	36,650.0
France	87.90	40,860.9	41,740.0
Germany	86.40	47,683.8	48,770.0
Denmark	85.70	49,058.5	50,560.0
United Kingdom	84.60	42,518.1	41,550.0
United States	81.30	56,822.5	58,340.0
Russia	71.70	24,085.3	23,420.0
Peru	69.60	11,572.3	11,180.0
Argentina	68.40	20,105.2	19,700.0
Colombia	67.80	13,265.8	11,180.0
Brazil	64.90	14,744.1	14,470.0
Mexico	62.60	18,284.9	17,830.0
India	44.80	5,464.9	5,400.0

Source: Our World in Data: <https://ourworldindata.org>

Graph 1 – HAQI and GDP per capita in 2015

In 2015, Europe was at the top of the world for its Healthcare Access and Quality Index³⁴. In particular, Western Europe reached a score of **86.80**, which increases by **91.05** for Northern Europe. Compared to other countries worldwide, the difference is significant. Only High-Income Asia Pacific countries overcome Western Europe, with a score of 87.40. Latin American countries still struggle to reach a good placement in international rankings. Selected countries (Peru, Argentina, Colombia, Brazil, Mexico) are another

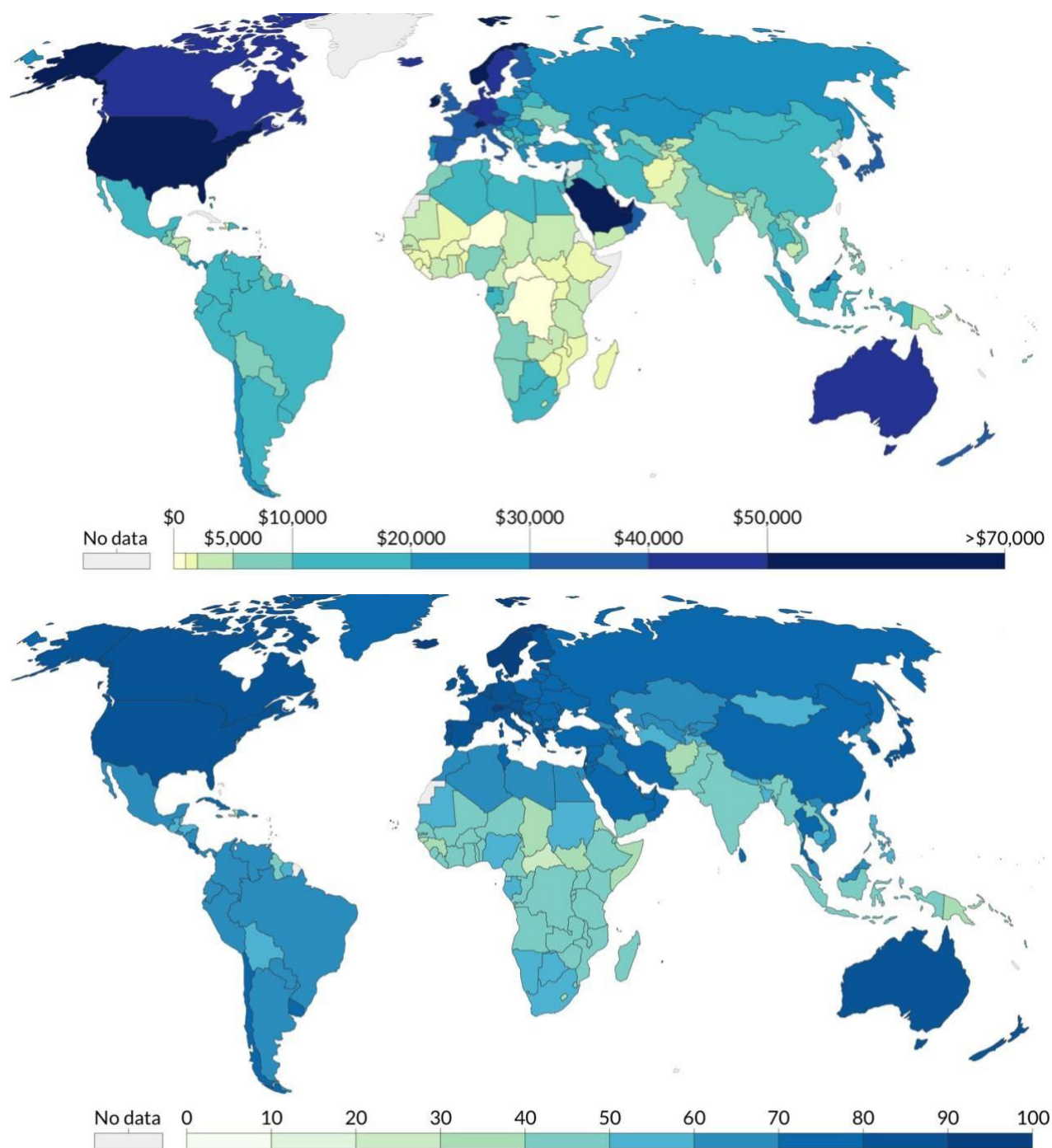
³⁴ The Healthcare Access and Quality (HAQ) Index is measured on a scale from 0 (worst) to 100 (best) based on death rates from 32 causes of death that could be avoided by timely and effective medical care (also known as 'amenable mortality').

clear example: middle scores for their healthcare systems are associated with bad economic performances.

The United States finally overtook the threshold of 80 points in 2010 and reached 81.30 in 2015, but it was classified at the bottom of Bloomberg Ranking for Healthcare Efficiency in 2019. On the contrary, Europe had two countries at the top10: Spain in 3rd place and Italy in 4th place. Furthermore, if we consider the Bloomberg Healthiest Country Index of 2019, we found 13 European countries in the top20, with Spain, Italy, and Iceland dominating the ranking. The Bloomberg index is calculated based on a nation's life expectancy considering relative and total health expenditures. Therefore, it is an excellent comparative measure as it balances the healthcare system's output (life expectancy) with its inputs (costs). The US, for example, is famous for having a highly inefficient health system³⁵.

Figure 1 – Visual comparison of GDP per capita (above) and HAQI (below) in 2015.

³⁵ <https://www.bloomberg.com/news/articles/2016-09-29/u-s-health-care-system-ranks-as-one-of-the-least-efficient>



Source: Our World in Data

3.2 The relevance of Public Healthcare and Health Investments

As seen in the previous paragraph, the highest HAQIs are found in Europe, which is famous for its universal healthcare programs. The measure was chosen as primary data because it describes the final output of health investments rather than its entity. The latter is, indeed, a particularly raw indicator, as different amounts of resources spent in health can imply different levels of health output. For example, take into consideration the following *Table 4*, which describes for the same previous countries the Healthcare Expenditure as a share of GDP in 2014 and the relative share of Public Expenditure on Healthcare.

The order of the countries is the same as the previous table to show the ranking in terms of the HAQI. It is immediately apparent that more does not necessarily mean better. Consider the United States: in the selected countries, it has the most lavish Healthcare Expenditure either at the aggregate and per capita level; however, less than a half of these resources are used in the Public Expenditure and it has the lower HAQI among the High-Income group considered here. Recall that the US showed a very low level of healthcare efficiency; then, the logic is robust. At the same time, countries like Iceland, Spain, and Italy are not among the most spending ones, but they channel a more appropriate number of resources in the public system. They face high levels of efficiency, expressed by the reduction of avoidable deaths. Based on the table, it is, then, evident that there is not something like a "proper" formula to reach the perfect Healthcare System.

For sure, a minimum level of expenditure is necessary; each country has different weather and environmental conditions, so it needs to set the

required resources to fight its health problems. The World Health Report 2010 presented estimates of required health financing: it concluded that low-income countries would need to invest on average US\$60 per capita by 2015 in order to produce a set of essential health interventions³⁶. Later, these estimates were updated to 2012 US dollar terms (from 2005) resulting in an average sum of \$86 per capita, which was clearer in explicitly stating the minimum level of government or public health expenditure³⁷. Again, the case of Singapore is a masterpiece in health economics because of its responsiveness to its subtropical location. Another singular case is Iceland: regardless of the relatively low level of total expenditure, it invests the majority of its resources within the public system, ranking 1st among the considered countries in terms of HAQI.

Furthermore, efficiency must be pursued, as through efficiency, it is possible to better use the number of available resources. Public healthcare is not the only financing option a country may choose in delivering health services. There are many examples worldwide of countries that did not invest extensively in public healthcare as Europe had done. For example, Singapore's healthcare system is based on a very efficient scheme of Medical Savings Accounts (MSA), individually owned compulsory accounts used to pay for many healthcare expenditures. However, it is not this manuscript purpose to explore healthcare financings. It is suggested to see Pipicella, 2018 for a complete and unique examination, but rather to verify, basing on historical data, the impact that Public Healthcare had.

³⁶ Defined as those services required to increase coverage on MDGs 1, 4, 5, 6, and 8e to 50%. Costs related to health systems activities or inputs shared across programmes were also estimated.

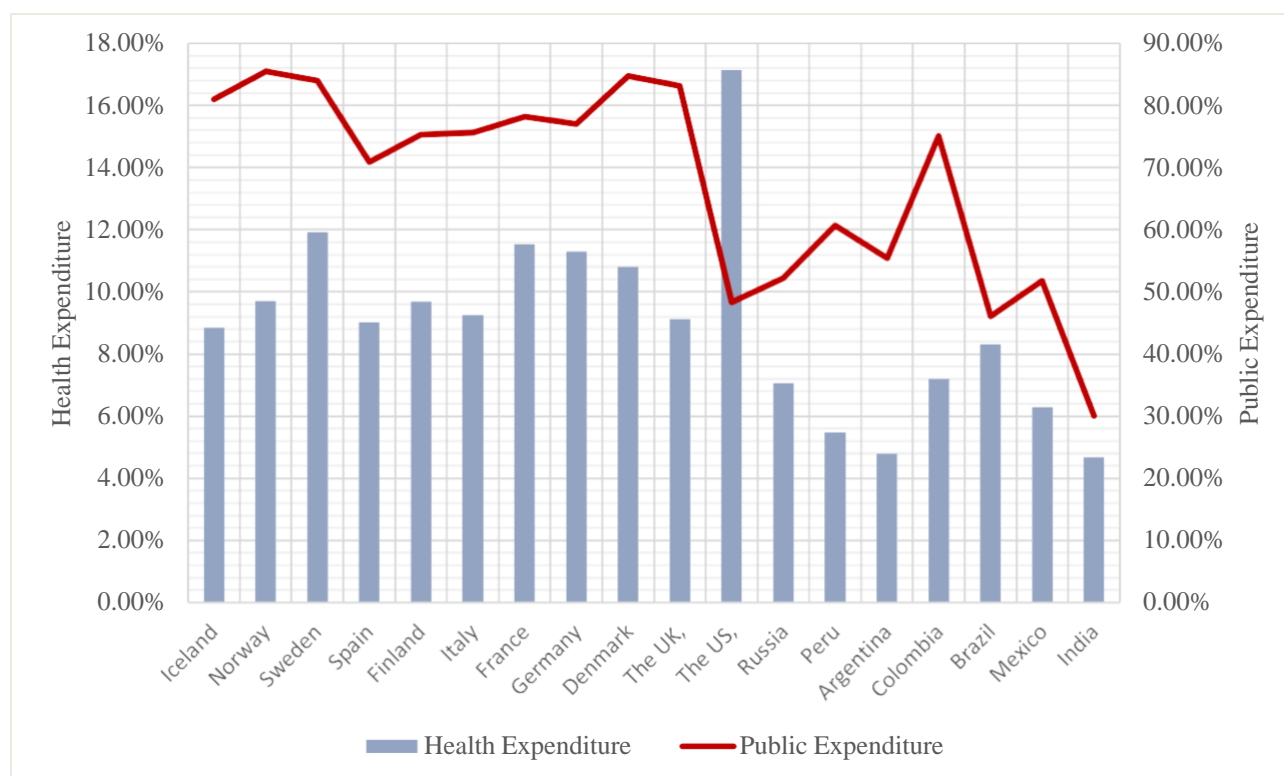
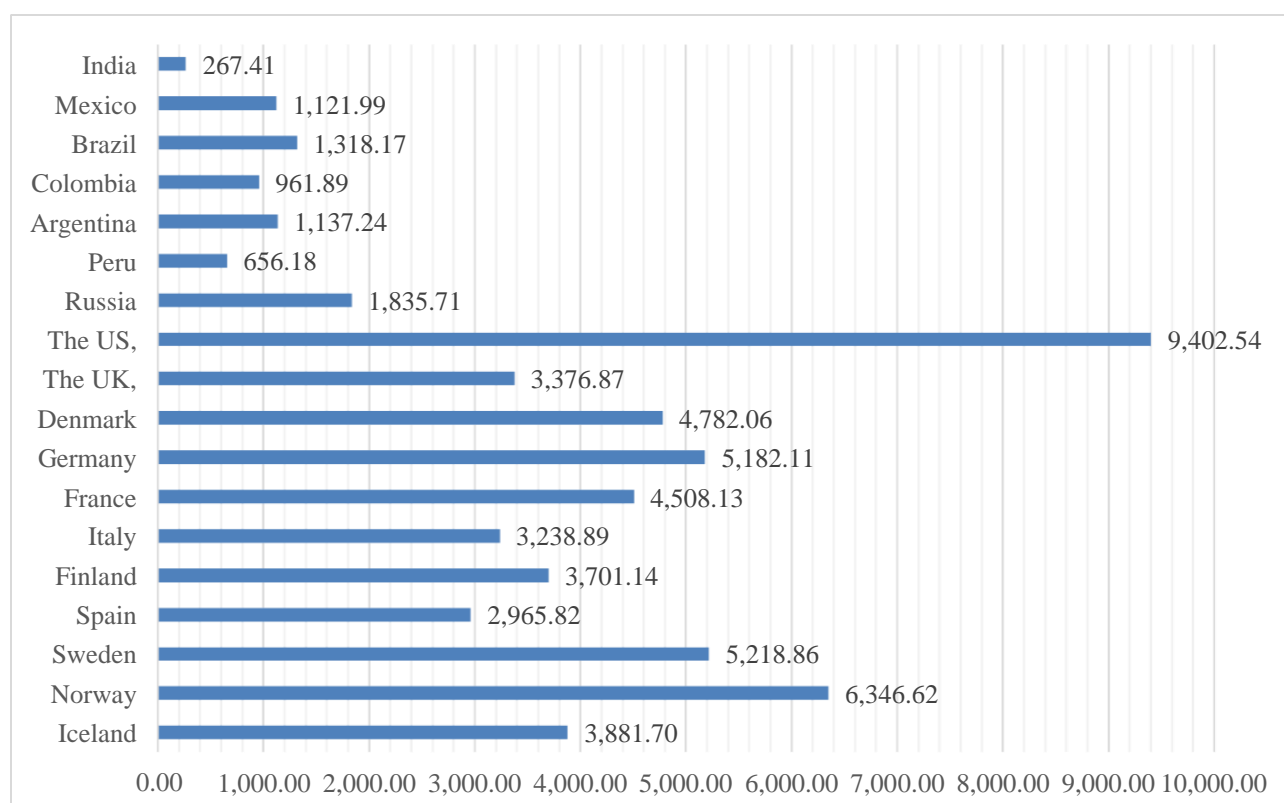
³⁷ <https://apps.who.int/iris/bitstream/handle/10665/250048/WHO-HIS-HGF-HFWorkingPaper-16.1-eng.pdf;jsessionid=6A0944219787E9D190B2FA6B7A2C2931?sequence=1>

Table 4 – Aggregate Health Expenditure as a share of GDP in 2014**Public Expenditure on Healthcare as a percent of total Healthcare expenditure in 2014,****Per capita Health Expenditure in 2014 (2011 international dollars).**

Country*	Health Expenditure	Public Expenditure	Health Expenditure <i>per capita</i>
Iceland	8.86%	81.04%	3,881.70
Norway	9.72%	85.49%	6,346.62
Sweden	11.93%	84.03%	5,218.86
Spain	9.03%	70.88%	2,965.82
Finland	9.68%	75.31%	3,701.14
Italy	9.25%	75.61%	3,238.89
France	11.54%	78.21%	4,508.13
Germany	11.30%	76.99%	5,182.11
Denmark	10.80%	84.76%	4,782.06
The UK.	9.12%	83.14%	3,376.87
The US.	17.14%	48.30%	9,402.54
Russia	7.07%	52.20%	1,835.71
Peru	5.47%	60.64%	656.18
Argentina	4.79%	55.43%	1,137.24
Colombia	7.20%	75.12%	961.89
Brazil	8.32%	46.04%	1,318.17
Mexico	6.30%	51.77%	1,121.99
India	4.69%	30.04%	267.41

Source: World Health Organization (WHO) through "Our World in Data: <https://ourworldindata.org>"

Note: Figures are given in international-\$. This means they are adjusted for price differences between countries and adjusted for inflation to allow comparisons between countries and over time. * "The order of the countries in this table considers the ranking of the countries in terms of the HAQI."

Graph 2 – Health Expenditure and Public Health Expenditure in 2015**Graph 3 – Health Expenditure per capita in 2015**

In 2012, while all governments in high and upper-middle income countries spent at least \$86 per capita on health, only 33 or 72% of lower-middle income countries, and just two low-income countries³⁸ (Kyrgyzstan⁵ and Rwanda)⁶, reached this level.

Consider the graphs below:

- *Graph 4* describes public expenditure on healthcare as a share of GDP for selected OECD countries from 1880 to 1994.
- *Graph 5* describes the trend in GDP per capita for the same OECD countries from 1880 to 1993.

These graphs better show the s.c. "Positive Feedback Loop" that was already described in Chapter 3. A positive feedback loop occurs in nature when the product of a reaction leads to an increase in that reaction. By comparing the graph, it is evident how the complex relationship between health and income for a country can be qualitatively described by this definition. As at a macro level, health outcomes are highly responsive to healthcare investments³⁹, enhancing the number of resources invested in health, particularly at the public level, delivers an improvement in health values. The increase in health values (i.e., life expectancy at birth) provides an income increase (as seen in the previous chapter – Julio Frenk) which raises the number of disposable resources that allow for further health investments.

³⁸ Official Classification from World Bank

³⁹ Esteban Ortiz-Ospina (2016) - "Global Health". Published online at OurWorldInData.org. Retrieved from: '<https://ourworldindata.org/health-meta>' [Online Resource]

Evidence shows that public revenue sources⁴⁰ play a critical role: in order to progress towards UHC⁴¹, a country's health system needs to rely primarily on it⁴². Fully and systematically executing public resources is a fundamental aspect for UHC. Budget allocations to health reflect political commitment, but effectively spending those funds the strength of the health system. In many countries, governments do not fully execute budget allocations for a variety of reasons, including deficiencies in public financial management⁴³.

Moreover, as anyone would expect, the evidence suggests significant health returns to healthcare expenditure at low levels of baseline expenditure: think about the causal relationship highlighted by the study previously quoted in Section 3. Since an increase of 10% in life expectancy brings up to a + 0.3/4 % in GDP, the lower life expectancy at birth, the higher is the marginal increase in GDP reachable through health improvements. Finally, consider that Neofytidou & Fountas, 2020 empirical proved the bidirectional causality just explained here: the causal relationship between economic growth and life expectancy is bidirectional, implying that economic growth is also a positive determinant of life expectancy. This effect has to be further researched both in terms of more resources available for health investments and better quality of life and more access to better food, among other factors that directly influence health, such as education; water, sanitation, and hygiene (WASH), labor legislation enforcement, among others.

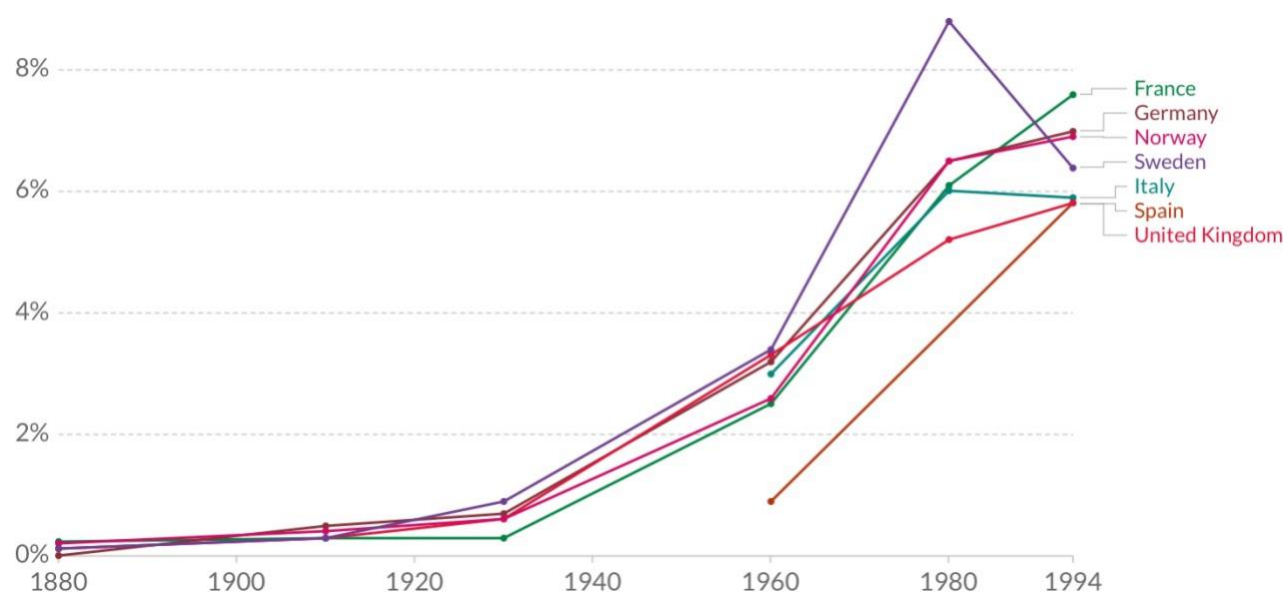
⁴⁰ Revenue sources which are prepaid, mandatory and pooled; this includes for example both government budgetary allocations as well as mandatory contributions to health insurance schemes, typically in the form of payroll taxes.

⁴¹ Universal Health Coverage

⁴² World Health Organization, Jowett, Matthew & Kutzin, Joseph. (2015). Raising revenues for health in support of UHC: strategic issues for policy makers. World Health Organization. <https://apps.who.int/iris/handle/10665/192280>

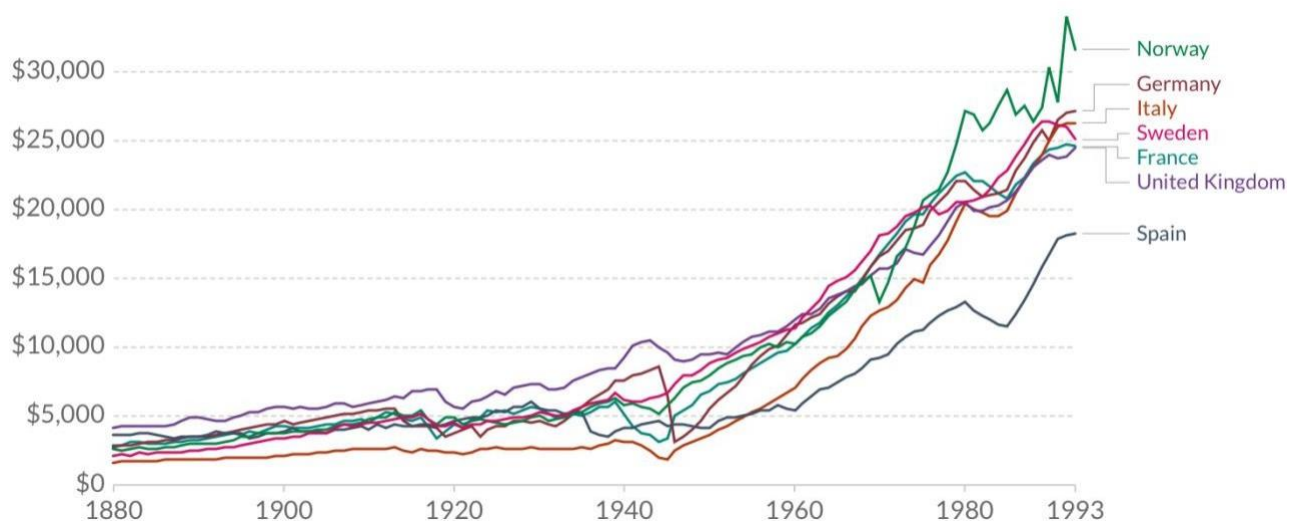
⁴³ <https://apps.who.int/iris/bitstream/handle/10665/250048/WHO-HIS-HGF-HFWorkingPaper-16.1-eng.pdf;jsessionid=6A0944219787E9D190B2FA6B7A2C2931?sequence=1>

Graph 4 – Public expenditure on healthcare as a share of GDP (1880-1994)



Source: Tanzi & Schuktnecht (2000)

Graph 5 – GDP per capita (1880-1993)



Source: Maddison Project Database (2018)

Note: These series are adjusted for price differences between countries using multiple benchmark years, and are therefore suitable for cross-country comparisons of income levels at different points in time.

Section 4: Policy Recommendations

The COVID-19 pandemic has highlighted the areas of improvement of the healthcare systems. However, the general weaknesses are structural: the pandemic just cruelly spotted all their lacks and inefficiencies. We also learned that it is not just the lack of health to affect the economy, but also the fear for the lack of hit, at least when it belongs to a collective process. Think about reducing investments associated with higher uncertainty.

Global foreign direct investment (FDI) flows, forecast to decrease by up to 40% in 2020, from their 2019 value of \$1.54 trillion, according to UNCTAD's World Investment Report 2020. This would bring FDI below \$1 trillion for the first time since 2005. In addition, FDI is projected to decrease by 5% to 10% in 2021 and initiate a recovery in 2022, the report says⁴⁴.

In the particular case of COVID-19, the Population's general health has been critical in affecting the mortality rate of the pandemic. Patients with comorbidities, such as cardiovascular diseases and obesity, faced a much higher mortality rate of Covid-19 than healthy ones⁴⁵. Italy, which registered the highest case/fatality ratio among the considered countries many times during the pandemic, has been on the front line in studying the new virus. A very important research conducted by Marco Metra, professor at the University of Brescia and director of the cardiology unit of the ASST-Spedali Civili⁴⁶ describes, for the first time the demographic data, the clinical characteristics, and the prognosis of Covid19 patients with heart disease and compare these data with those of patients without concomitant heart disease.

⁴⁴ <https://unctad.org/news/global-foreign-direct-investment-projected-plunge-40-2020> - World Investment Report 2020, UNCTAD

⁴⁵ Sanyaolu A, Okorie C, Marinkovic A, Patidar R, Younis K, Desai P, Hosein Z, Padda I, Mangat J, Altaf M. Comorbidity and its Impact on Patients with COVID-19. SN comprehensive clinical medicine Springer; 2020;1–8.

⁴⁶ *Local Health and Social Organizations – Public Hospitals*

*"Our analysis showed that Covid-19 patients with concomitant heart disease have an extremely severe prognosis, significantly worse than the already severe one of non-heart patients with Covid-19 pneumonia⁴⁷. Furthermore, the comparison between cardiopathic and non-cardiopathic patients showed the highest mortality of patients with heart disease, **36% against 15%** of non-cardiopathic patients with a rate of thromboembolic events and septic shock also higher: 23 against 6% and 11% against zero⁴⁸."*

These diseases usually require high health expenditure^{49,50}, as they cannot be cured but just treated for the rest of a person's life. However, most of the time, this kind of disease could be prevented easily and way more cheaply. *The major causes of chronic diseases are known. If these risk factors were eliminated, at least 80% of all heart disease, stroke, and type 2 diabetes would be prevented, and over 40% of cancer would be prevented.*⁵¹

4.1 Prevention

Covid19 pandemic is a grave threat to the health of the public. Therefore, prevention measures have been adopted to prevent it from spreading. Liang (2020) stated that avoiding the spreading of the Covid19 virus is less cheap and less life-threatening than curing it. Hence the government has put a lot of effort into preventing it. Two main approaches are followed as prevention methods: non-pharmacological measures actions,

⁴⁷ Gattinoni, Luciano, Davide Chiumello, and Sandra Rossi. "COVID-19 pneumonia: ARDS or not?" (2020): 1-3.

⁴⁸ Covid-19 e cardiopatia, uno studio italiano apre la strada alle future ricerche sull'infezione, Federico Mereta – Il Sole24Ore, 30 Aprile 2020

⁴⁹ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5798200/>

⁵⁰ <https://ec.europa.eu/jrc/en/health-knowledge-gateway/societal-impacts/costs>

⁵¹ Preventing chronic diseases: a vital investment, Misunderstanding#4 – World Health Organization 2005

including mask, physical distances, and hand hygiene, and preventive health promotion actions.

The ministry of health has recommended various non-pharmacological measures known to be effective in preventing the spread of the pandemic. For example, World Health Organization (WHO) recommends proper use of personal protective equipment, including wearing a face mask and doctors wearing protective clothes while at work. The other recommendation is social distance. Social distance is aimed at reducing interaction between people in the community hence reducing the spreading rate. WHO has termed quarantine as the best method of stopping the spread of Covid19. People isolating themselves from the community prevent them from mixing with other sick people hence preventing the spread⁵².

The second aspect of this policy recommendation regards the importance of prevention for the population's general health. According to *Table 4* below, the lower component of the financing scheme is "Preventive Care"; all the considered countries invest very few resources in prevention, while curative and rehabilitative care is so far the most significant component in all the selected countries. Therefore, in addition, to expose us to the threat of a world pandemic, which of course, does not happen every year, low level of preventive care might increase the presence of chronic diseases, which shall be considered another form of pandemic⁵³.

As the mortality rate in the current pandemic has shown to be higher in individuals with compromised health, the Population's general health would have been a solid preventive response. In most European countries (selected), preventive care expenditure averaged 2.7% (see table below) of current

⁵² Liang, Tingbo. "Handbook of COVID-19 prevention and treatment." *The First Affiliated Hospital, Zhejiang University School of Medicine. Compiled According to Clinical Experience* 68 (2020).

⁵³ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7359916/>

healthcare expenditure in 2017, with UK and Italy at the top respectively with 5.2 and 4.2 percent⁵⁴. Moreover, prevention of chronic conditions would result in more and healthier populations at lower risk of severe prognosis in a similar case, and in case future epidemics showed again.

There are several ways of prevention of chronic conditions. These measures include the choice of food people eat. Research done by Pradhan (2020) recommended that people should eat a balanced diet and reduce the number of processed foods they eat every day for good health. People should mostly eat homemade food which is prepared with basic ingredients. Secondly, people should involve in physical activities which make their bodies active. Physical activities and exercises help people in improving their muscle strength and endurance. Through exercises, oxygen and nutrients are delivered to the tissues and support the respiratory and cardiovascular systems to work more efficiently. When the lung's health and the heart improve, the body gains more energy to tackle other diseases such as Covid19.

Moreover, we previously saw that improvement in people's health delivers significant economic benefits. So, a low level of investment in prevention is a great fallacy in policy making. It implies both people's health and financial impoverishment; the waste of resources that could be used more efficiently damages the aggregate economy.

According to Garber (2000), cost-benefit analysis is a primary method for assessing whether any intervention is desirable from an economic perspective. This means that cost-benefit analysis evaluates whether an intervention is of any importance and whether it is worth investing in. Therefore, it is essential to assess whether incurring the cost of preventing

⁵⁴https://ec.europa.eu/eurostat/statisticsexplained/images/c/c4/Healthcare_expenditure%2C_analysed_by_function%2C_2017_%28%25_of_current_healthcare_expenditure%29_SPS20.png

Covid19 is worth investing in this case. Research done by Li and Yue (2020) showed that the cost of curing the infection is more expensive than the cost of fixing it. Also, it showed that the pandemic has adverse effects on the country's economy; hence it is worth investing in preventing the viruses before they spread in the communities.

Table 5 – Health expenditure and financing, % of total expenditure.

	Preventive care	Curative care and rehabilitative care	Long-term care	Medical goods	Others
EU-27	2.7	53.4	15.9	18.8	9.2
The US.	3.0	62.5	5.0	13.4	16.1
India ⁵⁵	6.8	52.4	0.0	27.3	13.5
Russia	4.1	66.3	0.5	20.2	8.9
Spain	2.1	54.7	9.5	22.8	10.9
France	1.8	45.5	15.4	18.4	18.9
The UK.	5.2	49.5	18.1	14.9	12.3
Italy	4.4	50.5	10.6	20.5	14.0
Germany	3.2	48.0	18.3	19.4	11.1

Source: Data extracted on 23 Nov 2020 16:09 UTC (GMT) from OECD.Stat

4.1.1 Why is Preventive Care so low?

If prevention delivers so many benefits, we may wonder why governments do not invest more resources for their people's health (and economy). The problem here lies in the voters, particularly those defined by Healy and Malhotra as Myopic Voters. Using data on natural disasters,

⁵⁵ <http://nhsrcindia.org/sites/default/files/FINAL%20National%20Health%20Accounts%202016-17%20Nov%202019-for%20Web.pdf>

government spending, and election returns, the authors showed *that voters reward the incumbent presidential party for delivering disaster relief spending but not for investing in disaster preparedness spending*⁵⁶. More generally, voters are so myopic that they tend to prefer policies that provide observable results in the short period rather than account for their elected representatives for their long-term decisions, no matter the net output. As preventive care results would be observed in a lifetime horizon (i.e., Long Run), voters prefer to see a significant response to any emergencies rather than preparing their country's infrastructures. An example of this voters' characteristic has been noticed in Italy in the March 2018 National Elections, when the populist party "Movimento 5 Stelle" reached a vote share higher than 35%⁵⁷ by promising costly welfare policies rather than investing in the future job market. However, the Covid19 pandemic has a strong impact on young generations, who internalized the many worries regarding prevention and health. Health might become another important theme, like environment, to encounter young people's expectations and leverage their votes.

4.2 Evidence-Based Policy Making.

During "Covid19 era" there has been a return to the centrality of science and scientists. After a long distrust for competence and qualifications, most people started to care again about official recommendations from authorities, epidemiologists, and doctors. Not by chance, it has been observed that many countries with populist governments belatedly reacted to the emergency. Nevertheless, these countries were strongly hit either in terms of total cases

⁵⁶ Myopic Voters and Natural Disaster Policy, HEALY & Malhotra 2009, American Political Sciences Review

⁵⁷ <https://elezioni.repubblica.it/2018/cameradeideputati>

or total deaths. Take the American continent as an example. Populism has widely spread in recent years like Coronavirus in the last months: United States, Brazil, Colombia, and Mexico, which all have populist presidents, account for the most significant majority of the total cases of their continent. In Europe, UK has been blamed for its prime minister declarations and inertia in the first phases of the pandemic transmission; indeed, it registered the highest number of total deaths across Europe and the second highest Deaths/1M people worldwide.

For instance, Brazilian President Bolsonaro is a denialist who has repeatedly campaigned for early treatment that is not scientifically recognized with ineffective drugs for instant chloroquine, ivermecti, and against masks, isolation, etc. According to WHO Philippines, looking at the Far East, particularly in the Western Pacific, registers 213.131 total cases that account for almost a half of the cases in the region, with the highest deaths/1M people ratio: 31. Italy, whose president Giuseppe Conte, comes from the populist party Movimento 5 Stelle, despite some initial level of denial, reacted relatively fast to the pandemic; however, it was one of the most hit countries in Europe worldwide. How so? The problem lies in its administration of the health supply chain, which will be discussed in the next paragraph.

4.3 Primary and Community Care.

The Italian case is very particular. Italy was among the first officially infected countries outside China⁵⁸. Despite some initial delay, its government introduced a strict lockdown, yet it has the second-highest absolute value of

⁵⁸ https://www.corriere.it/cronache/20_gennaio_30/coronavirus-italia-corona-9d6dc436-4343-11ea-bdc8-faf1f56f19b7.shtml

registered cases among European countries. The most affected Italian region in the 2020 was Lombardy, with more than **20%** of the total points and almost **30%** of the total deaths in the country⁵⁹. This problematic situation is the health supply chain in Lombardy, where the focus on the private sector has generated a highly competitive environment. This has spurred the development of highly specialized hospitals and innovative clinics. Despite being able to provide their services under public accreditation, they necessarily end up competing to gain more significant market shares. As these centers of excellence do not usually treat general medicine, infected or suspected patients went to emergency rooms. These aids became surrounding boards for the pandemic, causing the contagion and death of numerous doctors and key healthcare personnel essential to fight the pandemic. In addition, the virus quickly spread across health structures and retirement homes, causing the deaths of many vulnerable patients.

The recommendation here is that we need to enormously improve primary and community care without decreasing the quality of its specialized centers of excellence, either by setting appropriate levels of care and raising the primary services' quality. It is also crucial that collaborative structures are offered rather than competing companies, as the spillover effect here is significant for the scope.

As it was impossible to redesign care services when Covid-19 spread, each country's actual result in dealing with the emergency is a good indicator of its Health System. Those regions that already use territorial services could convert them to handle infected patients. For example, areas like Scandinavia, Emilia-Romagna and Veneto, two Italian regions, and the Catalan region of Spain use more robust models of primary care by differentiating patients with

⁵⁹ JHU CSSE COVID-19 Data - <https://github.com/CSSEGISandData/COVID-19>

respiratory symptoms from those with Covid19, making an early diagnosis, helping vulnerable people cope with their anxiety about the virus, and reducing the demand for hospital services. This allowed virtuous regions to better handle patients by providing efficient home care monitoring, thus alleviating the pressure on hospitals, and providing adequate care to home-based patients.

4.4 Investing in Digital Health.

Crawford and Serhal (2020), defined digital health as technologies that use computing programs, connectivity, and sensors for health care issues to improve individual health and wellness. The Coronavirus pandemic had two terrible lapses. First, many patients were isolated at home, without fundamental monitoring and basic care⁶⁰. Many even died without competent authorities knowing their cases or status. Moreover, there were many people affected by chronic diseases, such as diabetes, oncological and cardiovascular patients kept aloof, with reduced care, by obeying the rule of "stay home" above all conditions and not searching for health services when sick, as hospitals blocked their waiting lists to concentrate their efforts and resources on fighting the epidemic. The consequences for these patients were severe since chronic patients require constant care and continuous monitoring.

Digital Health can help to solve both of the problems. Through the digitalization of health, many healthcare services can be carried out remotely, allowing the continuous monitoring of those patients, independently from the physical accessibility to hospitals. Even many strategies in primary and

⁶⁰ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7359916/>

community care should be carried out in the distance. This may prevent the spread of other infectious diseases, like seasonal flu, which can be harmful to old, chronic patients. Consider the importance of digital health for overcoming the model of retirement homes, which we saw to act as a trap. Once the virus entered, it was almost impossible to isolate it, resulting in a critical outbreak due to its guests' already compromised health conditions. Homecare, which now can be sustainable and accessible in terms of economic costs, is the best solution to a series of issues that we have ignored for too long. In this case, home care services will be given to those who are not severely sick, or those treated and are at their last stages of healing. Also, digital health will be used to deliver health services to the most isolated communities for instance in Brazil, those who are in the Brazilian Amazon.

Digitalization requires digital and internet access, which involves suitable costly devices and basic Information Technology skills. While a specific government program can set the economic incentives, there are many barriers to internet access, such as age and education. Consider the European Commission Digital Economic and Society Index (DESI) 2020 on internet services across Europe; the digital divide appears enormous. Northern European countries, like Finland, Sweden, the Netherlands, and Denmark, have the most active internet users. In contrast, Southern and Eastern European Countries such as Italy, Portugal, Greece, Bulgaria, Poland, and Romania are classified below 50 over 100 in 2019. There have been improvements in internet use, yet in the last countries, more complex actions, as transactions, are still way limited compared to more advanced European countries⁶¹. So contextually to the promotion of digital health, we need to

⁶¹DESI 2020, European Commission.

reduce the digital divide by setting a complete investment program to improve the average capacity of people to fulfill more than basic IT tasks.

Well connected to the previous recommendations, digitalization of health is a central theme in healthcare innovation worldwide. Innovation in this sense allows for improvement in both the areas mentioned above. Through digital health, prevention becomes more robust and more accessible as it can be done virtually 24h, and (from) everywhere. A powerful and modern healthcare system not only could have better answered the pandemic crisis, but it would have also alleviated its adverse side effects. On top of them, the severe unpreparedness of healthcare systems to digital health has led to postponements in providing essential care services.

4.5 Quick Care Decision Making Process.

Each country has its system to provide healthcare services, yet the shape a National Health Service assumes influences its ability to quickly react to emergencies. For example, in the Italian design, the central government defines the minimum levels of service that each region must produce. Still, the region itself manages the actual organization and production of those services. Therefore, it is a decentralized system that may be a solid asset in regular times, as it allows each region to manage its patients locally on its territory. However, at the beginning of the pandemic, while both the government and the regions were interested in taking fast action in adopting reacting measures, the decentralized shape of the system became a negative feature, slowing down the whole process. Conversely, in Brazil, both the financing and the management of health actions are shared between federal, state and municipal governments. According to the Federal Constitution,

municipalities must allocate 15% of what they collect in health actions. For state governments, this percentage is 12%. On the other hand, the Federal Government has a slightly more complex calculation: it has to account for what was spent in the previous year, plus the minor variation of the Gross Domestic Product (GDP). So, this variation is added to what was spent in the last year to define the value of the minimum investment in that year. The Brazilian setting allowed for municipalities and states to adopt more and quicker measures compared to the federal government provisions.

There is a procedure recommended by Who when making quick decisions in this pandemic. First, authoritative syntheses are needed to summarize existing research. The current flood of peer-reviewed studies, case reports, and preprints related to Covid19 defy comprehension for all but a few specialists. Covid19 committee substantially shortened the average cycle time in producing essays on crisis standards of care, bioaerosol spread, physical distancing, and other topics to produce research syntheses on critical issues, updating them as needed, with quantitative risk estimates and not just vague statements like "infection from inanimate objects is unlikely."

Second, risk analyses are needed to apply that knowledge. However, solid science on basic physical, biological, and behavioral processes requires knowledge of specific settings. Thirdly, effective risk communications are necessary to share those analyses. There are no universally informed experts for Covid19 decisions. Both scientific specialists and practical decision-makers need risk communications that provide concise, understandable knowledge summaries outside their expertise and experience. Creating such communications involves four steps: identify the knowledge critical to decisions; assess decision makers' current ability; develop messages closing essential gaps and test those messages.

4.6 The severe lack of Medical Staff and Hospital Beds

Healthcare is a sector that relies primarily on highly qualified labor, healthcare workers at the top, and infrastructures. *Table 5* below shows data on the number of medical doctors per 1000 people and the number of hospital beds per 1000 people for each of the selected countries. The table shows that there is a considerable variation across healthcare systems. For example, Latin American countries suffer a severe lack of medical doctors. With the only exception of Argentina, they all have a small number compared to the rest of the considered countries. However, it is challenging to state whether the number of medical doctors in Europe is optimal concerning each system's requirements. However, this would require a dedicated and complete analysis, with a multidisciplinary approach: both health and education economics should be used as key disciplines for the research. Even if this paper does not aim at solving this problem, it is intuitive to assess that the number of active medical doctors per 1000 people in the considered developing countries may not be adequate. Consider Northern European countries: despite the higher level of their population's level of health and the lower incidence of a great variety of diseases, like infectious diseases, they all have a significant higher number of medical staff compared to Latin American countries and India.

For what concerns infrastructures, an article from 2015⁶² stated that Delhi in India only had 2.71 hospital beds 1,000, while WHO recommended 5. Based on the latest data at the country level we see that only few of the considered countries are compliant with the recommendation. At the same time, we shall consider the SDG agenda, where Universal Health Coverage is recognized as key to achieving all other health targets. "SDG 3c sets a target

⁶² <https://economictimes.indiatimes.com/industry/healthcare/biotech/healthcare/delhi-has-2-71-hospital-beds-per-1000-who-recommends-5/articleshow/47803958.cms?from=mdr>

to "substantially increase health financing and the recruitment, development, training and retention of the health workforce in developing countries, especially in least developed countries and small island developing States."⁶³

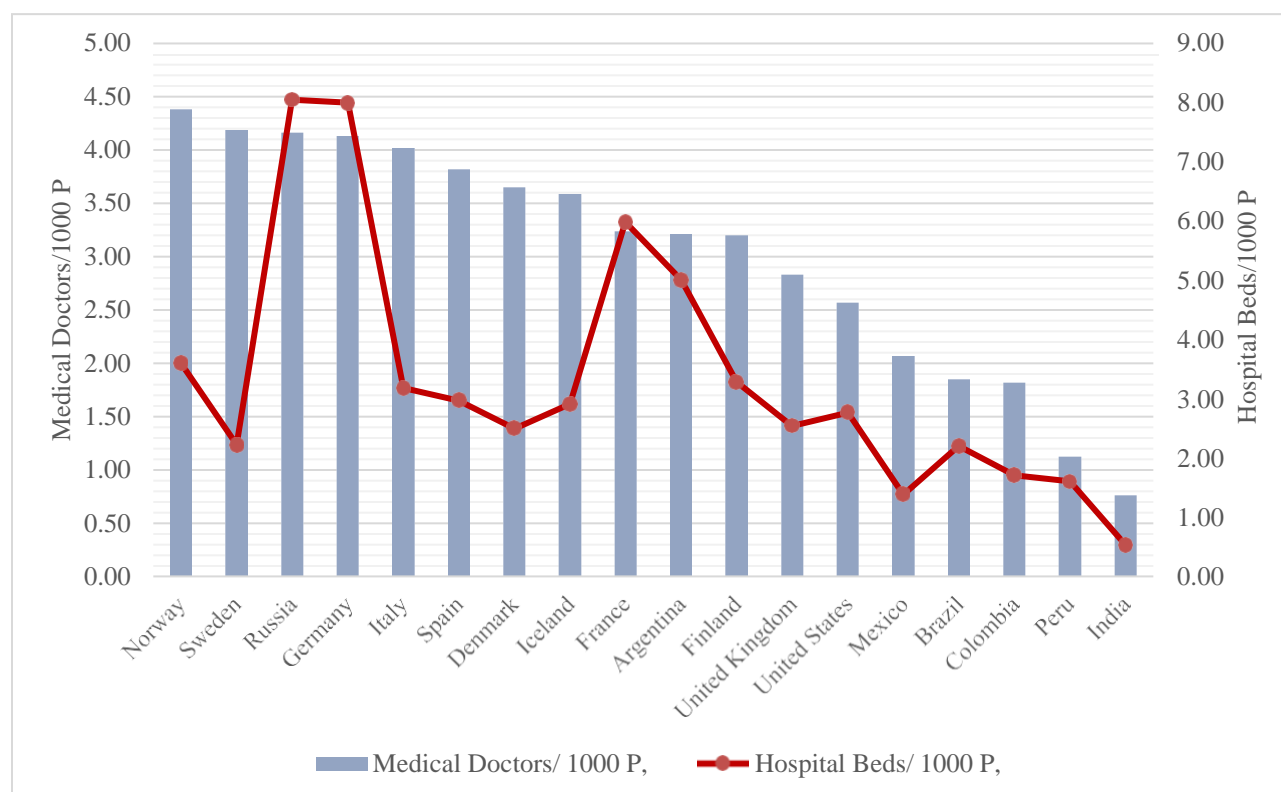
Table 7 – Medical Doctors and Hospital Beds /1000 people.

Country	Medical Doctors/ 1000 P.	Hospital Beds/ 1000 P.
Norway	4.38	3.60
Sweden	4.19	2.22
Russia	4.16	8.05
Germany	4.13	8.00
Italy	4.02	3.18
Spain	3.82	2.97
Denmark	3.65	2.50
Iceland	3.59	2.91
France	3.24	5.98
Argentina	3.21	5.00
Finland	3.20	3.28
United Kingdom	2.83	2.54
United States	2.57	2.77
Mexico	2.07	1.38
Brazil	1.85	2.20
Colombia	1.82	1.71
Peru	1.12	1.60
India	0.76	0.53

Source: *OECD, Eurostat, WHO.*

Note: Medical doctors include generalist physicians and specialist medical practitioners. Both the data series includes the latest data available for each country. The table has a qualitative purpose rather than a comparative one.

⁶³ <https://www.who.int/data/gho/data/themes/topics/health-workforce>

Graph 6 - Medical Doctors and Hospital Beds /1000 P, per Country

4.7 Individual Responsibility for Self-Health

When setting the incentive for policy reforms, it is fundamental to recall that health should be considered either a mixed public good on the supply side and a private good on the demand side. This means that policies with too strong incentives on the supply side end up causing a bias in the consumer perception. As stated in the previous chapter, preventive care would be the best economic choice compared to curative care,

Promoting personal responsibility for health and for obtaining health care is essential in this time of Covid19. Under the Deficit Reduction Act of 2005, states have increased flexibility in designing and implementing their Medicaid programs, jointly financed with the federal government. For

example, they can require cost-sharing for certain medical services, such as the use of no preferred drugs and non-emergency care furnished in a hospital emergency department. In addition, they can participate in a demonstration program to evaluate the potential effectiveness of Medicaid-funded personal health accounts, which are similar to health savings accounts⁶⁴. Again, the case of Singapore and its Medical Savings Accounts is emblematic. In Singapore, everyone is aware of the available resources on her account, and she participates in the healthcare expenses both with her income and by monitoring the level of the MSA itself. This feature allows people to understand the cost of the purchased health services. Finally, the possibility to transfer some of their fund to other family members allow people to internalize the need for appropriateness of cure of the system into their intertemporal balance. Should the reader be interested in a complete analysis of Singapore's MSAs, check Pipicella, 2018.

Section 5: Covid19 and Healthcare in Latin American countries

The Covid19 pandemic officially started in the region the 26th of February 2020 with the first case confirmed in São Paulo, Brazil. It represents a massive health, economic and social shock for the countries of Latin America. It is expected to result in the deepest recession in living memory⁶⁵. With more than 7.9 million cases and more than 300,000 deaths, the region is the world's worst hit region. According to the World Bank's June assessment⁶⁶, the Latin

⁶⁴ Li, R. Y. M., & Yue, X. G. (2020). Covid-19 in Wuhan: pressing realities and city management. *Frontiers in public health*, 8, 1079.

⁶⁵ The Impact of COVID-19 on Latin America and the Caribbean – Policy Brief, July 2020, United Nations

⁶⁶ <http://pubdocs.worldbank.org/en/538491588787962322/Global-Economic-Prospect-2020-Analysis-LAC.pdf>

American economy is going to contract **7.2 %** in 2020. Despite the promising, but modest decrease in inequalities, the pandemic had reversed the positive trends of the last two decades⁶⁷.

5.1 Labour Market and Inequalities in Latin America

Coronavirus has hit the global south even harder than the rest of the world, due to the already compromised economic situations, the strong inequalities and the high-debt levels. Covid19 has exacerbated inequalities. People on low incomes are paying the highest price. During the lockdown, top-earning workers were on average 50% more likely to work from home than low earners. At the same time, low-income workers were twice as likely to have to stop working completely, compared to their higher-income peers⁶⁸. Women have been hit harder than men, with many working in the most affected sectors (e.g. tourism) and disproportionately holding precarious jobs.

The situation is even harsher for young generations. UN's International Labour Organization estimates that the crisis will enhance unemployment rates in the region up from 8.1% to 11.5% in 2020, the equivalent of more than 11.5 million jobs lost⁶⁹. The health crisis implies an extra 30 million people falling into poverty. Young people are going to be disproportionately affected, coming from unemployment rates that were three times higher even before the pandemic.

"Coronavirus could create a lockdown generation in Latin America if governments don't act" is the title of an article published on "The

⁶⁷ <https://theconversation.com/coronavirus-could-create-a-lockdown-generation-in-latin-america-if-governments-dont-act-144161>

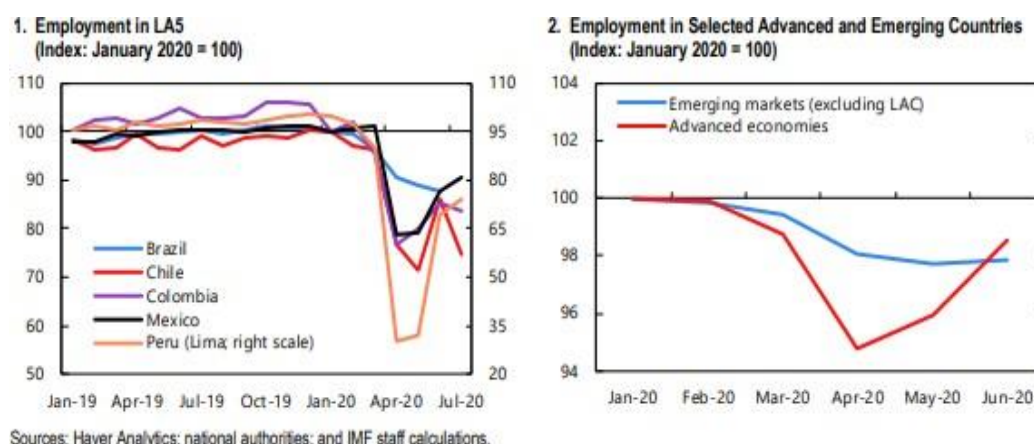
⁶⁸ OECD. Tackling coronavirus (COVID-19). Contributing to a global effort. <https://www.oecd.org/coronavirus/en/>

⁶⁹ https://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/documents/briefingnote/wcms_749399.pdf

Conversation" on the 14 September 2020, which wonders about the growing inequalities coming from the increase of the so called gig jobs⁷⁰.

At a moment when trust in public institutions is already historically low, the pandemic exposed the much fragility by amplifying the already strong inequalities and it turned chronic difficulties into acute crisis. Governments shall aim at implementing long-term measures, rather than just focus on short-term emergency responses. The figure below shows the actual Employment Dynamics during Covid19 in Latin America and other few countries.

Figure 3: Employment Dynamics



5.2 Building sustainable Health Systems in Latin America

Building sustainable health systems is the focus for all governments right now. Better healthcare systems have various implications to the people now than never. The sudden fall in pollutants and subsequent blue skies

⁷⁰ It's precarious, offering no job security or benefits like sick pay or paid holidays. It's also very isolating, as you are generally working on your own, and it offers very little in the way of career prospects.

signifies a dramatic shift for Latin American Countries and also other affected countries during this period. Fighting Covid19 requires a collaborative approach between all spheres of society unlike the former. It must heavily redirect resources towards local, sustainable activities, including education, health, sustainable agriculture and circular management of resources. The impact of Covid19 pandemic has resulted in the dramatic change in the different aspects of the environment. The global lockdown has led to a rejuvenation of nature, ecosystems, biodiversity. Even urban environments are discovering a degree of peace and serenity, which led to decrease in greenhouse gas emission.

The general recommendations previously explained regard Latin America too. Covid19 has demonstrated us that, when it comes to the flexibility and resiliency of health systems, early planning should be pursued. Especially in a region with strong inequalities, it is fundamental that its Health Systems do not reflect them. As explained in chapter 3, population's health can be considered a significant asset in a country's economic development. Despite the progress made, the region has a history of not prioritizing health, creating deficiencies that challenge patients' access to quality care. Governance with a short-term vision, the Health system fragmentation and a lack of investment in innovation all contribute in preventing optimal diagnosis and treatment and generates high out-of-pocket costs⁷¹.

"Out-of-pocket" refers to direct outlays made by households, including gratuities and in-kind payments, to healthcare providers⁷²." According to data, on average in Latin American and Caribbean countries a third of the total Health Expenditure comes from direct payment from households. If we

⁷¹ <https://www.weforum.org/agenda/2020/07/covid-19-sustainable-health-systems-latin-america/>

⁷² Our World in Data Definition

compare the same data in Europe, we find that that in the same year, the average Out-of-pocket Health Expenditure in the European Union was only 15.8 % and in the Euro Area it was 15.6 %.

Table 8 – Out-of-pocket health expenditure as a share of Health Expenditure in 2017

Country	Out-of-pocket Health Expenditure
LAC33*	34%
Paraguay	44%
Chile	34%
Mexico	41%
Peru	28%
Brazil	27%
Bolivia	25%
Uruguay	18%
Colombia	16%
Argentina	15%

*Latin America and Caribbean countries 33

Voluntary or private revenue sources' contribution in helping countries move their health systems towards UHC is very low. This regard, in particular, direct cash payments only at the moment the service is used, and they have been at the center of recent political debates⁷³⁷⁴. *At the same time, voluntary health insurance schemes, either commercial for-profit or non-profit community-based schemes, do play a role in risk-sharing but tend to reach*

⁷³ World Health Organization, Health systems financing: the path to universal coverage, in World Health Report. 2010: Geneva.

⁷⁴ Lagarde, M. and N. Palmer, the impact of user fees on health service utilization in low- and middle-income countries: how strong is the evidence? Bull World Health Organ, 2008. 86(11): p. 839-848.

*only a small percentage of a country's population*⁷⁵. Also, based on the structure these schemes usually take, they tend to exclude the extremes area of the population (those who need the most and the relatively expensive health cost). Finally, they might lack of financial stability, specifically in countries with a population with high levels of unmet needs. The relevance given to "Out-of-pocket" Health Expenditure in Latin America is a great challenge to the development of Universal Sustainable and Equal Health Systems: governments should adopt political and fiscal measures that bring their health systems in the UHC direction. Evidence in the literature confirmed the *importance of fully and systematically executing public resources*. Political commitment is required for proper budget allocations to health, *but effectively spending them funds the strength of the health system*. In many countries, governments do not fully exploit budget allocations for many reasons, *including deficiencies in public financial management*⁷⁶.

5.3 Digital Divide

By "Digital Divide" we refer to the gap between people who do not have access to computers, internet, and digital technologies and those who do have access. There are various causes of this gap: socio-economic inequality, education inequality and living conditions. Consider that digital tasks growing in complexity require not only the access to technology but also growing IT skills. As *Table 7* shows, digitalization is far from common, especially in the southern world. Latin America still has a very low degree of digitalization: in 2016, the average degree of internet access in the Latin America and

⁷⁵ Kutzin, J., Anything goes on the path to universal health coverage? No. Bulletin of the World Health Organization, 2012(90): p. 867-868.

⁷⁶ World Health Organization, Public financing for health in Africa: from Abuja to the SDGs. 2016, WHO: Geneva.

Table 9 – Digital Divide as Share of the population using the Internet

Country	Share of Population using the Internet ⁷⁷ , 2016
Iceland	98.24%
Norway	97.30%
Denmark	96.97%
United Kingdom	94.78%
Sweden	89.65%
Germany	89.65%
Finland	87.70%
Spain	80.56%
France	79.27%
United States	76.18%
Russia	73.09%
Argentina	70.97%
Italy	61.32%
Brazil	60.87%
Mexico	60.87%
Colombia	58.14%
Peru	45.46%
India	29.55%

Source: World Bank through OurWorldInData.org/technology-adoption/ • CC BY

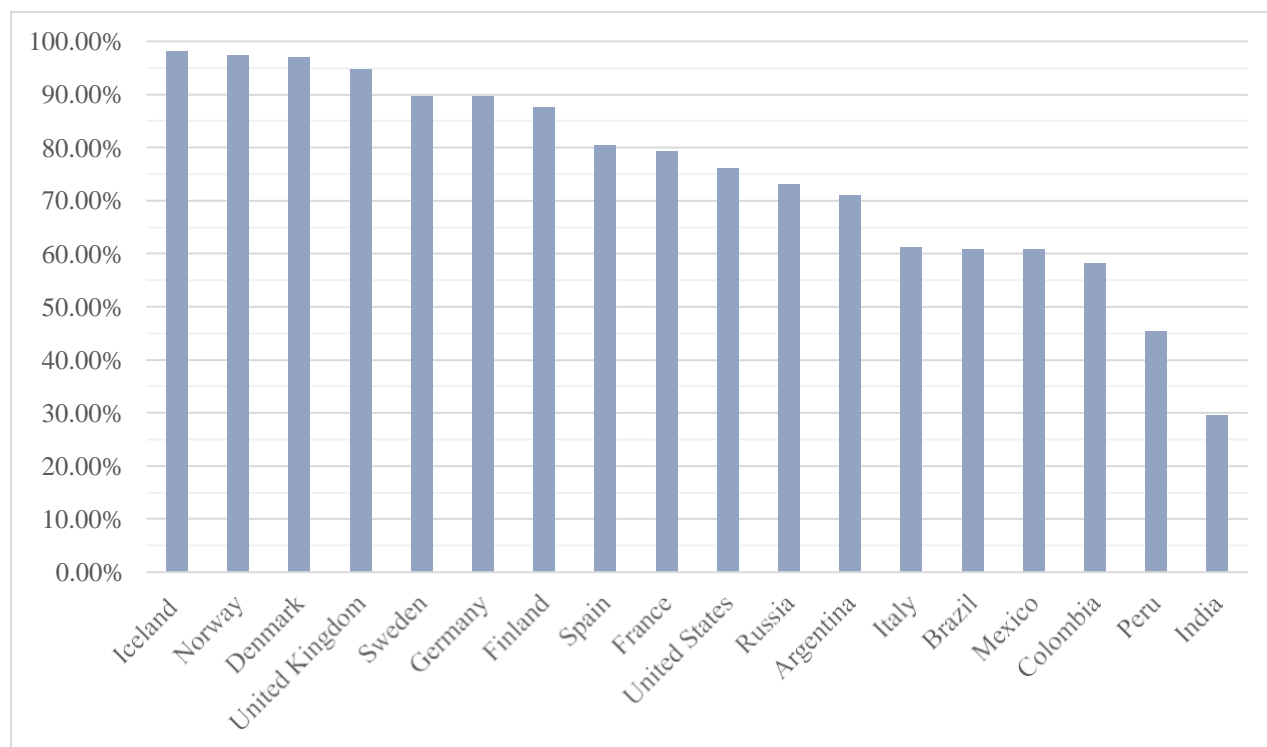
Caribbean region was **57.40 %**, which can be a serious threat to the digitalization of particular sectors, such as, in this case, healthcare. Consider, for example, the case in which we could foster patient management by implementing new home care devices and protocols. This argument would also strength the previous approach to preventive care; however, it would require

⁷⁷ All individuals who have used the Internet in the last 3 months are counted as Internet users. The Internet can be used via a computer, mobile phone, personal digital assistant, games machine, digital TV etc.

not only an access to the internet, but also stronger digital competences, as well as more trust in digital technologies and innovation.

Following the previous arguments, we first recognize that a "Digital Humanism" is required to enhance the current technological progress. The commitment to both improves people's digital skills and craft more accessible digital technologies shall be pursued at the public level. Either specific public program, like those that Finland⁷⁸ has implemented to fight "Fake News", and public stimulus for the private sectors are needed. Technology needs to be more accessible; both in terms of user experience (**functional accessibility**), which also involves improving critical thinking at the digital level, and in terms of cost (**economic accessibility**).

Graph 7 – Share of the population using the internet in 2016



⁷⁸ <https://www.theguardian.com/world/2020/jan/28/fact-from-fiction-finlands-new-lessons-in-combating-fake-news>

Section 6: Conclusion and Recommendations: the role of Brazil in LA

The last section is based on an interview with Professor Geraldo Biasoto, former investment secretary in the ministry of health. Brazil differs from other Latin American countries since its Health System called "Sistema Unico de Saúde – SUS" is characterized by solidarity through a permanent partnership among public and private institutions. As a matter of fact, this value is not widespread across Latin America, as the region did not develop the sentiment because of the WWII, which was mainly fought in the European territory.

Its system is driven by the principle of Universality, most likely the European ones. Indeed, professor Biasoto explained that Brazilian political proposal has been, in particular in the 80s, influenced by the Italian one, as, in terms of healthcare proposal, it was inspired by the healthcare debate taking place in Bologna, Italy. At the end of the military dictatorship, political pressure for Universal Care increased, setting the scene for the birth of the "SUS" in 1989, by recognizing the right to health in the Brazilian Constitution itself, as it happened for Italy. However, the "SUS" has an important element that makes it more complex: the presence of a structured system of private Health Plans (Planos de Saúde), which differs from the US one since it is a way more competitive market, with more accessible costs.

SUS is the largest nondiscriminatory government-run public health care system in the world, by number of entitled beneficiaries (220 million Brazilian people) and land area coverage (3.3 million square miles). The system is entirely free of any cost at the point of service even when healthcare services are done in private facilities, for any person including foreigners and refugees.

Furthermore, SUS is run by five fundamental values, which make it a unique experience in a region that still needs to improve in terms of rights, values and freedoms. Universality, Comprehensiveness, Equity, Decentralization and Social Participation shall not be taken for granted, but rather fostered and improved every year. Moreover, at the end of the interview, Professor Biasoto conveyed that Brazil should be in the front line as a regional leader in terms of health, in order to disseminate its SUS values and structure across other Latin American countries, with the aim of contributing to the very difficult process of building a sustainable, inclusive and efficient health sectors in their territory.

Recommendations

Covid 19 has really affected both the health systems and also the economies at large whereby most countries have lost both lives and also jobs. Therefore, In light of the results of the study, it recommends the following which can be applied that will be help to overcome these challenges.

- The government should pull resources together to support the health systems for people to have access to health facilities in each community. Also the government should support and educate people on preventive measures that are helping in preventing the spread of Covid 19.
- Mobilize multiple resources. Social economy organizations can mobilize various types of resources (revenues from sales, public subsidies, donations, volunteering) coming from different sources (public sector, enterprises, foundations, individuals). By gathering various supporters around their projects, they strengthen their sustainability.

- Apply sustainable operating practices. Social economy organisations implement sustainable practices that are respectful of the primacy of human needs and natural ecosystems in the environment.
- Facilitate co-operation and social innovation: Social economy organisations expand the potential for collective social innovation by collaborating with local stakeholders. They experiment with new and co-operative ways of working to develop place-based solutions, building on collective goals and the complementary assets of different types of actors.
- Full access to economic and humanitarian assistance and basic services should be ensured for all in need thereof, especially for informal workers, women, youth and those in the most vulnerable situations: children, older persons, Afro descendants, indigenous peoples, persons with disabilities, LGBTI persons.
- Fostering comprehensive welfare systems, with revamped social protection schemes and universal access to health care and education for all, free of discrimination and irrespective of legal or migratory status. It should comprise targeted measures to protect the most vulnerable groups.
- Fostering sustainable industrial and technological policies, including measures to encourage a low-carbon growth path, reallocate informal workers into decent jobs, promote the transition to renewable energy, build capabilities in health and in digital and green technologies, and reduce vulnerability to new shocks.
- Regional economic integration to support productive diversification, economic resilience, and regional cooperation in financing research, science, and technology.

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