LIFE SCIENCES INDUSTRY AS A DRIVER OF PROSPERITY

2026 UPDATE

16 October 2026

EXECUTIVE SUMMARY

This study assesses the economic contribution of the global life sciences industry, comprising the pharmaceutical and medical technology (medtech) sectors. The 2026 update builds on a previous study published in 2024 that presented results for 2022[1] and extends its methodological framework. Based on the latest available data, it provides updated results for 2024, the most recent reporting year with sufficient data coverage. The analysis focuses on two key dimensions of economic impact: GDP contribution (gross value added) and employment.

The assessment captures both the industry's direct economic contribution and the broader spillover effects generated throughout global supply chains. Direct effects reflect the value added and employment generated within the pharmaceutical and medtech sectors themselves. Spillover effects are estimated using input-output (IO) modelling, capturing the additional economic activity supported through the industry's demand for goods and services across its global supply chains.

The analysis highlights the substantial economic footprint of the global life sciences industry. The industry contributes approximately USD 1,060 billion to global GDP and generates around 21 million jobs through its direct activities. This corresponds to approximately 1.0% of global GDP and 0.7% of global employment and results in a labour productivity of USD 50,500 per person employed.

Within the life sciences industry, the two subsectors differ in their relative contributions. The pharmaceutical sector accounts for approximately 70% of the total direct GDP contribution and 31% of direct employment, while the medtech sector accounts for the remaining 30% of GDP contribution and 69% of employment.

In addition to its direct contribution, the industry is associated with an estimated USD 2,534 billion in indirect GVA and USD 972 billion in induced GVA. It also supports 76.5 million indirect jobs through supply-chain activities and 32.6 million induced jobs through employee spending. Indirect and induced effects together account for the spillover effects.

Furthermore, economic multipliers are calculated as the ratio of spillover effects to direct effects. For the life sciences industry, the indirect multiplier amounts to 2.4, indicating substantial economic activity throughout upstream supply chains, while the induced multiplier stands at 0.9, reflecting additional effects generated through employee spending. The chemical industry shows a similar

[1] Zimmermann and Fries, *Health Economy Reporting. Analyzing the Global Life Sciences Industry*.

pattern to life sciences, with multipliers of 2.5 and 1.3, respectively, while the automotive industry stands out with higher multipliers of 2.9 for indirect and 1.7 for induced effects.

Overall, the findings underscore the economic importance of the life sciences industry and provide a robust quantitative basis for assessing its contribution to global prosperity. The results demonstrate that the industry not only generates substantial direct economic value but also supports significant additional economic activity across global supply chains and the wider economy.

1 NEW PERSPECTIVES ON HEALTH INVESTMENT AND THE HEALTH ECONOMY

Why should one measure the economic significance of the life sciences industry in the first place? For a long time, an outdated mindset prevailed that viewed healthcare financing exclusively as a cost factor or a mere line item of expenditure, evaluating the sector in isolated silos. Not too long ago, the COVID-19 pandemic caused estimated mitigation costs of USD 12 trillion across G20 countries alone and thereby clearly demonstrated that the state of healthcare systems is deeply intertwined with the performance and prosperity of economies.[2]

Consequently, healthcare expenditure must no longer be viewed as a mere burden but must be recognised as an investment in societal resilience and sustainable economic growth. Health acts not as a fiscal drain, but as a social stabiliser and economic driver. The previous cost-centric discourse has systematically obscured the significant macroeconomic contributions that the health economy, and specifically the life sciences industry, makes to GDP and the labour market. Additionally, measuring the performance of the health economy and its subsectors in terms of GDP contribution and labour market also supports the UN Sustainable Development Goals (SDGs), as it provides an evidence-based foundation for investment decisions that promote health (SDG 3), economic growth (SDG 8), and innovation (SDG 9).[3]

Through this close integration into value chains, the industry is extensively connected to other sectors of the economy, a connection that can be quantified through indirect and induced spillover effects. These effects are made measurable using input-output analyses based on national accounts. As the following calculations demonstrate, investments in the life sciences industry create a visible return on investment (ROI) for the broader economy.

However, one could even go one step further for a comprehensive assessment of the industry: innovative products developed and manufactured by the life sciences industry enable people to live healthier and more productive lives. By supporting greater workforce participation and reducing health-related productivity losses, the life sciences industry contributes to stronger economic performance and competitiveness.

This study aims to quantify the economic significance of the global life sciences industry. Using an established methodology and publicly available data from official statistical authorities, it provides a consistent basis for international comparisons and helps place the industry's contribution in the context of the overall economy. The results help to better understand the industry's role in economic growth and job creation and can inform future policy and investment decisions.

[2] Ostwald et al., *If We Can't Measure It, We Can't Fix It - A Report to the G20 Presidency and B20 Health Taskforce*.
[3] Henke et al., 'Health Economy Reporting'.

2 HEALTH ECONOMY REPORTING – METHODOLOGICAL APPROACH

Health Economy Reporting (HER) aims to quantify the economic significance of the health economy on the basis of official statistics and in a manner consistent with national accounts. In contrast to approaches relying solely on company-level data, this framework enables direct and consistent comparisons with other industries defined within the official economic activity classification (NACE)[4].

HER originated in the development of a Health Satellite Account for Germany (GGR, now known as the National Health Account), commissioned by the German Federal Ministry for Economic Affairs. As part of subsequent updates and further methodological developments of the satellite account, the framework was extended to include a regionalisation of the German Health Satellite Account (R-GGR) as well as a European Health Account (EU-GGR)[5]. To account for less granular data and the introduction of additional assumptions where required by data availability, the underlying methodology was subsequently adapted to estimate the economic significance of the health economy and its constituent industries at the global level[6].

As part of this update, the methodology was further developed to enable a global representation of the life sciences industry that, despite the prevailing data constraints, minimises reliance on assumptions. At the global level, many data sources are available only with a considerable time lag or at a lower level of granularity than, for example, comparable data at EU level. The objective was therefore to base the analysis wherever possible on the most recent country-level data available, while remaining closely aligned with the methodological principles of the National Health Account[7].

The life sciences industry comprises two subsectors, pharmaceuticals and medical technology, for which the calculation approaches differ slightly. The analysis is based on Eurostat's FIGARO multi-regional supply and use tables[8], which provide consistent data for all EU Member States, 22 additional countries and a Rest of the World aggregate. The tables cover 64 industries and corresponding product groups and are available consistently for the reporting years from 2010 to 2024. Such a comprehensive, up-to-date and detailed global database is rarely available and provides a particularly robust basis for defining the life sciences industry with a comparatively high degree of precision.

These tables allow us to estimate the gross output of pharmaceuticals and medical technology on a product basis, at least at an aggregated level. This product-based approach captures the production of pharmaceutical and medical technology products regardless of the industry in which they are produced. For instance, a company classified within the chemical industry may also manufacture pharmaceutical products. By defining the life sciences industry based on products rather than industry classifications, we ensure that such production activities are included in our calculations.

To determine pharmaceutical output, we reconcile production data with health expenditure data provided globally by the World Health Organization (WHO).[9] This ensures that only the share of

[4] Eurostat, *NACE Rev. 2 – Statistical Classification of Economic Activities in the European Community*.
[5] Haaf et al., *Europaweites Branchenmonitoring Der Gesundheitswirtschaftlichen Gesamtrechnung (EU-GGR). Konzeptionelle Weiterentwicklung Der Deutschen GGR*.
[6] Alexandrakis et al., *COVID-19 Policy Environment and the Importance of Health Economy in Latin America*.
[7] Schwärzler and Kronenberg, *Methodology of the National Health Account for Germany*.
[8] Remond-Tiedrez et al., *EU Inter-Country Supply, Use and Input-Output Tables*.
[9] World Health Organization (WHO), *Global Health Expenditure Database*.

pharmaceutical production associated with products consumed for the purpose of maintaining or improving human health is included in our calculations. Consequently, veterinary pharmaceuticals, substances used for doping, and pharmaceutical misuse are excluded from the scope of the analysis.

Identifying and delineating medtech production is more challenging, as medical technology products are not captured by a single industry classification or a distinct product category. We therefore apply European shares of medical technology production within several broader product categories, derived from the highly detailed European statistics on the production of manufactured goods (Prodcom).[10] These detailed data allow us to identify the proportion attributable to medtech within each relevant product category. Since comparable product-level data are not available for other countries, the European shares are used to estimate medtech production in those economies.

Once the global gross output of pharmaceuticals and medical technology has been determined, these values are integrated into a multi-regional input-output model (WifOR-IO)[11] to estimate employment and wider economic spillover effects. The model captures economic interdependencies between industries and countries, allowing production activities to be traced along global supply chains. Indirect and induced effects are calculated using the Leontief inverse[12], while country- and sector-specific coefficients are used to determine the associated gross value added (GVA) and employment. Indirect effects arise from the demand for intermediate goods and services, while induced effects result from additional economic activity generated by the spending of wages earned directly and indirectly along the supply chain. Finally, the resulting direct, indirect and induced effects are aggregated to quantify the overall economic footprint of the global life sciences industry.

[10] Williams, 'Europrom PRODCOM Data'.
[11] Scholz et al., *Impact Measurement Using WifOR's Sustainability Footprint Method*.
[12] Leontief, 'Quantitative Input and Output Relations in the Economic Systems of the United States'.

3 DIRECT EFFECTS

Gross value added – Direct economic activity in the life sciences industry generated USD 1,060 billion in GVA in 2024, corresponding to approximately 1% of global GVA. Of this total, USD 739 billion was attributable to the pharmaceutical sector and USD 320 billion to the medtech sector.

Figure 1: Global economic impact of the life sciences industry, 2024.

Source: Own calculations based on FIGARO, WHO Global Health Expenditure Database, Eurostat Prodcom.
Note: Figures may not add up due to rounding.

Employment – In addition, the life sciences industry directly supported around 21.0 million jobs in 2024. Of these, approximately 6.5 million jobs were generated in the pharmaceutical sector and 14.4 million jobs in the medtech sector.

Figure 2: Global economic impact of the pharmaceutical sector, 2024.

Source: Own calculations based on FIGARO, WHO Global Health Expenditure Database, Eurostat Prodcom.
Note: Figures may not add up due to rounding.

While the pharmaceutical sector accounts for more than two-thirds of the life sciences industry's GVA, it contributes less than one-third of the industry's total employment. This pattern is reversed for the medtech sector, which accounts for roughly one-third of the life sciences industry's gross value added but approximately two-thirds of its total employment. Accordingly, labour productivity differs substantially between the two subsectors.

Figure 3: Global economic impact of the medtech sector, 2024.

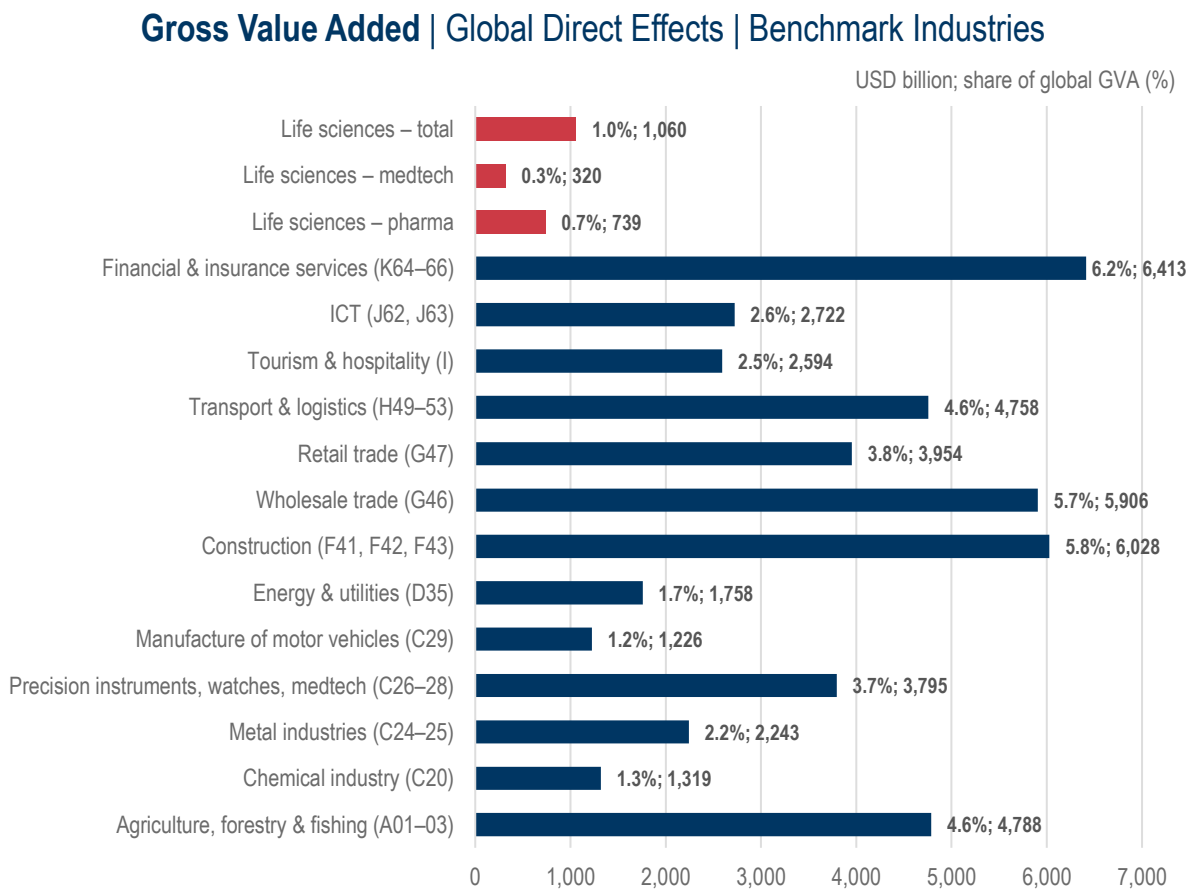
Source: Own calculations based on FIGARO, WHO Global Health Expenditure Database, Eurostat Prodcom.
Note: Figures may not add up due to rounding.

Labour productivity – Another relevant indicator is labour productivity, measured as GVA per person employed. In this analysis, labour productivity is expressed in USD per person employed. For the life sciences industry as a whole, labour productivity amounts to USD 50,500 per person employed. Considerable differences can be observed between the two subsectors: the pharmaceutical sector records a substantially higher labour productivity, at USD 113,000 per person employed, compared with USD 22,200 per person employed in the medtech sector.

4 DIRECT EFFECTS – COMPARISON WITH BENCHMARK INDUSTRIES

Share of global GVA – To put the magnitude of the direct economic effects into perspective, the life sciences industry's share of global GVA was calculated and compared with other industries. At the global level, the automotive (1.2%) and chemical (1.3%) industries account for similarly sized shares of GVA. The largest share is attributable to the financial and insurance services sector (6.2%), followed by construction and wholesale trade. The detailed results of this sector comparison are presented in Figure 4Figure 4Figure 4.

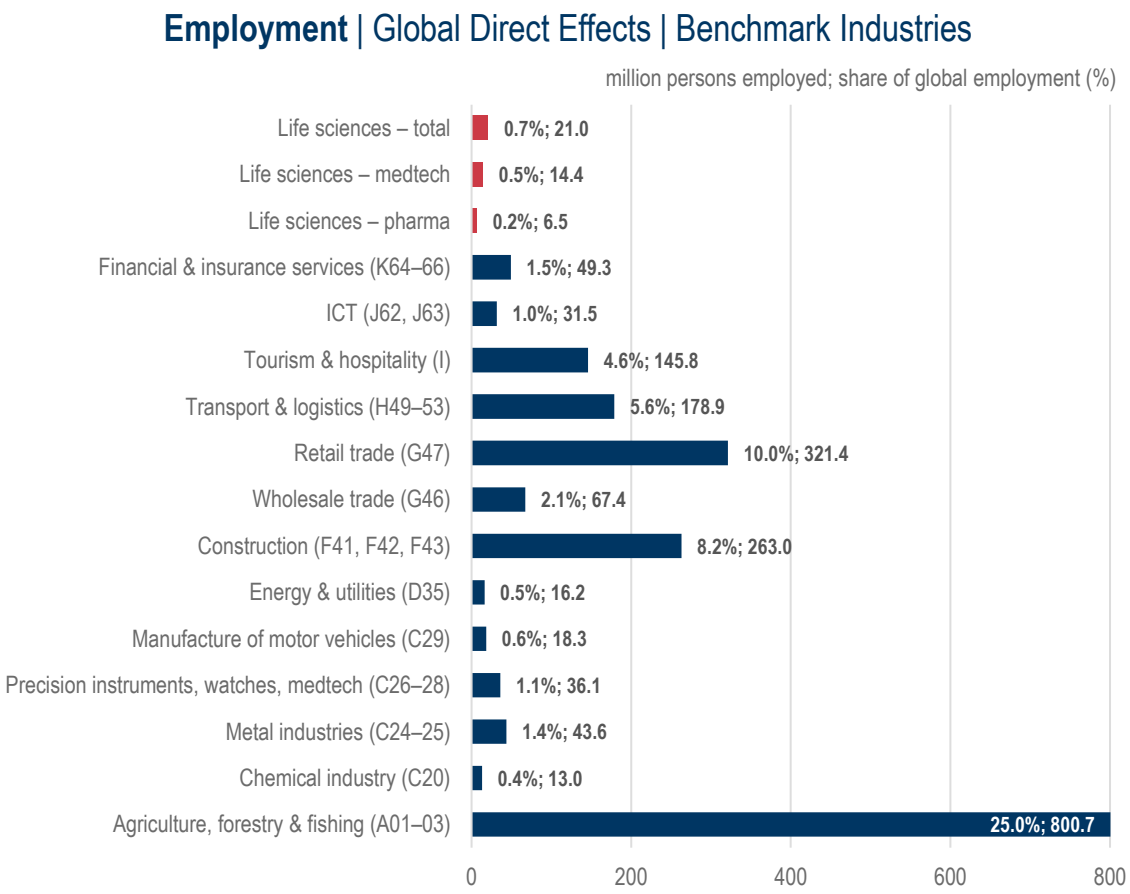
Figure 4: Direct gross value added in the global life sciences industry and selected benchmark industries, 2024.



Source: Own calculations based on FIGARO, WHO Global Health Expenditure Database, Eurostat Prodcom.

Share of global employment – A similar comparison was conducted for employment by calculating each industry's share of global employment. In this case, most industries are of a comparable magnitude. Agriculture and forestry stand out with by far the highest share at 25.0%, followed by retail trade at 10.0% and construction at 8.2%. The detailed results of the industry comparison are presented in Figure 5. However, it is important to consider the global scope of this analysis, as the share of agriculture would be substantially lower if the analysis were limited to industrialised countries.

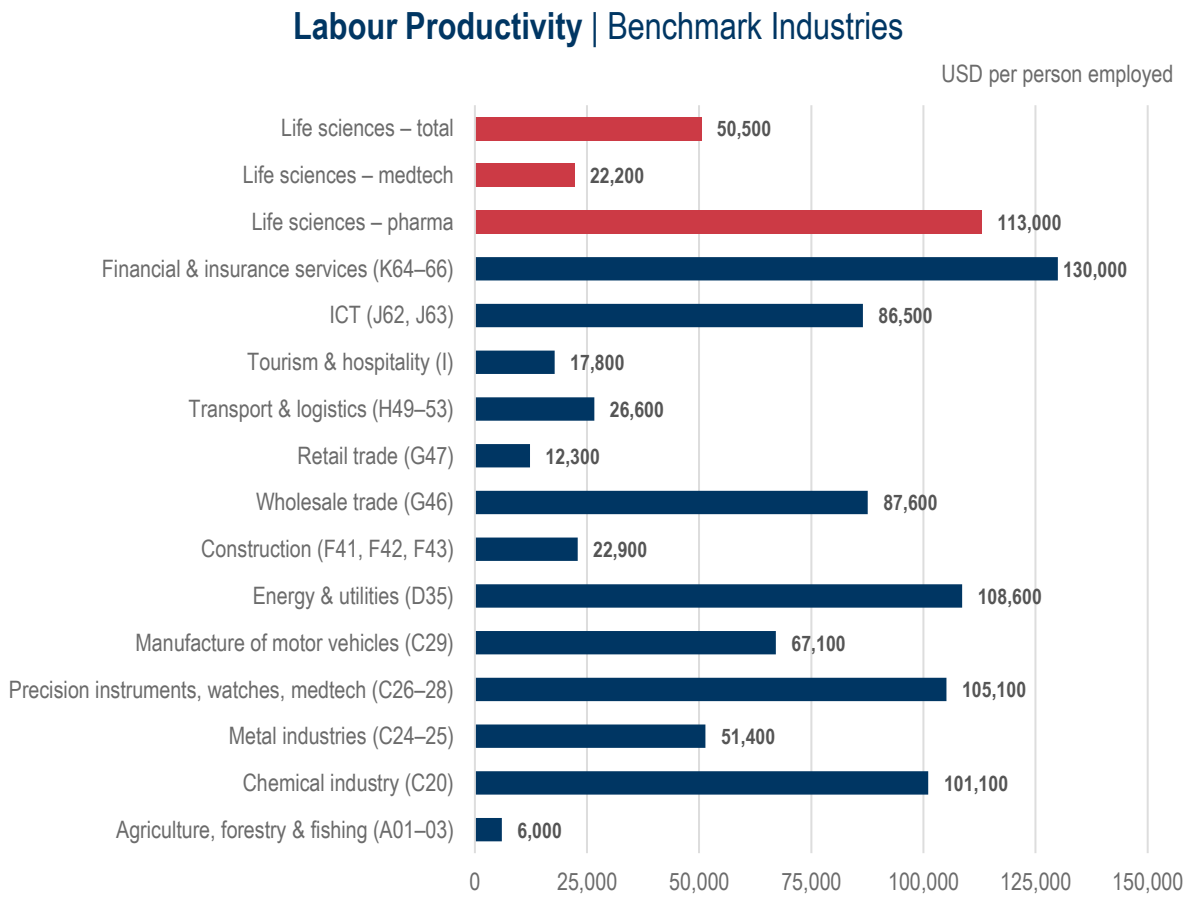
Figure 5: Direct employment in the global life sciences industry and selected benchmark industries, 2024.



Source: Own calculations based on FIGARO, WHO Global Health Expenditure Database, Eurostat Prodcom.

Labour productivity compared with other industries – The average labour productivity in the global life sciences industry amounted to USD 50,500 per person employed in 2024. This was comparable to that of the metal industries (USD 51,400), but below the automotive industry (USD 67,100) and ICT (USD 86,500). At the same time, labour productivity in the life sciences industry is considerably higher than in construction (USD 22,900), transport and logistics (USD 26,600), and tourism and hospitality (USD 17,800). These comparisons show the life sciences industry's high labour productivity, although substantial differences exist between its pharmaceutical and medtech subsectors, whereby labour productivity in the pharmaceutical sector in comparison to other industries is second only to that of financial and insurance services.

Figure 6: Labour productivity in the global life sciences industry and selected benchmark industries, 2024.



Source: Own calculations based on FIGARO, WHO Global Health Expenditure Database, Eurostat Prodcom.

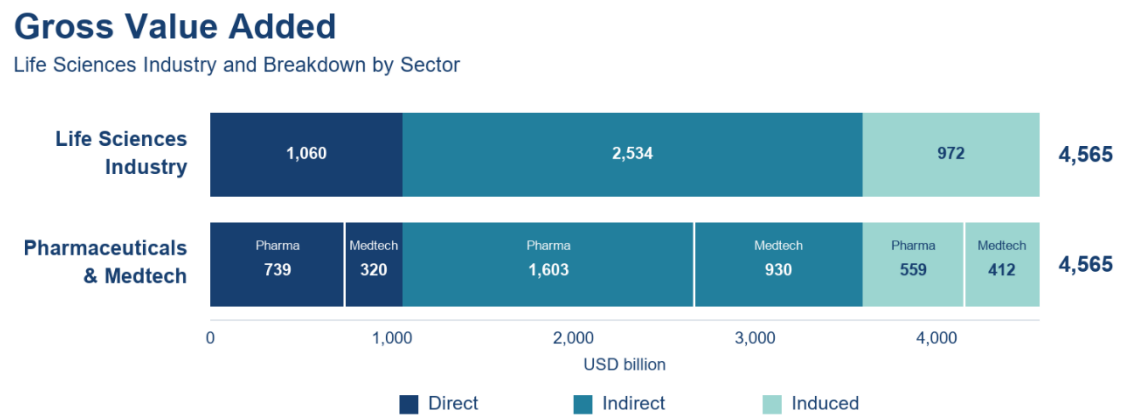
5 GLOBAL ECONOMIC FOOTPRINT OF THE LIFE SCIENCES INDUSTRY: DIRECT, INDIRECT AND INDUCED EFFECTS

In addition to the direct effects, the broader economic impact along the supply chain was estimated using input-output (IO) modelling. The analysis captures both indirect effects arising from upstream supplier activities and induced effects generated through the spending of wages and salaries. The resulting direct, indirect and induced effects are presented in Figure 7 below for the life sciences industry as a whole, as well as separately for the pharmaceutical and medtech sectors.

It is important to note that these effects are not a measure of an industry's performance. They do in fact illustrate, how strongly the economic interlinkages are between the assessed industry and the wider economy. Highly vertically integrated businesses generally have lower spillover effects as the value creation is concentrated within the industry itself, meaning that relatively few inputs are procured from other industries. This often reflects strategic business decisions (make-or-buy decisions) or the underlying structure of a particular industry rather than a specific achievement or indication of economic success.

Gross value added – The results indicate that indirect effects make the largest contribution to gross value added (GVA). For the life sciences industry as a whole and the pharmaceutical sector, direct effects constitute the second-largest contribution, followed by induced effects. In the medtech sector, induced effects rank second, while direct effects make the smallest contribution.

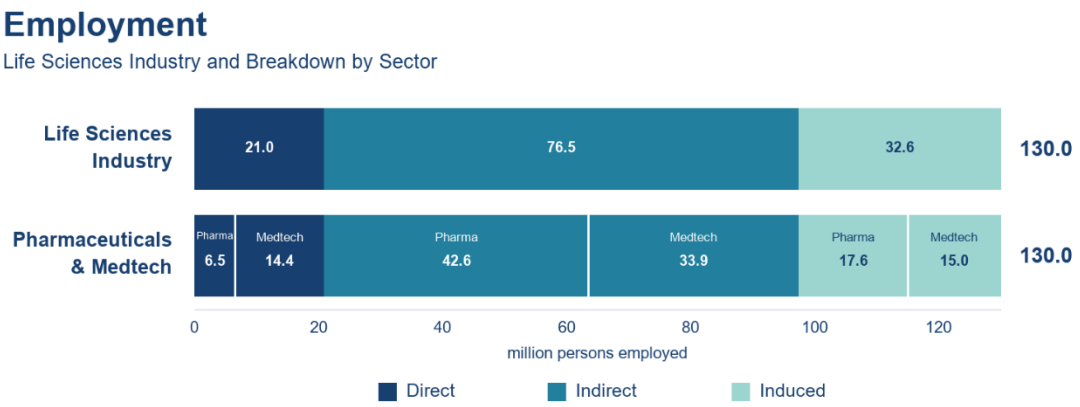
Figure 7: Economic footprint (gross value added) of the life sciences industry, 2024.



Source: Own calculations based on FIGARO, WHO Global Health Expenditure Database, Eurostat Prodcom, WifOR-IO.
Note: Figures may not add up due to rounding.

Employment – Indirect effects also account for the largest share of employment impacts. This pattern is consistent across the life sciences industry as a whole and its pharmaceutical and medtech subsectors, with induced effects representing the second-largest contribution, followed by direct effects.

Figure 8: Economic footprint (employment) of the life sciences industry, 2024.



Source: Own calculations based on FIGARO, WHO Global Health Expenditure Database, Eurostat Prodcom, WifOR-IO.
Note: Figures may not add up due to rounding.

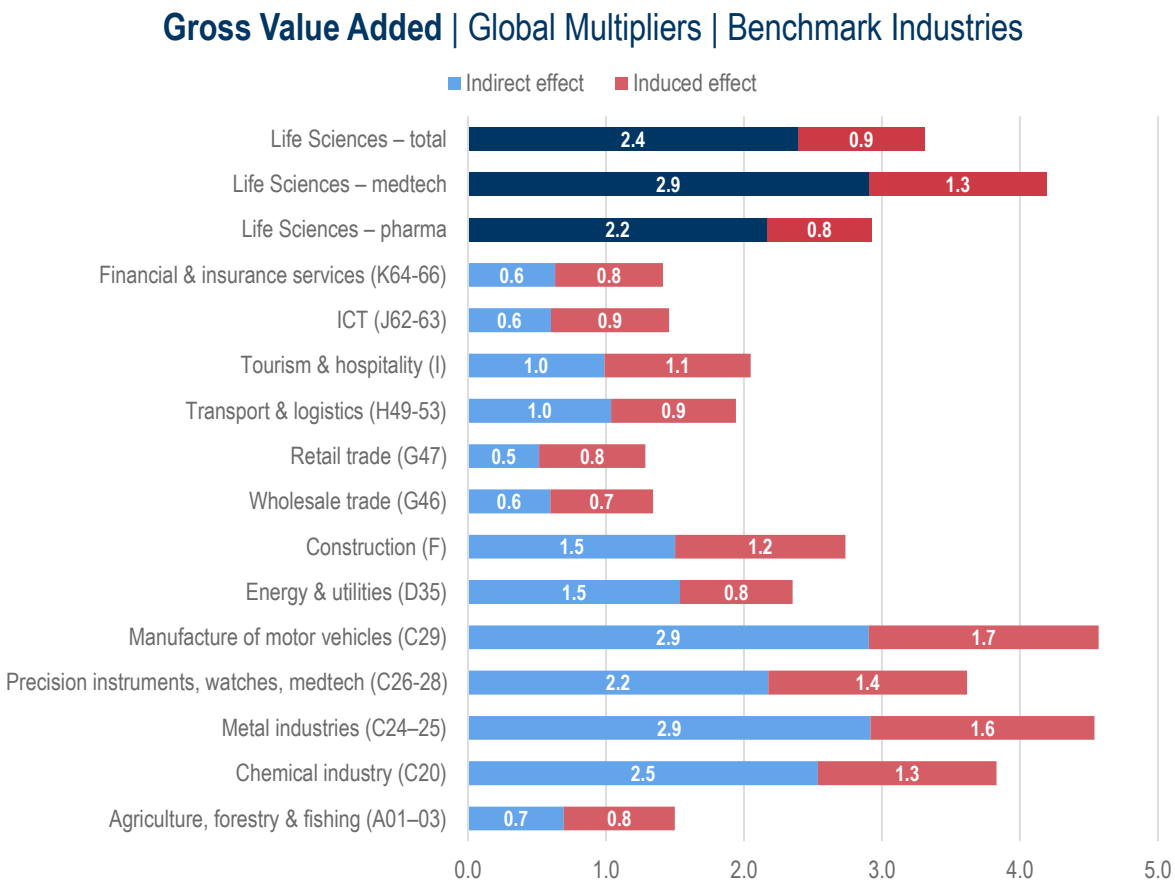
6 ECONOMIC MULTIPLIERS – COMPARISON WITH BENCHMARK INDUSTRIES

Based on the direct, indirect and induced effects, multipliers are calculated to capture the relationship between indirect and induced effects, respectively, and the corresponding direct effects. These multipliers also provide a useful basis for comparing the economic impact of the life sciences industry with that of other industries.

Gross value added – For the life sciences industry as a whole, the indirect GVA multiplier amounts to 2.4, reflecting a multiplier of 2.2 for the pharmaceutical sector and 2.9 for the medtech sector. Compared with other industries, these values are at the upper end of the observed range, indicating relatively strong upstream supply-chain effects. Among the industries considered, the highest

indirect GVA multipliers are also observed for the automotive and metal industries, each reaching 2.9. Detailed industry-level results are presented in Figure 9.

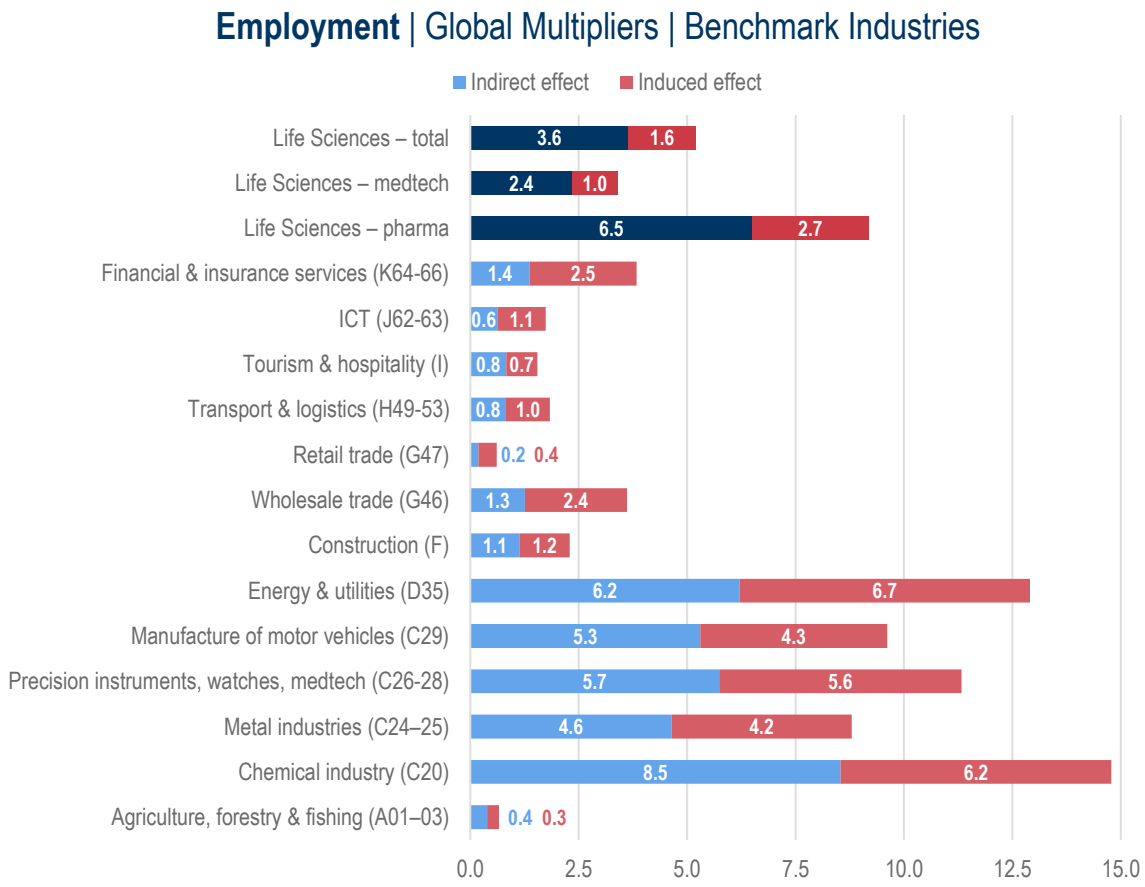
Figure 9: Global GVA multipliers of the life sciences industry and selected benchmark industries, 2024.



Source: Own calculations based on FIGARO, WHO Global Health Expenditure Database, Eurostat Prodcom, WifOR-IO.

Employment – The indirect employment multiplier for the life sciences industry as a whole amounts to 3.6, reflecting multipliers of 2.4 for the medtech sector and 6.5 for the pharmaceutical sector. In comparison with other industries, the life sciences industry ranks in the mid-range of the observed employment multipliers. The highest indirect employment multiplier is observed for the chemical industry, at 8.5, followed by energy and utilities, with a multiplier of 6.2. The detailed results for all industries considered are presented in Figure 10.

Figure 10: Global employment multipliers of the life sciences industry and selected benchmark industries, 2024.



Source: Own calculations based on FIGARO, WHO Global Health Expenditure Database, Eurostat Prodcom, WifOR-IO.

7 LITERATURE AND DATA SOURCES

Alexandrakis, Emmanuel, Jan Fries, Patrick Gwinner, Sandra Hofmann, Hanna Hryhorova, and Camilo Pedraza. *COVID-19 Policy Environment and the Importance of Health Economy in Latin America*. Report for FIFARMA. WifOR Institute, 2022. https://www.wifor.com/uploads/2022/06/WifOR_FIFARMA_Report.pdf.

Eurostat. *NACE Rev. 2 – Statistical Classification of Economic Activities in the European Community*. Publications Office, 2008.

Haaf, Andreas, Nora Albu, Patrick Gwinner, et al. *Europaweites Branchenmonitoring Der Gesundheitswirtschaftlichen Gesamtrechnung (EU-GGR). Konzeptionelle Weiterentwicklung Der Deutschen GGR*. Bundesministerium für Wirtschaft und Klimaschutz (BMWK), 2022. https://www.bmwk.de/Redaktion/DE/Publikationen/Wirtschaft/eu-ggr.html.

Henke, Klaus-Dirk, Benno Legler, Dr Mirko Claus, and D. A. Ostwald. 'Health Economy Reporting: A Case Review from Germany'. *International Journal of Business and Social Science* 10, no. 3 (2019): 50–64. https://doi.org/10.30845/ijbss.v10n3p5.

Leontief, Wassily W. 'Quantitative Input and Output Relations in the Economic Systems of the United States'. *The Review of Economics and Statistics* 18, no. 3 (1936): 105. https://doi.org/10.2307/1927837.

Ostwald, D. A., Hofmann S., Alexandrakis E., et al. *If We Can't Measure It, We Can't Fix It - A Report to the G20 Presidency and B20 Health Taskforce*. WifOR, 2021. https://www.wifor.com/uploads/2021/05/G20_Health_Metrics_ROI_G20_B20.pdf.

Remond-Tiedrez, Isabelle, Jose M. Rueda-Cantuche, and Europäische Kommission, eds. *EU Inter-Country Supply, Use and Input-Output Tables: Full International and Global Accounts for Research in Input-Output Analysis (FIGARO)*. 2019 edition. Statistical Working Papers. Publications Office of the European Union, 2019. https://doi.org/10.2785/008780.

Scholz, Richard, Dorndorf, Tabea, Tesch, Jasmin, et al. *Impact Measurement Using WifOR's Sustainability Footprint Method*. WifOR Institute, 2025. https://www.wifor.com/en/download/impact-measurement-using-wifors-sustainability-footprint-method/.

Schwärzler, Marion Cornelia, and Tobias Kronenberg. *Methodology of the National Health Account for Germany - Database, Compilation and Results*. MPRA Paper No. 73561. Munich Personal RePEc Archive, 2016. https://mpra.ub.uni-muenchen.de/73561/.

Williams, Brian. 'Europrom PRODCOM Data'. *Europroms User Guide*, 2008, 1–18. https://ec.europa.eu/eurostat/documents/120432/4433294/europroms-user-guide.pdf.

World Health Organization (WHO). *Global Health Expenditure Database*. 2026. https://apps.who.int/nha/database/DocumentationCentre/Index/en.

Zimmermann, Sandra, and Jan Fries. *Health Economy Reporting. Analyzing the Global Life Sciences Industry*. WifOR Institute, 2024. https://www.wifor.com/en/download/health-economy-reporting-analyzing-the-global-life-sciences-industry/?wpdmdl=361234&refresh=6ad09875e238c1792055413.

8 ACKNOWLEDGEMENT

WifOR Institute does not engage in research for advertising, sales promotion, or endorsement of clients' interests, including raising investment capital, recommending investment decisions, or providing material for use in litigation.

This study was prepared by WifOR Institute and was initiated and financially supported by Novartis. The analysis and interpretation of the data were conducted independently by WifOR Institute. The findings, conclusions, and any recommendations expressed in this report reflect WifOR Institute's independent research and do not necessarily represent the views of Novartis.

WifOR Institute endeavours at all times to produce work of the highest quality, consistent with our contractual commitments. Due to the research nature of this work, the client assumes sole responsibility for any consequences arising from the use, misuse, or inability to use any information or results produced by WifOR Institute. WifOR Institute and its employees accept no legal liability for the accuracy, adequacy, or effectiveness of the information provided.

Authors

Prof. Dr. Dennis A. Ostwald
Andreas Haaf
Louisanne Knierim

Contact

WifOR Institute
Joseph-Haydn-Straße 1
10557 Berlin

www.wifor.com