

CASE STUDY JUNE 2020

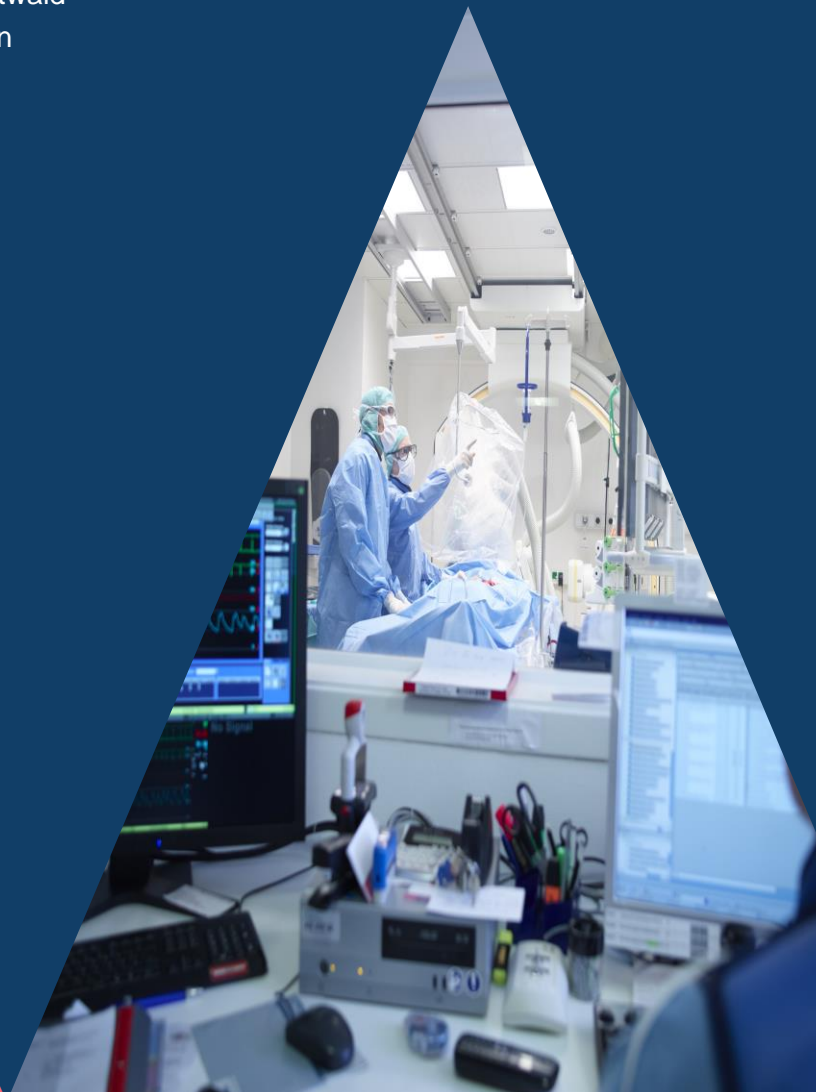
The Economic Footprint of the Health Economy in selected Latin American countries

Results for Argentina, Brazil, Colombia, and Mexico

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1 Introduction

In light of the COVID-19 pandemic, it has become apparent that investments in health are crucial for a resilient health system that can ensure access of the vulnerable to diagnostics and treatment. Many countries in the world were not prepared for the current pandemic. Highly overburdened health systems and the worst recession since the Great Depression in the 1930s are the direct and indirect consequences of the COVID-19 outbreak. Substantial investments in health are essential to set up a defense plan against future pandemics. However, they are equally important to achieve SDG 3, especially in low-income and middle-income countries.

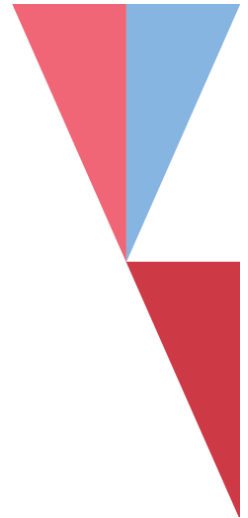
Health investments do not only lead to better health outcomes but also to sustainable economic growth, employment, innovation, and wealth. The Health Economy is already a crucial economic sector that should receive more attention from policymakers. This report presents the concept and results of Health Economy Reporting (HER) that was conducted for the Latin American countries Argentina, Brazil, Colombia, and Mexico.

HER makes it possible to measure the contribution of the Health Economy to the overall performance of an economy. Along the entire value chain of care, the Health Economy comprises a wide range of goods and services and is, therefore, called a cross-sectional sector. Among others, the sector covers health-related human and social work activities, the manufacturing of pharmaceutical products and medical technology as well as wholesale and retail trade and scientific R&D. By means of the economic indicators gross value added (GVA) and employment, the sector's importance for growth and employment can be evaluated in comparison to other sectors of the economy.¹

HER builds on the ongoing paradigm shift of health expenditures away from being a financial burden for public budgets to being an investment in sustainable development and resilient health systems. In Germany, HER has been conducted for a decade on behalf of the Federal Ministry for Economic Affairs and Energy (BMWi) and has contributed largely to the Health Economy being perceived as a crucial economic factor both on the national and the regional level.²

¹ See chapter 3.1 for more information on the key economic indicators gross value added (GVA) and employment.

² Federal Ministry for Economic Affairs and Energy (BMWi) 2015; Henke, Legler, Claus & Ostwald 2019.



2 The Health Economy – from cost factor to driver for sustainable development



Traditionally, health expenditures have long been regarded as an economic burden mainly for public budgets. Today, over 80 percent of current health spending comes from pooled sources.³ As those public budgets on health are overstretched across the globe, governments are aiming to keep costs down.

However, with the current financing schemes, the Sustainable Development Goals (SDGs) as part of the Agenda 2030 will not be achieved. According to the Lancet, additional health investments of USD 371 billion are needed per year in lower- and middle-income countries by 2030 to reach health system targets that are established in SDG 3.⁴ The authors estimate a financing gap of USD 20-54 billion per year. If funds should be made available, those investments would save 97 million lives and increase life expectancy drastically.⁵

Therefore, rather than budgeting health expenditures on an annual basis, policymakers should consider those expenditures as an investment with its return being a resilient health system and sustainable growth. Concerning the latter, the WHO stresses that the health sector is vital to determining the economic performance of a country and a key sector for sustainable development on the local and national level. Further, the health sector reduces social exclusion at the local level through its impact on employment, working conditions and household income.⁶

WifOR's Health Economy Reporting (HER) builds on the fact that health systems have a substantial impact on growth and employment within economies. WifOR's calculations show that the global Health Economy accounted

³ Global Burden of Disease Health Financing Collaborator Network 2020.

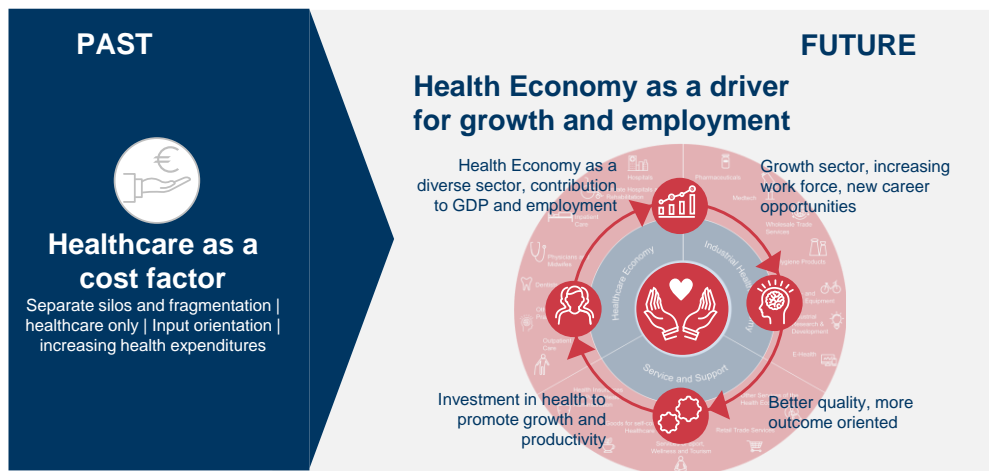
⁴ SDG 3 aims to "ensure healthy lives and promote well-being for all at all ages".

⁵ Stenberg u. a. 2017.

⁶ World Health Organization 2019.

for 7.6 percent of the global gross value added (GVA) and secured 5.8 percent of global employment in 2014. For 2020, WifOR estimates the contribution of the Health Economy to global GVA to be 9.3 percent.

Figure 1: The Health Economy as a driver for growth and employment



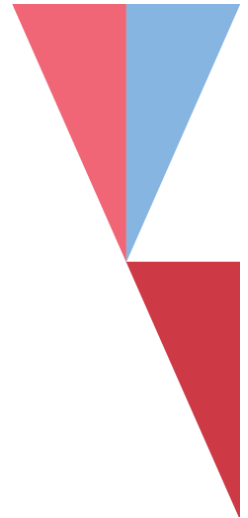
HER quantifies the economic contribution of national health systems along the value chain of care: from the inpatient and outpatient sector to the Industrial Health Economy to supporting services.⁷ HER can offer robust conclusions and actionable recommendations to policymakers.

In Germany, HER is a widely recognized reporting tool that is used by ministries and associations both on the regional and national level. By means of HER, the economic contribution of the Health Economy can be compared to other (more familiar) sectors and, therefore, helps to focus attention of policymakers on the needs of the Health Economy's various sub-sectors.⁸

⁷ See chapter 3.1 for more information on the structure of the Health Economy.

⁸ Henke u. a. 2019.

3 Health Economy Reporting

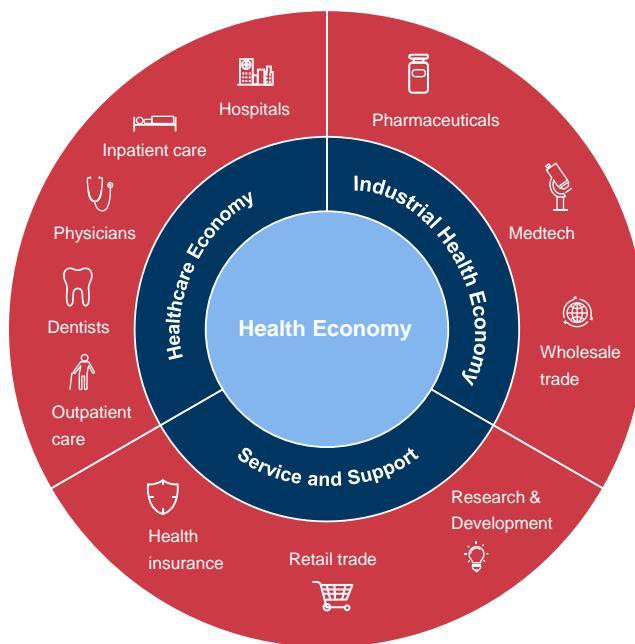


The following section presents the methodological approach of HER together with the results for the selected Latin American countries that were analyzed within the research project. Due to lower data availability, the methodological approach differs from the HER that was developed in Germany over the last ten years.

3.1 Methodological approach

HER quantifies the contribution of the Health Economy along the entire value chain of care. For this purpose, HER uses data from various data sources that offer information on gross value added (GVA) and employment for different sectors. The Health Economy is extracted from different sectors (e. g. human health and social work activities, manufacturing of pharmaceutical products, wholesale and retail trade, scientific R&D) and, therefore, is called a cross-sectional sector. The Health Economy can be broken down into three sub-sectors: Healthcare Economy, Industrial Health Economy, Service and Support.

Figure 2: The three sub-sectors of the Health Economy



HER is primarily based on publicly available national accounts data. As HER is intended to provide comparable results at the global level, the most prominent multiregional input-output tables containing many countries and sectors are used. Other international data (OECD, ILO) as well as data from national statistical institutes are used to enrich and extrapolate the results. Due to the availability of national accounts data, the reporting year of the results shows a time lag.

For Brazil and Mexico, HER makes use of the World Input-Output Database (WIOD) that offers information on GVA and employment for 56 sectors.⁹ Further, the WIOD contains information about the interdependencies of those sectors, so that additional spillover effects due to intermediate products (indirect effects) and the partial spending of income generated in the Health Economy and its suppliers (induced effects) can be calculated. OECD data serves to extrapolate the 2014 results for more recent years.¹⁰

For Argentina and Colombia, GVA and employment data come from the Eora Global Supply Chain Database.¹¹ Eora also allows for the calculation of spillover effects. National accounts data¹² together with data by the International Labour Organization¹³ (ILO) are used to extrapolate the 2015 results for more recent years.

The Health Economy is quantified by means of the two economic indicators GVA and employment. GVA measures the contribution of sectors to the economic performance of a country. The sum of GVA over all sectors plus the net tax on goods is commonly known as the gross domestic product (GDP). As a key economic indicator within countries' national accounts, GVA makes comparisons between local units (e. g. countries, regions, districts) and sectors possible. The second indicator, employment, comprises all persons of working age that are either in paid employment or are self-employed.

3.2 Results

The following section presents calculation results of HER for the four selected Latin American countries. The respective country results comprise a sector comparison, the development and structure of the Health Economy as

⁹ Timmer, Dietzenbacher, Los, Stehrer & de Vries 2015.

¹⁰ OECD (2020), Value added by activity (indicator). doi: 10.1787/a8b2bd2b-en (Accessed on 16 June 2020)

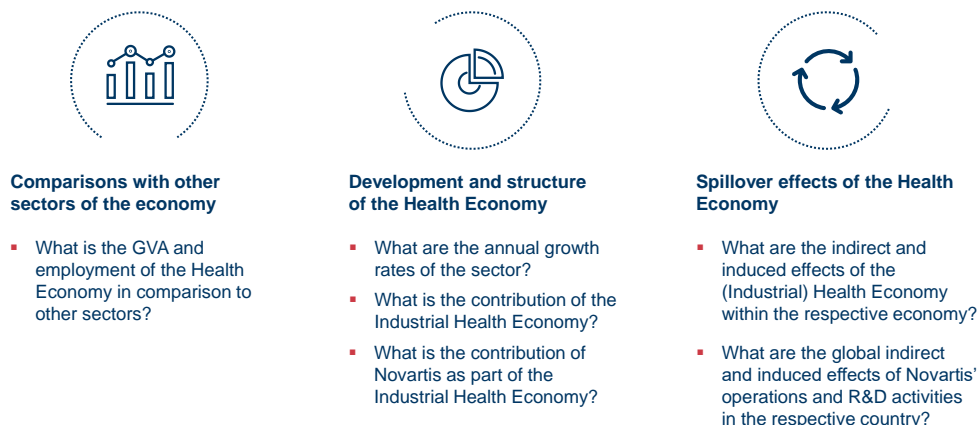
¹¹ Lenzen, Kanemoto, Moran & Geschke 2012; Lenzen, Moran, Kanemoto & Geschke 2013.

¹² See Instituto Nacional de Estadística y Censos Republica Argentina, URL: <https://www.indec.gob.ar/indec/web/Nivel4-Tema-3-9-47>; DANE, URL: <https://www.dane.gov.co/index.php/en/statistics-by-topic/national-accounts-for-national-accounts-data-for-Argentina-and-Colombia>.

¹³ See International Labour Organization (ILO), ILOSTAT database. URL: <https://ilostat.ilo.org/data/> (Accessed on 02 February 2020).

well as the spillover effects of the sector. Further, the latest FES impact valuation figures show the contribution and global spillover effects of Novartis' operations and R&D activities in the respective country.

Figure 3: The analytical capabilities of HER in the Latin American countries



In 2017, the Health Economy of the four selected countries combined generated a GVA of USD 273 billion and secured 13 million jobs. This amounted to 6.7 percent of total GVA and 7.1 percent of total employment of the four economies combined. The following presents the detailed results of HER in the respective countries.

3.2.1 Argentina

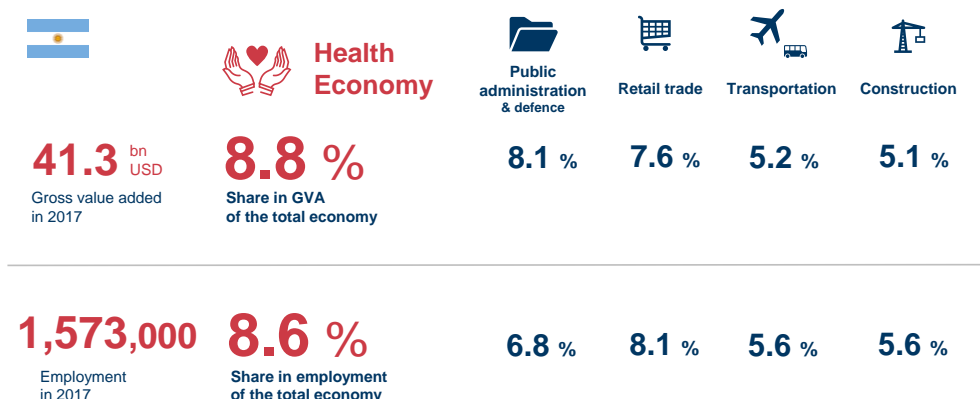
In 2017, Argentina spent 9.1 percent of its GDP on health.¹⁴ Among the four countries analyzed, this is the second highest value behind Brazil. However, this share is lower than the global average (9.9 percent).¹⁵

With a GVA of USD 41.3 billion, the Health Economy's share in the total Argentinian economy was 8.8 percent in 2017. An employment of about 1.6 million meant a share of 8.6 percent in total employment in Argentina. The Health Economy is, therefore, one of the biggest sectors both in terms of value added and employment in Argentina.

¹⁴ See Global Health Expenditure Database (WHO). URL: <https://apps.who.int/nha/database> (Accessed on 16 June 2020)

¹⁵ See The World Bank data, URL: <https://data.worldbank.org/indicator/SH.XPD.CHEX.GD.ZS>

Figure 4: Sector comparison of the Health Economy with other major sectors of the Argentinian economy



Source: WifOR calculations based on Eora Global Supply Chain Database, INDEC national accounts and ILO employment data. Reporting year of the benchmark sectors is 2015. The share of the Health Economy in 2015 was 8.6% (GVA) and 8.4% (employment).

Besides its large contribution to growth and employment in Argentina today, the Health Economy has grown strongly since 2008. Its annual GVA growth¹⁶ rate was 9.9 percent and, therefore, much higher than the GVA growth of the total economy (6.5 percent). This was mainly due to the strong growth of GVA generated by health services during the same period.

In addition to the USD 41.3 billion of direct effects, the Health Economy generated indirect effects of USD 11.6 billion and induced effects of USD 16.0 billion within the Argentinian economy. With respect to employment, the sector secured 470,000 indirect jobs and 647,000 induced jobs. The economic footprint of the Health Economy in 2017 in Argentina, therefore, amounted to USD 68.9 billion in GVA and an employment of almost 2.7 million. This means that, for every USD 1 generated by the Health Economy, an additional USD 0.6 were generated in the Argentinian economy. Additionally, ten jobs in the Health Economy secured seven additional jobs in Argentina.

The share of the Industrial Health Economy in the sector's GVA was 16.5 percent in 2017. The sub-sector generated a GVA of USD 6.8 billion and secured 240,000 jobs. Its economic footprint amounted to USD 13.2 billion in GVA and an employment of 465,000. Every USD 1 generated by the Industrial Health Economy generated additional USD 0.9 in the Argentinian economy. Ten jobs secured nine additional jobs in Argentina.

In 2019, Novartis' operations and R&D activities in Argentina contributed USD 126 million to GVA and an employment of 465.¹⁷ The company's global

¹⁶ Growth rates of GVA and employment refer to the compound average growth rate (CAGR).

¹⁷ Due to more recent data, FES impact valuation figures are reported for the year 2019.

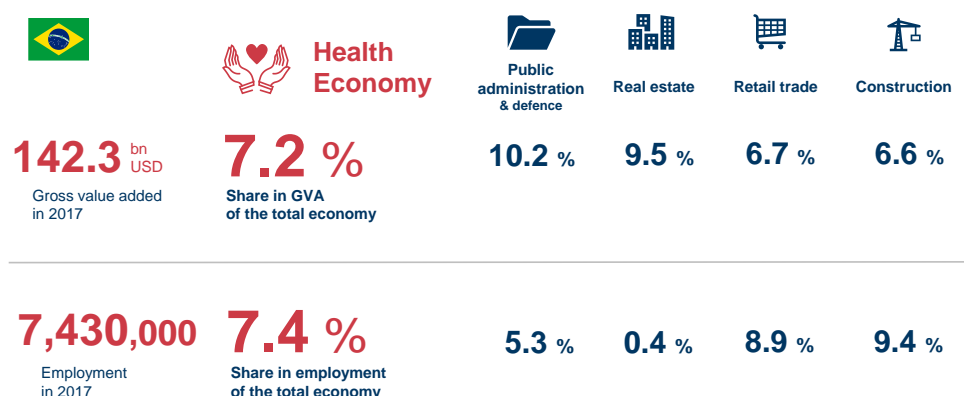
spillover effects amounted to a GVA of USD 139 million and an employment of 788. Hence, its economic footprint amounted to USD 265 million in GVA and an employment of 1,253. Every USD 1 of GVA generated by Novartis Argentina generated additional USD 1.1 globally. Every job secured 1.7 additional jobs.

3.2.2 Brazil

In 2017, Brazil spent 9.5 percent of its GDP on health.¹⁸ Among the four countries analyzed, this represents the highest value. However, this share is still lower than the global average (9.9 percent).¹⁹

With a GVA of USD 142.3 billion, the Health Economy's share in the total Brazilian economy was 7.2 percent in 2017. An employment of about 7.4 million meant a share of 7.4 percent in total employment in Brazil. This makes the Health Economy one of the most important sectors for growth and employment in Brazil.

Figure 5: Sector comparison of the Health Economy with other major sectors of the Brazilian economy



Source: WifOR calculations based on World Input-Output Database (WIOD), OECD data. Reporting year of the benchmark sectors is 2014. The share of the Health Economy in 2014 was 7.1% (GVA) and 6.7% (employment).

During the past decade, the Health Economy has grown by 4.4 percent annually and, therefore, it has grown stronger than the total economy in Brazil (3.6 percent). Even more strikingly, employment of the sector has grown 2.3 percent every year since 2008, which is much stronger than total employment growth in Brazil (0.1 percent).

¹⁸ See Global Health Expenditure Database (WHO). URL: <https://apps.who.int/nha/database> (Accessed on 16 June 2020)

¹⁹ See The World Bank data, URL: <https://data.worldbank.org/indicator/SH.XPD.CHEX.GD.ZS>

Apart from the USD 142.3 billion of direct effects, the Health Economy generated indirect effects of USD 64.0 billion and induced effects of USD 87.7 billion within the Brazilian economy. With respect to employment, the sector secured 3.3 million indirect jobs and 5.1 million induced jobs. The economic footprint of the Health Economy in 2017 in Brazil, therefore, amounted to USD 294.0 billion in GVA and an employment of 15.8 million. Every USD 1 generated by the Health Economy generated additional USD 1.1 in the Brazilian economy. Ten jobs in the Health Economy secured eleven additional jobs in Brazil.

The share of the Industrial Health Economy in the sector's GVA was 16.1 percent in 2017. The sub-sector generated a GVA of USD 22.9 billion and secured 996,000 jobs. Its economic footprint amounted to USD 52.0 billion in GVA and an employment of almost 2.5 million. Every USD 1 generated by the Industrial Health Economy generated additional USD 1.3 in the Brazilian economy. Two jobs secured three additional jobs in Brazil.

In 2019, Novartis' operations and R&D activities in Brazil contributed USD 104 million to GVA and an employment of 2,195. The company's global spill-over effects amounted to a GVA of USD 412 million and an employment of 16,342. Hence, its economic footprint amounted to USD 515 million in GVA and an employment of 18,537. Every USD 1 of GVA generated by Novartis Brazil generated additional USD 4.0 globally. Every job secured 7.4 additional jobs.

3.2.3 Colombia

In 2017, Colombia spent 7.2 percent of its GDP on health.²⁰ Among the four countries analyzed, this is the second lowest value. This share is also substantially lower than the global average (9.9 percent).²¹

With a GVA of USD 19.2 billion, the Health Economy's share in the total Colombian economy was 6.8 percent in 2017. An employment of about 1.6 million meant a share of 7.4 percent in total employment in Colombia. Therefore, the Health Economy is among the largest sectors in Colombia.

²⁰ See Global Health Expenditure Database (WHO). URL: <https://apps.who.int/nha/database> (Accessed on 16 June 2020)

²¹ See The World Bank data, URL: <https://data.worldbank.org/indicator/SH.XPD.CHEX.GD.ZS>

Figure 6: Sector comparison of the Health Economy with other major sectors of the Colombian economy



Source: WifOR calculations based on Eora Global Supply Chain Database, DANE national accounts and ILO employment data.

During the past decade, GVA of the Health Economy has grown by 4.2 percent annually. The sector's growth exceeds that of the total Colombian economy (2.9 percent). Since 2008, employment in the sector has grown by 3.1 percent every year, which is again stronger than total employment growth in Colombia (2.8 percent).

In 2017, the Health Economy generated indirect effects of USD 4.1 billion and induced effects of USD 7.6 billion within the Colombian economy. With respect to employment, the sector secured 198,000 indirect and 507,000 induced jobs. The economic footprint of the Health Economy in 2017 in Colombia, therefore, amounted to USD 30.9 billion in GVA and an employment of almost 2.4 million. Every USD 1 generated by the Health Economy generated additional USD 0.6 in the Colombian economy. Five jobs in the Health Economy secured two additional jobs in Colombia.

The share of the Industrial Health Economy in the sector's GVA was 24.6 percent in 2017. The sub-sector generated a GVA of USD 4.7 billion and secured 183,000 jobs. Its economic footprint amounted to USD 9.2 billion in GVA and an employment of 416,000. Every USD 1 generated by the Industrial Health Economy generated another additional USD 1 in the Colombian economy. Three jobs secured four additional jobs in Colombia.

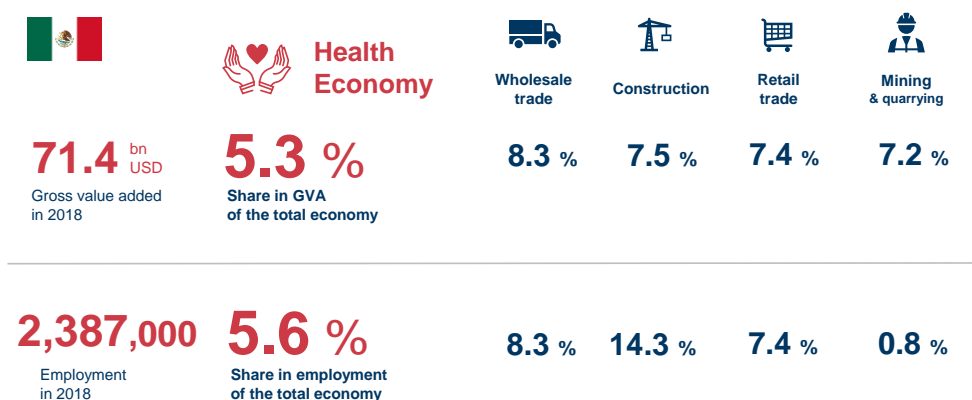
In 2019, Novartis' operations and R&D activities in Colombia contributed USD 41 million to GVA and an employment of 332. The company's global spillover effects amounted to a GVA of USD 53 million and an employment of 882. Hence, its economic footprint amounted to USD 94 million in GVA and an employment of 1,214. Every USD 1 of GVA generated by Novartis Colombia generated additional USD 1.3 globally. Every job secured 2.7 additional jobs.

3.2.4 Mexico

In 2017, Mexico spent 5.5 percent of its GDP on health.²² Among the four countries analyzed, this is the lowest value. This share is also substantially lower than the global average (9.9 percent).²³

With a GVA of USD 71.4 billion, the Health Economy's share in the total Mexican economy was 5.3 percent in 2018.²⁴ An employment of about 2.4 million meant a share of 5.6 percent in total employment in Mexico. Therefore, the Health Economy is nonetheless an important sector for growth and employment in Mexico.

Figure 7: Sector comparison of the Health Economy with other major sectors of the Mexican economy



Source: WifOR calculations based on World Input-Output Database (WIOD), OECD data. Reporting year of the benchmark sectors is 2014. The share of the Health Economy in 2014 was 5.3% (GVA) and 5.6% (employment).

During the past decade, GVA of the Health Economy has grown by 2.6 percent annually. The sector's growth exceeds that of the total Mexican economy (2.3 percent). Since 2008, employment in the sector has grown by 1.3 percent every year which is again stronger than total employment growth in Mexico (1.1 percent).

In 2018, the Health Economy generated indirect effects of USD 23.3 billion and induced effects of USD 34.1 billion within the Mexican economy. With respect to employment, the sector secured 420,000 indirect jobs and one million induced jobs. The economic footprint of the Health Economy in 2018 in Mexico, therefore, amounted to USD 128.9 billion in GVA and an employ-

²² See Global Health Expenditure Database (WHO). URL: <https://apps.who.int/nha/database> (Accessed on 16 June 2020)

²³ See The World Bank data, URL: <https://data.worldbank.org/indicator/SH.XPD.CHEX.GD.ZS>

²⁴ Due to better data availability, the reporting year for the Mexican HER is 2018.

ment of 3.8 million. Every USD 1 generated by the Health Economy generated additional USD 0.8 in the Mexican economy. Five jobs in the Health Economy secured three additional jobs in Mexico.

The share of the Industrial Health Economy in the sector's GVA was 30.4 percent in 2018. The sub-sector generated a GVA of USD 21.7 billion and secured 553,000 jobs. Its economic footprint amounted to USD 35.5 billion in GVA and an employment of 857,000. Every USD 1 generated by the Industrial Health Economy generated additional USD 0.6 in the Mexican economy. Five jobs secured three additional jobs in Mexico.

In 2019, Novartis' operations and R&D activities in Mexico contributed USD 199 million to GVA and an employment of 1,325. The company's global spill-over effects amounted to a GVA of USD 247 million and an employment of 10,078. Hence, its economic footprint amounted to USD 446 million in GVA and an employment of 11,403. Every USD 1 of GVA generated by Novartis Mexico generated additional USD 1.2 globally. Every job secured 7.6 additional jobs.

4 Discussion and outlook



The HER results for the selected Latin American countries demonstrate the impressive economic weight of the Health Economy. Consequently, the political awareness towards the sector and its crucial role in creating sustainable growth and employment should be increased in the Latin American region.

It is apparent that health expenditures are positively correlated with the economic contribution of the Health Economy. Higher investments by public and private sources in health systems lead to a higher value added and employment of the Health Economy.

Figure 8: Health expenditures and the Health Economy in the selected Latin American countries in 2017

	 Argentina	 Brazil	 Colombia	 Mexico	 Global	 Germany
Share of health expenditures in GDP in 2017	9.1 %	9.5 %	7.2 %	5.5 %	9.9 %	11.2 %
Share of Health Economy in GDP in 2017	8.8 %	7.2 %	6.8 %	5.3 %	8.0 %	12.0 %
Labor force share in overall economy in 2017	8.6 %	7.4 %	7.4 %	5.6 %	6.2 %	17.0 %

Source: Global Health Expenditure Database (WHO), WifOR calculations. Global Health Economy figures as WifOR estimate. Methodological difference for the German HER due to more detailed data.

However, health investments do not necessarily translate directly into GVA of the Health Economy. This depends on the economic structure of the sector. When the production of the Health Economy depends largely on inputs, high investments do not translate directly into GVA. The same is true when health investments are spent on products that are not produced domestically but are imported – as is largely the case for the products of the innovative Industrial Health Economy. Conversely, if a country exports many Health Economy products, the share of the sector can be larger than the share of the health investments.

Therefore, investments in health systems should consider all sub-sectors of the Health Economy. A lower dependence of health systems on imports of the Industrial Health Economy ensures that increased health investments

translate into GVA. Especially in light of the COVID-19 pandemic, improving R&D for an accelerated development of diagnostics, treatments and vaccines became a crucial measure for governments.

However, it will be equally important to increase investments in health after the current pandemic. Instead of budgeting health expenditures on an annual basis, policymakers in the Latin American region should consider those expenditures as an investment with its return being resilient health systems that emphasize pandemic preparedness and are a driver for sustainable economic growth, employment, innovation, and wealth.

Apart from the current and future pandemics, a higher awareness of the decisive role of health systems and, consequently, higher investments in health are needed to achieve SDG 3, especially in low-income and middle-income countries in the Latin American region. As an OECD-member, Mexico invests substantially less in health than other countries in the Latin American region. Prevalent efficiency problems of health systems can only be tackled when necessary investments are made in the first place.

Besides strengthening all sub-sectors of the Health Economy, a continuous reporting of the sector by the respective ministries together with the national statistical institutes would provide an evidence-based monitoring tool to support decision making of economic and health policymakers. The present report is a starting point for a new, objective dialogue between politicians, statistical institutes, associations, and companies.

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