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Manufacturization of the Economy and Gross Domestic Manufacturing Product

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Key Takeaways

- **In the context of confrontational globalization, the revival of manufacturing, particularly in developed countries, is of particular importance:** The main instruments of this process are friendshoring, nearshoring, and inshoring (including reshoring), which contribute to the manufacturization of the economy.
- **Assessing the level of manufacturization requires appropriate macroeconomic indicators:** These include Gross Domestic Manufacturing Product, which measures the value added generated by the manufacturing sector within an economy, and the Manufacturization Index, which measures the change in the share of manufacturing in GDP.
- **Gross Domestic Manufacturing Product is an auxiliary macroeconomic indicator:** Regardless of whether GDP or another generalized macroeconomic indicator is used to assess economic performance, measuring the output of the manufacturing sector remains important, since manufactured goods constitute an essential component of human consumption.

The COVID-19 pandemic, followed by Russia's war in Ukraine and the economic sanctions imposed by Western countries on Russia, caused significant disruptions to global supply chains (e.g., Marin, 2021), making their resilience a growing priority (e.g., Spence, 2021).

The resilience of global supply chains can be strengthened through friendshoring, whereby supply chains are redirected to friendly countries; nearshoring, whereby a company relocates its operations to a neighboring country, usually one sharing a border; and reshoring, whereby a business moves its operations back to its home country (Ellerbeck, 2023). Another related strategy is inshoring (or onshoring), which encompasses reshoring, but also refers to the process by which companies that were not previously located in a given country choose to establish operations there (Papava, 2025).

In this context, it is not surprising that, although the World Bank (WB) discouraged national governments from pursuing industrial policy for decades, current global economic difficulties, including disruptions to global supply chains, have led industrial policy to become an increasingly integral part of the WB's recommendations, posing new challenges for economic thought (Mazzucato, Merling, 2026).

When it comes to the resilience of global supply chains, the issue largely concerns manufacturing companies. Consequently, friendshoring, nearshoring, inshoring, and, of course, reshoring, can be viewed as instruments for the manufacturization of the economy (Papava, 2026).

According to the International Standard Industrial Classification of All Economic Activities (ISIC), manufacturing comprises industries in which materials or components undergo physical or chemical transformation to produce new products (WB, n/db). These materials typically include products of agriculture, forestry, fishing, mining, and other sectors. Accordingly, significant alteration, upgrading, or reconstruction of goods is generally considered a manufacturing process (UN, 2008, 85). Manufacturing therefore encompasses the production of food, beverages and tobacco products, chemical and petroleum products, primary and fabricated metal products, machinery, electrical and electronic equipment, transport equipment, paper products and printing, plastics and rubber products, and other manufactured goods.

If manufacturing is separated from Gross Domestic Product (GDP), the corresponding macroeconomic indicator can be referred to as **Gross Domestic Manufacturing Product** (**MGDP**). In other words, *GDMP is the value added generated by the manufacturing sector within an economy during a given*

period. This macroeconomic indicator is particularly important in the context of confrontational globalization (Papava, 2022), when strengthening the resilience of global supply chains has become a major priority for almost every country.

GDMP can also be used to calculate the level of manufacturization of an economy (Papava, 2026).

By "manufacturization of the economy," we propose to characterize the process of structural transformation, in which the share of manufacturing in GDP, that is, the share of the GDMP in GDP, increases. In other words, **manufacturization of the economy is the process of increasing the role of manufacturing within the economic structure, particularly through an increase in the share of manufacturing value added in GDP**.

It is noteworthy that the term "manufacturization" has appeared in the economic literature before, although with different meanings. One of the earliest uses of the term referred to the introduction of industrial production principles, such as standardization, measurement, control, reproducibility, and statistical quality management, into processes for improving software quality (Levendel, 1991).

In a later publication, the term "manufacturization" (in particular, *Service Industry Manufacturization*) refers to the adoption of manufacturing methods, technologies, and organizational principles within the service sector (Ye *et al*., 2012), while, in yet another publication, "manufacturization" is defined as the process by which services are systematically organized to provide more designed and standardized outputs, similar to those in manufacturing (Le, 2014).

The term "manufacturingization" is also used in academic discourse in connection with the application of manufacturing methods to the service sector. Specifically, this refers to the "manufacturingization of service" (e.g., Zhang et al., 2025, p. 27).

To measure the extent to which a country's economy is under the process of manufacturization, the growth rate of GDMP must be divided by the growth rate of GDP, which we call the **Manufacturization Index** (MI).

Let us introduce the following notations:

α^t – is the growth rate of GDP in year t (GDP^t) in relation to year t–1 (GDP^{t-1}), i.e.

$$\alpha^t = \frac{GDP^t}{GDP^{t-1}};$$

β^t – is the growth rate of GDMP in year *t* ($GDMP^t$) in relation to year *t*–1 ($GDMP^{t-1}$), i.e.

$$\beta^t = \frac{GDMP^t}{GDMP^{t-1}};$$

γ^t – is an MI in year *t*, i.e.

$$\gamma^t = \frac{\beta^t}{\alpha^t}.$$

MI can also be calculated in another way. Specifically, MI can be measured as the ratio of the share of GDMP in GDP for two consecutive years. It is easily mathematically proven that using the two methods mentioned for measuring MI yields identical results.

Indeed, if μ^t– is an indicator of the share of GDMP in GDP in year *t*,

$$\mu^t = \frac{GDMP^t}{GDP^t},$$

then

$$\gamma^t = \frac{\beta^t}{\alpha^t} = \frac{\frac{GDMP^t}{GDMP^{t-1}}}{\frac{GDP^t}{GDP^{t-1}}} = \frac{GDMP^t}{GDMP^{t-1}} \times \frac{GDP^{t-1}}{GDP^t} = \frac{GDMP^t}{GDP^t} \times \frac{GDP^{t-1}}{GDMP^{t-1}} = \frac{\mu^t}{\mu^{t-1}}.$$

If MI is greater than one ($\gamma^t > 1$), then there is manufacturization of the economy; if it is equal to one ($\gamma^t = 1$), then the level of manufacturization of the economy does not change; and if it is less than one ($\gamma^t < 1$), then there is demanufacturization (or negative manufacturization) of the economy.

The World Bank publishes data on value added in manufacturing as a percentage of GDP (WB, n/da). This data can be used to calculate the MI. For example, during the COVID-19 pandemic, the share of the manufacturing industry in the global economy in 2020 was 15.91%, and in 2021 – 16.36%, as a result of which the MI was greater than one ($\gamma^{2021} = 1.028$). Accordingly, during the pandemic, a relatively small increase in the level of manufacturization in the global economy was recorded.

Among the G20 countries where, during the pandemic, there was an increase in the level of manufacturization of the economy, i.e. the MI was greater than one, the following stand out: Argentina ($\gamma^{2021} = 1.066$), Brazil ($\gamma^{2021} = 1.113$), Canada ($\gamma^{2021} = 1.024$), China ($\gamma^{2021} = 1.041$), Germany ($\gamma^{2021} = 1.002$), India ($\gamma^{2021} = 1.018$), Italy ($\gamma^{2021} = 1.061$), Mexico ($\gamma^{2021} = 1.032$),

Saudi Arabia ($\gamma^{2021} = 1.056$), South Africa ($\gamma^{2021} = 1.030$), South Korea ($\gamma^{2021} = 1.021$), Turkey ($\gamma^{2021} = 1.162$), and the USA ($\gamma^{2021} = 1.005$).

At the same time, among the G20 countries where demanufacturization of the economy was recorded are Australia ($\gamma^{2021} = 0.986$), France ($\gamma^{2021} = 0.983$), Indonesia ($\gamma^{2021} = 0.969$), Japan ($\gamma^{2021} = 0.995$), the Russian Federation ($\gamma^{2021} = 0.980$) and the United Kingdom ($\gamma^{2021} = 0.962$).

Based on these calculations, it can be concluded that, under the conditions of the COVID-19 pandemic, manufacturization of the economy was seen on a global scale, as the tendency towards manufacturization generally prevailed over the tendency towards demanufacturization.

Of note is the fact that, just 15 years ago, the manufacturization of the economy, particularly in developing countries, was considered a necessary condition for increasing employment, raising labor productivity, and, more generally, achieving high rates of economic growth (Rodrik, 2011). However, technological changes in the economy have demonstrated that stimulating manufacturization is not necessary to achieve these goals, as other sectors of the economy can produce much more impressive results in this regard (Rodrik, 2026).

In the context of confrontational globalization, manufacturization of the economy is focused not so much on increasing employment or promoting economic growth, as on addressing an entirely different challenge: maintaining the resilience of global supply chains.

It is important to emphasize that the GDMP is an auxiliary macroeconomic indicator, and is in no way intended to replace traditional GDP. Since GDP has increasingly attracted criticism, the search for a more adequate macroeconomic indicator has become an important issue in economic science (Stiglitz et al., 2009).

One interesting alternative to GDP is the Gross Domestic Knowledge Product (GDKP), which seeks to measure not simply the goods and services produced by an economy (i.e., GDP), but the knowledge it generates as a key source of future economic development (Sulpasso, 2016). In other words, the fundamental principle by which economic performance is assessed is changing: the principle of an economy of "having" should be replaced by that of an economy of "knowing" (Sulpasso, 2026a).

India is currently actively pursuing the transition from GDP to GDKP (Sulpasso, 2026a). At the same time, GDKP could, in principle, be applied globally (Sulpasso, 2026b).

Even if GDKP, or another macroeconomic indicator, is adopted in place of GDP, it would not affect the auxiliary nature of the GDMP indicator, as GDMP reflects the range of goods produced by the manufacturing industry that are necessary for human consumption.

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