

# The impact of the structural factor on economic growth

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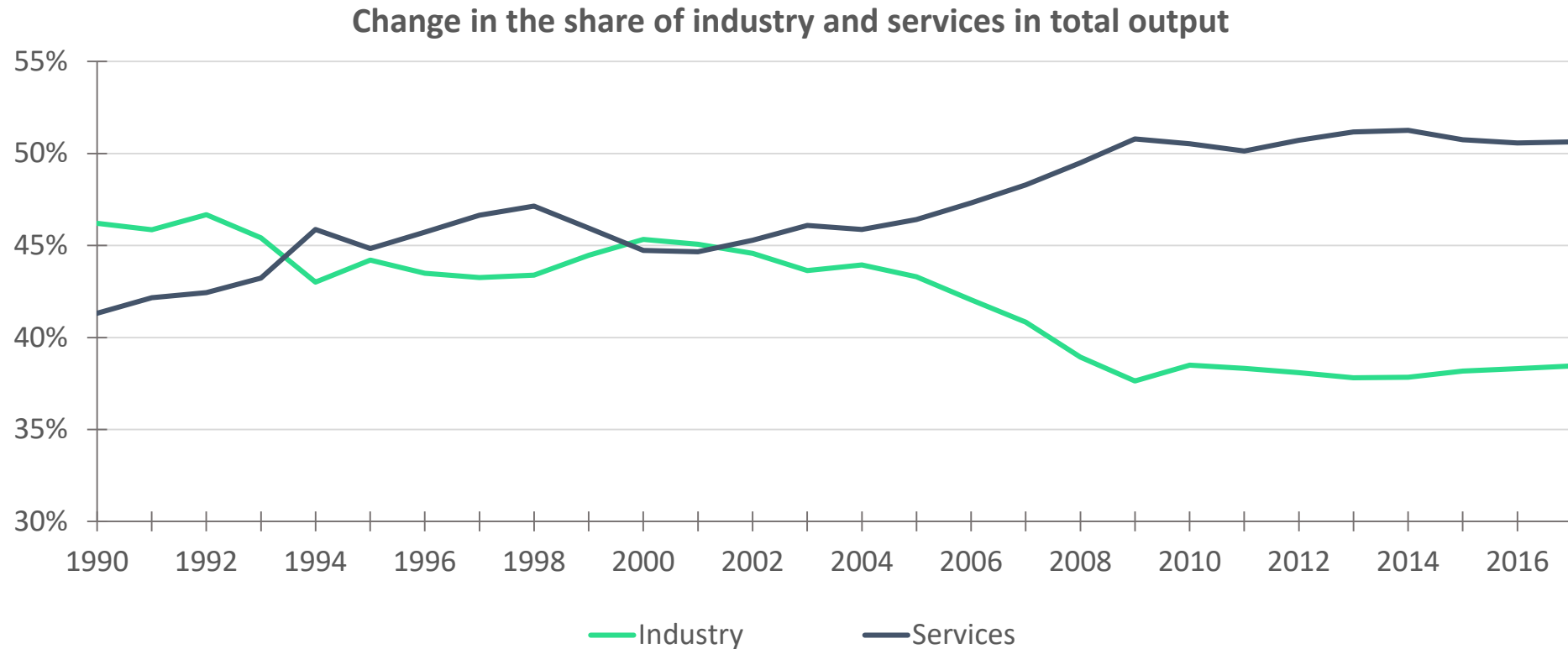


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## Gross output structure

	<b>1990</b>	<b>1998</b>	<b>2008</b>	<b>2017</b>
Agriculture	4.7%	5.0%	4.1%	4.8%
Oil production	4.3%	5.5%	4.3%	4.5%
Other mining	3.0%	3.3%	2.5%	3.2%
Petroleum products	5.2%	5.7%	4.7%	4.9%
Chemical production	2.7%	2.0%	2.3%	3.1%
Metallurgical production	4.4%	4.9%	4.8%	4.2%
Manufacture of machinery and equipment	7.5%	4.3%	6.0%	5.0%
Other manufacturing	12.2%	8.6%	9.0%	8.6%
Electric power	6.8%	9.1%	5.3%	4.8%
Building	7.8%	4.5%	7.5%	6.1%
Trade	8.5%	11.9%	15.3%	14.2%
Transportation and storage	8.3%	7.9%	7.3%	7.8%
Communication and telecommunications	0.4%	0.5%	1.6%	1.8%
Other services	24.1%	26.8%	25.3%	26.8%

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## Output growth rate

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Agriculture	4.8%	7.1%	6.4%	3.1%	2.6%	2.5%	1.0%	4.1%	2.4%	8.0%
Oil production	0.5%	6.5%	8.2%	8.5%	11.6%	9.1%	2.4%	-6.0%	-2.8%	0.1%
Other mining	7.0%	8.7%	2.8%	2.5%	5.9%	5.2%	1.0%	1.1%	-2.1%	3.7%
Petroleum products	1.5%	2.5%	3.1%	2.6%	2.5%	7.7%	8.9%	4.5%	5.2%	3.5%
Chemical production	23.3%	15.4%	4.6%	1.7%	1.2%	10.4%	3.8%	2.3%	9.3%	6.8%
Metallurgical production	12.7%	14.5%	1.8%	3.8%	8.1%	7.9%	4.1%	8.9%	4.5%	-4.7%
Manufacture of machinery and equipment	24.3%	23.4%	5.5%	1.4%	5.8%	17.3%	4.0%	9.3%	13.5%	-1.7%
Other manufacturing	6.9%	14.6%	6.2%	5.6%	4.5%	6.5%	4.3%	9.0%	10.5%	-0.8%
Electric power	-2.4%	1.6%	0.2%	-1.6%	0.0%	2.0%	1.2%	6.2%	-1.8%	0.0%
Building	6.1%	17.5%	9.9%	3.0%	14.3%	9.9%	10.4%	18.2%	16.0%	13.6%
Trade	-1.4%	11.8%	3.6%	5.7%	9.8%	12.4%	9.7%	15.7%	12.2%	10.1%
Transportation and storage	6.1%	4.7%	3.2%	3.0%	6.9%	6.4%	5.3%	10.7%	3.2%	5.1%
Communication and telecommunications	28.8%	11.6%	16.3%	17.6%	24.1%	28.7%	14.9%	24.6%	17.4%	12.0%
Other services	0.7%	2.4%	4.9%	6.4%	9.0%	3.3%	5.0%	6.8%	11.6%	6.3%
<b>Gross output</b>	<b>4.0%</b>	<b>8.1%</b>	<b>4.6%</b>	<b>4.3%</b>	<b>7.2%</b>	<b>7.2%</b>	<b>5.3%</b>	<b>8.3%</b>	<b>8.3%</b>	<b>4.8%</b>

## The impact of the structural factor on economic growth

$$S^{(+)} = \sum_{i=1}^n \Delta sh_i^{(+)} / ((X^t / X^{t-1}) - 1)$$

$S^{(+)}$  – structural factor share in production growth,

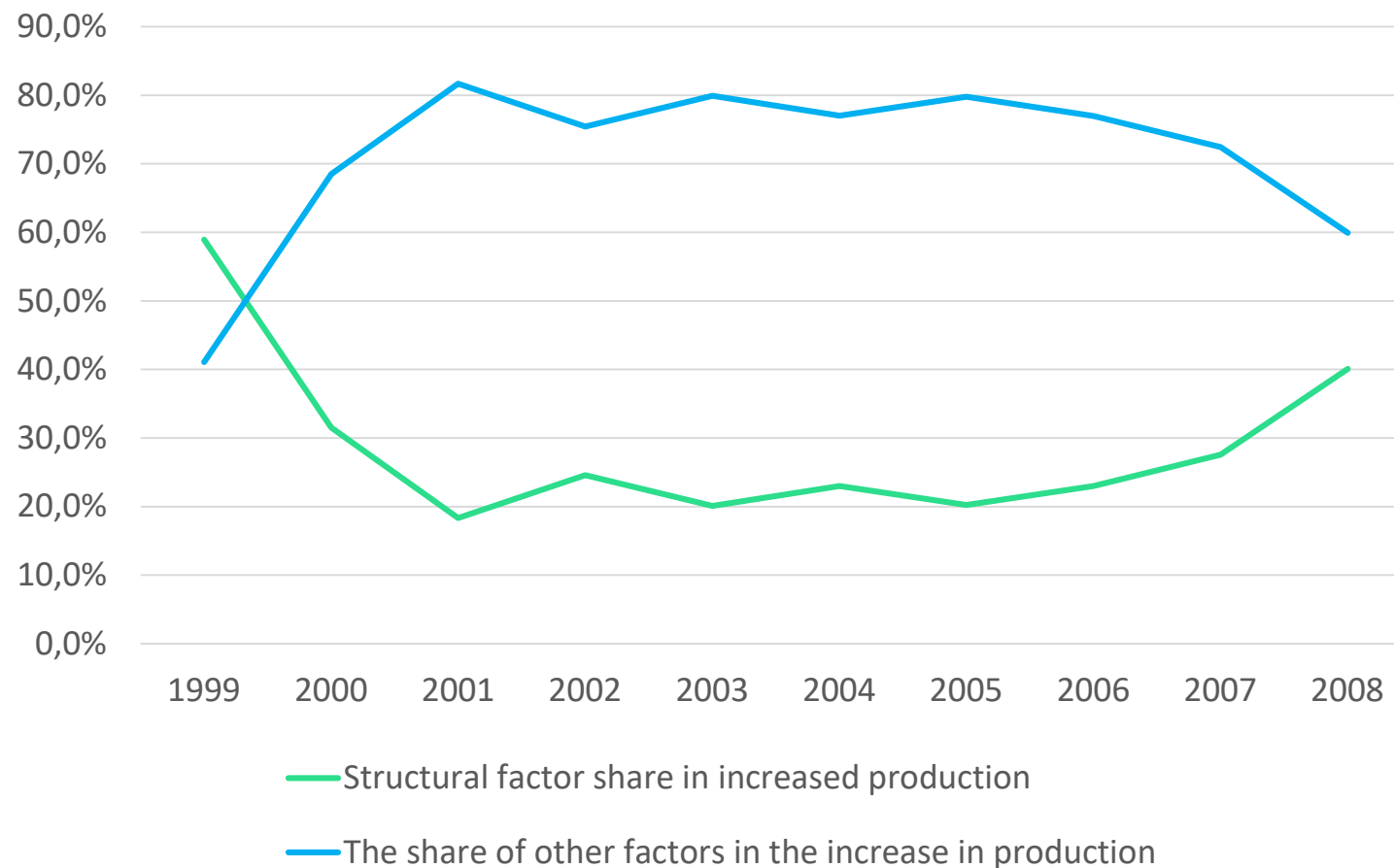
$\Delta sh_i^{(+)}$  – positive absolute changes of the i-sector share in the total gross output amount,

i – the number of sector with growth, faster than the growth of gross output,

$$\Delta sh_i = sh_i^t - sh_i^{t-1}$$

X – the gross output

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## The impact of the structural factor on economic growth

$$S^{(-)} = \sum_{i=1}^n \Delta sh_i^{(-)} / ((X^t / X^{t-1}) - 1)$$

$S^{(-)}$  – structural factor share in production decline

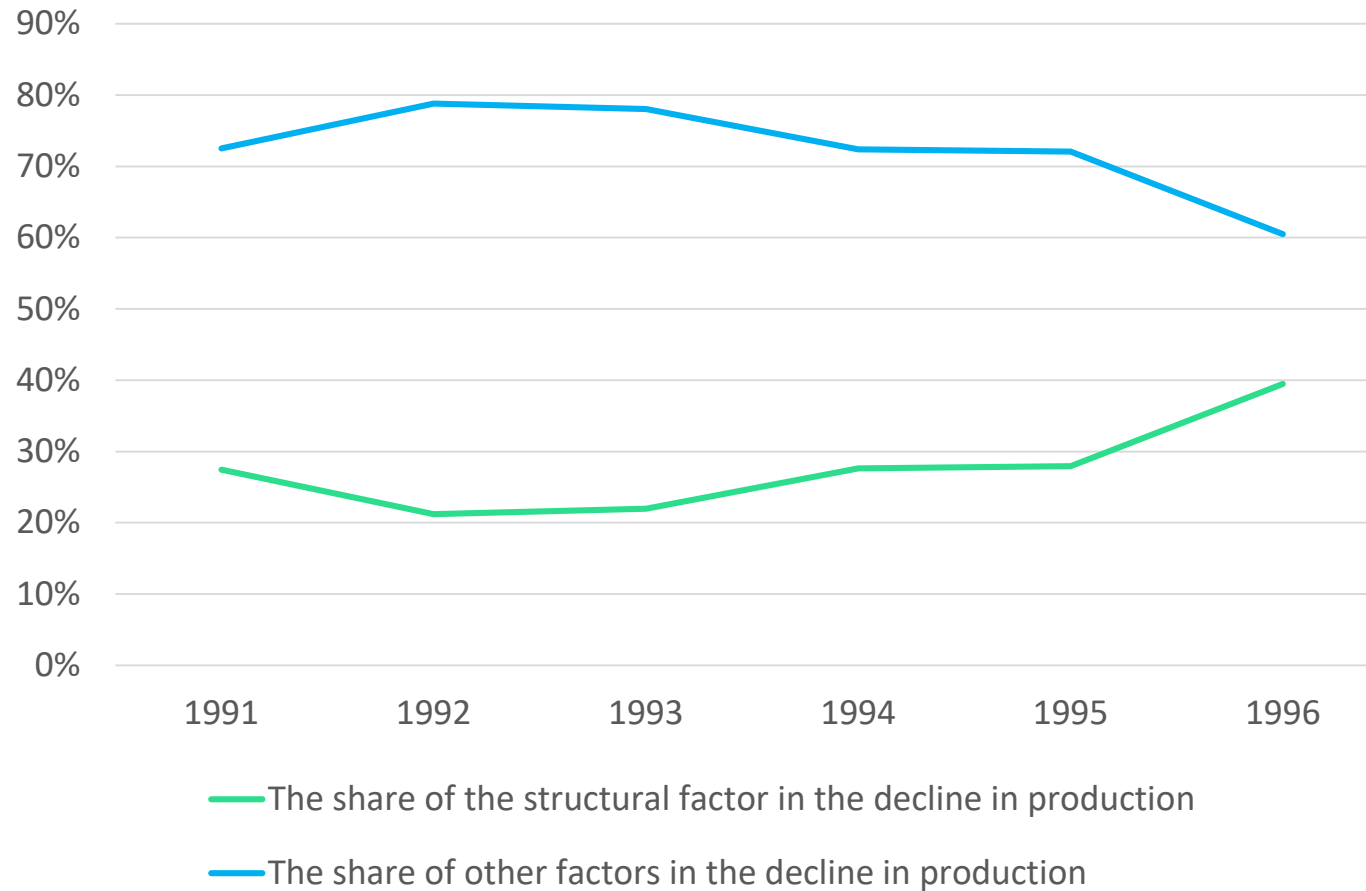
$\Delta sh_i^{(-)}$  – negative absolute changes of the i-sector share in the total gross output,

i – the number of sector with decline, faster than the gross output decline.

$$\Delta sh_i = sh_i^t - sh_i^{t-1}$$

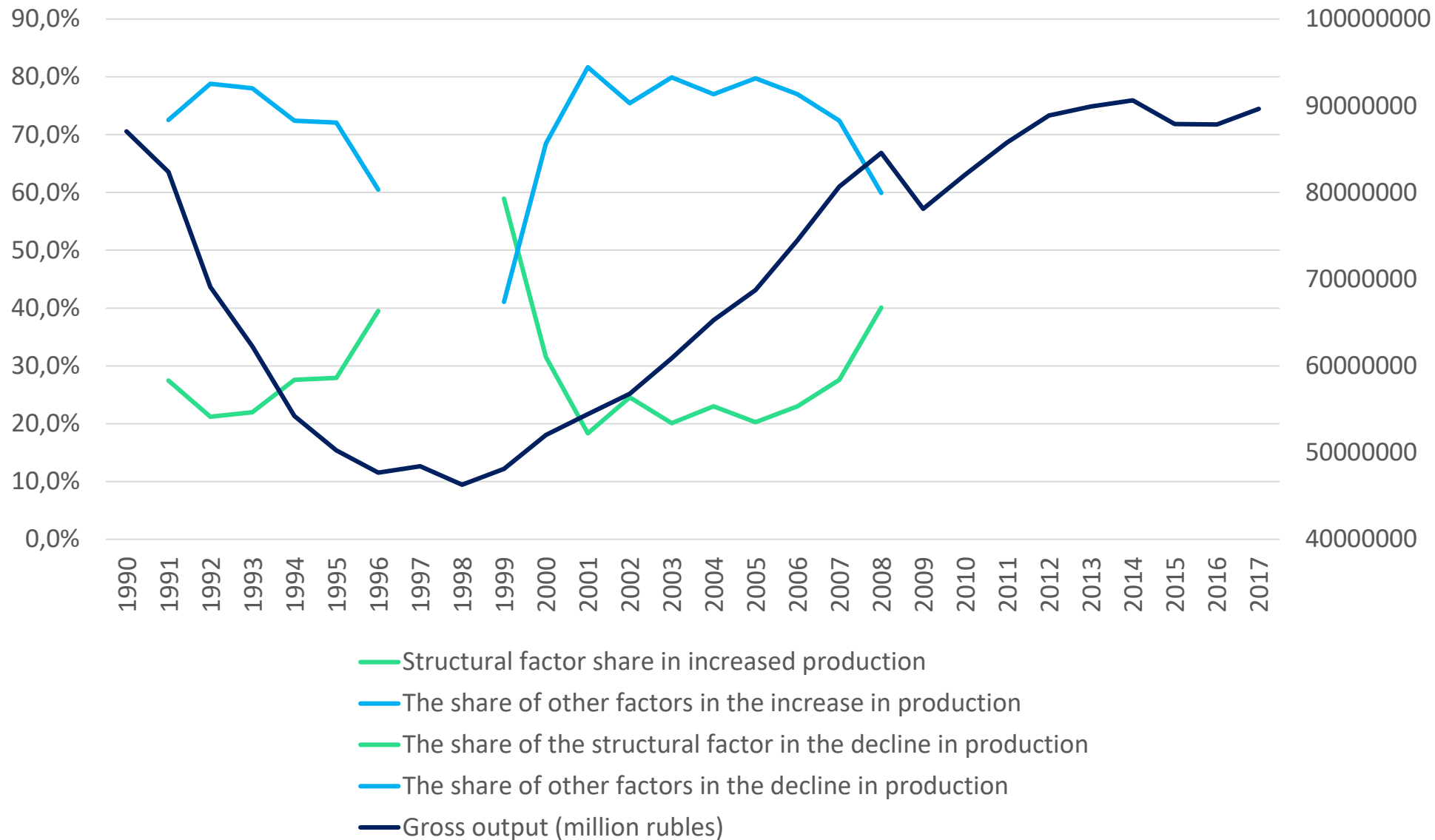
X – the gross output

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Thank you for your attention

