

## Updated data from the TFP KLEMS – Mexico, after the COVID 19 pandemic

### Abstract

This presentation shows the results of Mexico's Total Factor Productivity based on the KLEMS components (capital, employment, energy, materials and services) and at the level of economic activities. These results seek to locate the economic activities that had a greater impact on the behavior of their productivity as a consequence of the COVID 19 pandemic. It is important to clarify that, although the results of the TFP KLEMS México consider in their publication an annual series from 1990-2023, the center of interest would focus on the period 2019-2023, making available to analysts the results that will be shown, under the regulatory framework that governs the INEGI as compiler and producer of statistical and economic information, reserving interpretations and opinions of the results obtained.

### Presentation

As a consequence of the COVID 19 pandemic. This document shows the results of the Total Factor Productivity, KLEMS Model (TFP KLEMS) of Mexico<sup>1</sup>, corresponding to the 2020-2023 annual series; also the annual average of the series and for each year. In addition to the above, it is worth clarifying that the KLEMS TFP is the result of the growth of production, against the growth of the total contribution of the KLEMS factors, referred to Capital Service (K), Labor Service (L), Energy (E), Materials (M) and Services (S). That is, the KLEMS components represent the total cost of the factors in the production process, which on some occasions their growth is greater than the growth of production, thereby reflecting negative productivity, as a consequence of their costs growing more than production income. With these data, we seek to identify the most relevant economic activities that during the health contingency and after it presented irregular behavior in productivity. On the other hand, it is worth mentioning that the calculation of TFP is based on the regulatory framework that governs INEGI as a compiler and producer of statistical and economic information, reserving interpretations and opinions of the results obtained.

---

<sup>1</sup> The results correspond to the publication of Total Factor Productivity, KLEMS Model, of the System of National Accounts of Mexico. See next league: [Productividad Total de los Factores - modelo KLEMS. Año base 2018](#)

## **Content**

- ✓ Introduction
- ✓ PTF KLEMS results 2020-2023, total economy
- ✓ PTF KLEMS results 2020-2023, primary sector
- ✓ PTF KLEMS results 2020-2023, secondary sector
- ✓ PTF KLEMS results 2020-2023, tertiary sector

## **Introduction**

These results of the KLEMS TFP in the context of the past COVID 19 health contingency in 2020, and during the period 2020-2023, consider the consequences of the temporary closure of the country's production units and that of several countries, with implications for world trade and the development of economic activity, registering a very significant economic slowdown, given the decision to suspend activities considered non-essential ("National Day of Healthy Distancing"). This decision inevitably affected several economic sectors that suspended productive operations and temporarily closed to ensure social distancing. However, subsequently, a slow and gradual process of reopening of economic activities began, even with the fear that infections would continue at relatively alarming levels and with the uncertainty of a resurgence of COVID 19 that was not yet fully controlled. For this reason, the impact in 2020 was very significant and the beginning that in the successive years from 2021 to 2023, results were recorded whose magnitude and characteristics were consequences of said impact.

In this sense, these results are supported based on the growth accounting approach and the KLEMS production function, such as capital service (K), labor service (L), energy consumption (E), material inputs (M) and service inputs (S); where interesting results were recorded in the KLEMS TFP from economic activities of the primary, secondary and tertiary sectors; which significantly impacted the annual average 2020-2023 and by year of this series in the context of the COVID 19 pandemic.

## TFP KLEMS results 2020-2023, total economy

The results for the 2020-2023 annual average reflected a TFP growth of 0.43 percent and 1.72% of production. This is because the growth in production was greater than the growth in factor contributions of 1.29%. (See table 1).

Table 1

### Total Factor Productivity 2020-2023 Total (Annual percentage growth rates) <sup>1/</sup>

Period	Production Value	Capital Services	Labor Services	Energy	Materials	Services	Contribution of factors	Total Factor Productivity (TFP)
2020	-8.92	0.07	-0.57	-0.42	-3.10	-0.95	-4.96	-3.95
2021	7.02	-0.11	0.13	0.68	2.69	0.35	3.75	3.27
2022	4.93	0.33	0.20	0.44	1.83	0.65	3.45	1.48
2023	3.85	0.87	-0.06	0.07	1.66	0.38	2.92	0.93
<b>Average 2020-2023</b>	<b>1.72</b>	<b>0.29</b>	<b>-0.07</b>	<b>0.19</b>	<b>0.77</b>	<b>0.11</b>	<b>1.29</b>	<b>0.43</b>

INEGI source. SCNM. Productividad Total de los Factores

<sup>1/</sup> Capital services, labor services, energy, materials and services refer to the weighted variation based on the production value of their respective economic activity.

In 2020, TFP registered a drop of 3.95%, derived from the 8.92% drops in production and 4.96% in the contribution of KLEMS factors. In 2021, TFP registered a growth of 3.27% caused by the growth in production of 7.02%, and 3.75% in the contribution of factors, reflecting a notable recovery, as a consequence of a rebound due to the sharp fall of the previous year. In 2022, TFP registered a growth of 1.48% caused by the growth in production of 4.93%, and 3.45% of the total contribution of factors, reflecting another important recovery. In 2023, the TFP registered a growth of 0.93% caused by the growth in production of 3.85%, and 2.92% of the total contribution of the factors, reflecting the recovery of the KLEMS TFP.

In the economic sectors, the results showed different behaviors in the 2020-2023 annual average, where the primary sector showed the greatest growth in KLEMS TFP with 2.11%, a product of 1.00% growth in production. Contrary to the tertiary sector, which showed the lowest productivity of 0.09%, with a growth of 0.92%. in production, while the secondary sector reported a growth of 0.59% in production with a growth in production of 2.51%. The latter is the one that reported the greatest growth in production. (See table 2).

Table 2

**Total Factor Productivity 2020-2023**  
**Annual average 2020-2023 (Annual percentage growth rates) <sup>1/</sup>**

Sector	Production Value	Capital Services	Labor Services	Energy	Materials	Services	Contribution of factors	Total Factor Productivity (TFP)
<b>Total</b>	1.72	0.29	-0.07	0.19	0.77	0.11	1.29	0.43
Primary	1.00	-1.27	-0.26	0.02	0.37	0.03	-1.11	2.11
Secondary	2.51	0.07	-0.07	0.29	1.43	0.21	1.92	0.59
Tertiary	0.92	0.69	-0.05	0.08	0.06	0.05	0.83	0.09

INEGI source. SCNM. Productividad Total de los Factores

<sup>1/</sup> Capital services, labor services, energy, materials and services refer to the weighted variation based on the production value of their respective economic activity.

**TFP KLEMS results 2020-2023, primary sector**

The results for the 2020-2023 annual average reflected a TFP growth of 2.11 percent, against a production growth of 1.00%. This production growth was greater than the factor contribution growth of -1.11%. (see table 3).

Table 3

**Total Factor Productivity 2020-2023**  
**Primary (Annual percentage growth rates) <sup>1/</sup>**

Period	Production Value	Capital Services	Labor Services	Energy	Materials	Services	Contribution of factors	Total Factor Productivity (TFP)
<b>2020</b>	1.18	-0.84	-0.38	0.01	0.40	0.05	-0.77	1.95
<b>2021</b>	2.21	-1.43	0.35	0.02	0.63	0.06	-0.36	2.58
<b>2022</b>	1.56	-1.85	-0.72	0.07	0.46	0.01	-2.03	3.59
<b>2023</b>	-0.93	-0.96	-0.31	-0.01	-0.01	0.02	-1.27	0.34
<b>Average 2020-2023</b>	<b>1.00</b>	<b>-1.27</b>	<b>-0.26</b>	<b>0.02</b>	<b>0.37</b>	<b>0.03</b>	<b>-1.11</b>	<b>2.11</b>

INEGI source. SCNM. Productividad Total de los Factores

<sup>1/</sup> Capital services, labor services, energy, materials and services refer to the weighted variation based on the production value of their respective economic activity.

In 2020, TFP recorded a growth of 1.95%, derived from a 1.18% growth in production and a 0.77% drop in the contribution of KLEMS productive factors, derived from a good result in capital services, which contributes to a 0.84% drop in costs. In 2021, TFP recorded a growth of 2.58% caused by production growth of 2.21%, and a 0.36% drop in the contribution of factors, reflected by a good result in capital services, which contributes to a 1.43% drop in costs. In 2022, TFP registered a growth of 3.59% caused by production growth of 1.56%, and a 2.03% drop in the contribution of factors, reflected by a good result in capital services, which contributes to a 1.85% drop in costs. In 2023, TFP registered a growth of 0.34% caused by a drop in production of 0.93%, and a greater drop of 1.27% in the contribution of factors, reflected by a good result in capital services, which contributes to a drop of 0.96% in costs.

Within this primary sector, Subsector 111 Agriculture stands out, which presented the following results for the 2020-2023 annual average. Likewise, it reflected a TFP growth of 1.38%, against a production growth of 0.22%. This growth in production was greater than the 1.16% drop in the contribution of factors. With a drop of 0.87% in the capital service contribution. (See table 4).

Table 4

**Subsector 111: Agriculture**  
**(Annual percentage growth rates) <sup>1/</sup>**

Period	Production Value	Capital Services	Labor Services	Energy	Materials	Services	Contribution of factors	Total Factor Productivity (TFP)
2020	-0.15	0.63	-0.44	0.01	-0.26	0.13	0.07	-0.22
2021	2.58	-1.10	0.54	0.01	0.52	0.07	0.05	2.53
2022	1.53	-2.43	-0.97	0.10	0.22	0.01	-3.06	4.60
2023	-3.07	-0.57	-0.39	-0.04	-0.66	-0.02	-1.68	-1.39
<b>Average 2020-2023</b>	<b>0.22</b>	<b>-0.87</b>	<b>-0.31</b>	<b>0.02</b>	<b>-0.04</b>	<b>0.05</b>	<b>-1.16</b>	<b>1.38</b>

INEGI source. SCNM. Productividad Total de los Factores

<sup>1/</sup> Capital services, labor services, energy, materials and services refer to the weighted variation based on the production value of their respective economic activity.

In this sector of Agriculture, the KLEMS TFP is negative in 2020 and 2023, with drops of 0.22 and 1.39% respectively, mainly influenced by the drops in production of 0.15 in 2020 and 3.07% in 2023.

**TFP KLEMS results 2020-2023, secondary sector**

The results for the 2020-2023 annual average reflected a TFP growth of 0.59 percent, against a production growth of 2.51%. This production growth was greater than the total factor contribution growth of 1.92%. (See table 5).

Table 5

**Total Factor Productivity 2020-2023**  
**Secondary (Annual percentage growth rates) <sup>1/</sup>**

Period	Production Value	Capital Services	Labor Services	Energy	Materials	Services	Contribution of factors	Total Factor Productivity (TFP)
2020	-9.14	0.04	-0.51	-0.27	-5.08	-0.58	-6.41	-2.72
2021	8.34	-0.13	0.29	0.87	4.80	0.02	5.86	2.47
2022	6.04	0.14	0.03	0.51	3.05	0.66	4.38	1.66
2023	4.79	0.21	-0.09	0.03	2.98	0.73	3.85	0.94
<b>Average 2020-2023</b>	<b>2.51</b>	<b>0.07</b>	<b>-0.07</b>	<b>0.29</b>	<b>1.43</b>	<b>0.21</b>	<b>1.92</b>	<b>0.59</b>

INEGI source. SCNM. Productividad Total de los Factores

<sup>1/</sup> Capital services, labor services, energy, materials and services refer to the weighted variation based on the production value of their respective economic activity.

In 2020, TFP registered a 2.72% drop, derived from the observed drops of 9.14 and 6.41% in production and in the contribution of KLEMS productive factors respectively, derived from a good result in the negative contribution of 5.08% in material inputs, which contributed to a decrease in production costs. In 2021, TFP recorded a growth of 2.47% caused by production growth of 8.34%, and a lower growth of 5.86% in the contribution of factors, reflected by a good result in capital services, which contributes to a 0.13% drop in production costs. In 2022, the TFP registered a growth of 1.66% caused by the growth in production of 6.04%, and a low growth of 4.38% in the contribution of factors, reflected by a good result in labor services, which contributes 0.03% to production costs. In 2023, TFP registered a growth of 0.94% caused by a drop in production of 4.79%, and a lower growth of 3.85% in the contribution of factors, reflected by a good result in labor services, which contributes to a 0.09% drop in production costs.

In this secondary sector, branch 2361 Residential construction and subsector 336 Manufacturing of transportation equipment stand out. Residential Construction presented a TFP growth of 2.96% for the 2020-2023 annual average, against a drop in production of 2.91%. This drop in production was less than the 5.87% drop in the total contribution of factors, caused by a 3.35% drop in capital service costs, as well as a 1.14% drop in labor services. (See table 6).

Table 6

**Industry group 2361: Residential construction**  
(Annual percentage growth rates) <sup>1/</sup>

Period	Production Value	Capital Services	Labor Services	Energy	Materials	Services	Contribution of factors	Total Factor Productivity (TFP)
2020	-17.48	-3.66	-1.87	-0.13	-5.88	-1.36	-12.91	-4.57
2021	7.04	-3.32	0.09	0.08	2.07	-0.11	-1.19	8.23
2022	-3.42	-3.13	-1.05	0.02	-1.29	-0.72	-6.16	2.75
2023	2.20	-3.30	-0.24	0.06	0.55	-0.30	-3.23	5.44
<b>Average 2020-2023</b>	<b>-2.91</b>	<b>-3.35</b>	<b>-0.77</b>	<b>0.01</b>	<b>-1.14</b>	<b>-0.62</b>	<b>-5.87</b>	<b>2.96</b>

INEGI source. SCNM. Productividad Total de los Factores

<sup>1/</sup> Capital services, labor services, energy, materials and services refer to the weighted variation based on the production value of their respective economic activity.

In this economic activity of Residential Building, the KLEMS TFP was negative in 2020, due to the observed drop of 17.48% in production. From 2021 to 2023, KLEMS TFP growth of 8.23, 2.75 and 5.44% respectively was observed. Meanwhile, production only reported growth of 7.04 and 2.20% respectively.

Subsector 336 Manufacturing of transportation equipment presented growth in TFP, production and the total contribution of factors for the 2020-2023 annual average with 0.67, 3.88 and 3.21% respectively. This growth in KLEMS TFP was basically caused by the negative contribution of 0.04% from labor services, coupled with the low costs of capital services of 0.06% in the production process. (See table 7).

Table 7

**Subsector 336: Manufacturing of transportation equipment  
(Annual percentage growth rates) <sup>1/</sup>**

Period	Production Value	Capital Services	Labor Services	Energy	Materials	Services	Contribution of factors	Total Factor Productivity (TFP)
2020	-19.36	0.57	-0.34	-0.24	-13.02	-0.68	-13.71	-5.66
2021	9.64	-0.07	-0.18	0.22	7.05	-0.29	6.73	2.91
2022	11.16	-0.41	0.08	0.10	6.90	1.11	7.78	3.38
2023	14.08	0.16	0.28	0.29	11.04	0.27	12.03	2.05
<b>Average 2020-2023</b>	<b>3.88</b>	<b>0.06</b>	<b>-0.04</b>	<b>0.09</b>	<b>2.99</b>	<b>0.10</b>	<b>3.21</b>	<b>0.67</b>

INEGI source. SCNM. Productividad Total de los Factores

<sup>1/</sup> Capital services, labor services, energy, materials and services refer to the weighted variation based on the production value of their respective economic activity.

In this economic activity of Manufacturing of transportation equipment, the KLEMS TFP was only negative with 5.66% in 2020, due to the sharp drop in production of 19.66%; and from 2021 to 2023, the KLEMS TFP reported growth of 2.91, 3.38 and 2.05% respectively, supported by the growth in production of 9.64, 11.16 and 14.08% respectively.

**TFP KLEMS results 2020-2023, tertiary sector**

The results for the 2020-2023 annual average reflected a TFP growth of 0.09 percent, against a production growth of 0.92%. This production growth was greater than the factor contribution growth of 0.83%. (See table 8).

Table 8

**Total Factor Productivity 2020-2023  
Tertiary (Annual percentage growth rates) <sup>1/</sup>**

Period	Production Value	Capital Services	Labor Services	Energy	Materials	Services	Contribution of factors	Total Factor Productivity (TFP)
2020	-9.32	0.14	-0.61	-0.68	-1.23	-1.38	-3.76	-5.56
2021	5.95	-0.03	-0.09	0.48	0.59	0.69	1.65	4.30
2022	3.94	0.84	0.51	0.38	0.58	0.74	3.06	0.88
2023	3.11	1.79	-0.02	0.15	0.31	0.14	2.38	0.74
<b>Average 2020-2023</b>	<b>0.92</b>	<b>0.69</b>	<b>-0.05</b>	<b>0.08</b>	<b>0.06</b>	<b>0.05</b>	<b>0.83</b>	<b>0.09</b>

INEGI source. SCNM. Productividad Total de los Factores

<sup>1/</sup> Capital services, labor services, energy, materials and services refer to the weighted variation based on the production value of their respective economic activity.

In 2020, TFP registered a 5.56% drop, derived from the observed drops of 9.32 and 3.76% in production and in the contribution of KLEMS productive factors respectively, derived from good results in the negative contributions of 1.23 and 1.38% of material inputs and services, which contributed to a decrease in production costs. In 2021, TFP registered a growth of 4.30% caused by production growth of 5.95%, and a lower growth of 1.65% in the contribution of

factors, reflected by a good result in capital services and labor services, which contributed to drops of 0.03 and 0.09% respectively in production costs. In 2022, the TFP registered a growth of 0.88% caused by the growth in production of 3.94%, and a low growth of 3.06% in the contribution of factors, reflected by a good result in energy inputs, which contributes 0.38% to production costs. In 2023, TFP registered a growth of 0.74% caused by a growth in production of 3.11%, and a lower growth of 2.38% in the contribution of factors, reflected by a good result in labor services, which contributes to a 0.02% drop in production costs.

Within this tertiary sector, sector 43-46 Commerce stands out; sector 48-49 Transport, postal and storage; Subsector 721 Temporary accommodation services and subsector 722 Food and beverage preparation services. For the 2020-2023 annual average, the economic activity of Commerce presented a drop of 0.39% in TFP, against a growth of 2.19% in production and a growth of 2.58% in the contribution of factors. This drop in KLEMS TFP was caused by the growth in the contribution of capital service by 1.96% in the production process. (see table 9).

Table 9

**Sector 43-46: Commerce**  
**(Annual percentage growth rates) <sup>1/</sup>**

Period	Production Value	Capital Services	Labor Services	Energy	Materials	Services	Contribution of factors	Total Factor Productivity (TFP)
2020	-7.56	-1.09	-0.05	-0.20	-0.25	-0.70	-2.29	-5.26
2021	8.23	-0.04	1.02	0.26	0.23	1.03	2.49	5.74
2022	5.78	5.11	1.23	0.20	0.23	0.62	7.39	-1.61
2023	2.30	3.86	-0.10	-0.16	-0.18	-0.70	2.72	-0.42
<b>Average 2020-2023</b>	<b>2.19</b>	<b>1.96</b>	<b>0.52</b>	<b>0.03</b>	<b>0.01</b>	<b>0.06</b>	<b>2.58</b>	<b>-0.39</b>

INEGI source. SCNM. Productividad Total de los Factores

<sup>1/</sup> Capital services, labor services, energy, materials and services refer to the weighted variation based on the production value of their respective economic activity.

In this economic activity of Commerce, the KLEMS TFP was only positive in 2021, due to the 8.23% growth in production; and 2.49% in the total contribution of the factors, caused by the 0.04% drop in the contribution of capital service in the production process.

The economic activity of Transport, postal and storage; presented for the 2020-2023 annual average, growth in KLEMS TFP, production and in the contribution of factors of 2.35, 3.25 and 0.89% respectively. This growth of KLEMS TFP was caused by the negative cost of 0.35% of the contribution of the capital service in the production process. (See table 10).

Table 10

**Sector 48-49: Transport, postal and storage**  
**(Annual percentage growth rates) <sup>1/</sup>**



Period	Production Value	Capital Services	Labor Services	Energy	Materials	Services	Contribution of factors	Total Factor Productivity (TFP)
2020	-20.23	0.15	-1.40	-4.01	-2.12	-2.75	-10.14	-10.08
2021	16.42	-0.27	0.23	3.03	1.36	2.17	6.52	9.90
2022	12.44	-1.98	0.99	2.26	1.25	1.64	4.15	8.29
2023	4.36	0.71	0.17	1.29	0.26	0.61	3.05	1.31
<b>Average 2020-2023</b>	<b>3.25</b>	<b>-0.35</b>	<b>-0.01</b>	<b>0.64</b>	<b>0.19</b>	<b>0.41</b>	<b>0.89</b>	<b>2.35</b>

INEGI source. SCNM. Productividad Total de los Factores

<sup>1/</sup> Capital services, labor services, energy, materials and services refer to the weighted variation based on the production value of their respective economic activity.

In this economic activity of Transportation, postal and storage, only in 2020 the KLEMS TFP presented a negative figure of 10.08%, caused by the sharp drop of 20.23% in production. From 2021 to 2023, the KLEMS TFP growth was 9.90, 8.29 and 1.31% respectively, as an effect of the growth in the value of production of 16.42, 12.44 and 4.36% respectively.

The economic activity of Temporary Accommodation Service, presented for the annual average 2020-2023, growth in TFP KLEMS, production and in the contribution of factors of 8.91, 12.67 and 3.75% respectively. This growth of KLEMS TFP was caused by the negative cost of 0.62% of the contribution of the capital service in the production process. (See table 11).

Table 11

**Subsector 721: Temporary Accommodation Service  
(Annual percentage growth rates) <sup>1/</sup>**

Period	Production Value	Capital Services	Labor Services	Energy	Materials	Services	Contribution of factors	Total Factor Productivity (TFP)
2020	-54.61	-0.58	-3.25	-0.82	-13.15	-6.55	-24.33	-30.27
2021	58.00	-0.69	1.32	0.68	11.66	5.94	18.91	39.10
2022	41.23	-0.72	0.96	0.70	11.19	5.52	17.64	23.59
2023	6.03	-0.51	0.62	0.11	1.74	0.85	2.80	3.23
<b>Average 2020-2023</b>	<b>12.67</b>	<b>-0.62</b>	<b>-0.09</b>	<b>0.17</b>	<b>2.86</b>	<b>1.44</b>	<b>3.75</b>	<b>8.91</b>

INEGI source. SCNM. Productividad Total de los Factores

<sup>1/</sup> Capital services, labor services, energy, materials and services refer to the weighted variation based on the production value of their respective economic activity.

In this economic activity of Temporary Accommodation Service, only in 2020 the KLEMS TFP presented a negative figure of 30.27%, caused by the sharp drop of 54.61% in production. From 2021 to 2023, the KLEMS TFP growth was 39.10, 23.59 and 3.23% respectively, as an effect of the growth in the value of production of 58.00, 41.23 and 6.03% respectively.

The economic activity of Food and Beverage Preparation Services, for the 2020-2023 annual average, presented a drop of 0.66% in KLEMS TFP and growth in production and in the total contribution of the factors of 0.08 and 0.74% respectively. This growth of the KLEMS TFP was

caused by the negative contribution of 0.74% of labor services, by lowering their costs in the production process. (See table 12).

Table 12

**Subsector 722: Food and Beverage Preparation Services**  
**(Annual percentage growth rates)<sup>1/</sup>**

Period	Production Value	Capital Services	Labor Services	Energy	Materials	Services	Contribution of factors	Total Factor Productivity (TFP)
2020	-24.51	1.17	-1.48	-0.26	-5.46	-1.39	-7.42	-17.09
2021	13.79	0.71	-0.09	0.16	3.50	1.03	5.32	8.47
2022	8.25	0.54	-1.55	0.09	1.96	0.56	1.60	6.65
2023	2.80	1.21	0.16	0.06	1.62	0.40	3.45	-0.65
<b>Average 2020-2023</b>	<b>0.08</b>	<b>0.91</b>	<b>-0.74</b>	<b>0.02</b>	<b>0.40</b>	<b>0.15</b>	<b>0.74</b>	<b>-0.66</b>

INEGI source. SCNM. Productividad Total de los Factores

<sup>1/</sup> Capital services, labor services, energy, materials and services refer to the weighted variation based on the production value of their respective economic activity.

In this economic activity of Food and beverage preparation services, in 2020 and 2023, the KLEMS TFP presented negative data of 17.09 and 0.65%, caused by the drop of 24.51% in production in 2020 and a growth of 2.80% in 2023. In 2021 and 2022 the KLEMS TFP presented positive results of 8.47 6.65% respectively, caused by the growth in production of 13.79 and 8.25% respectively.

### Conclusions

In the context of the COVID-19 health contingency in 2020, the results of the 2020-2023 KLEMS PTF consider the consequences of the temporary closure of the country's production units in line with social distancing measures implemented by several countries to prevent contagion during this pandemic. For this reason, it is recommended that the KLEMS PTF analysis consider that these results are primarily due to the drop-in production, which in turn was caused by the pandemic.

Consequently, this significant economic slowdown in several economic sectors is the result of the decision to suspend productive activities, considered non-essential ("National Social Distancing Day"), with implications for global trade and the development of economic activities.

Subsequently, a slow and gradual reopening of economic activities began, with the caution that infections would continue at alarming levels and the uncertainty of a resurgence of COVID-19 that was not yet fully under control. For this reason, the impact in 2020 was very significant, and the beginning of the following years, from 2021 to 2023, continued with a gradual recovery.