Canada's Productivity Slowdown

A Sectoral Analysis

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- **Introduction** – Motivation and Overview

- **Data & Methodology** – Sources, Models, and Decomposition method.

- **Economy-Wide Analysis** – Goods vs Services

- **Sectoral Analysis** – Sub-sectors under Goods and Services

- **Within-Sector** – Factors behind Within-Sector Productivity Slowdown

- **Conclusion** – A Short Summary

1 Introduction

Since 2015, Canada has experienced a noticeable slowdown in real GDP per capita growth. This slowdown is largely due to a decline in productivity growth that can be traced back to 2000. This report examines aggregate productivity slowdown through a sectoral lens: how sectoral labour productivity contributed to the overall trend. Using a simple model and decomposition framework, we analyze how several sub-sectors productivity has influenced their aggregate counterpart. The report first describes the methodology, followed by empirical results and analysis of key sectors.

2 Methodology

The analysis used annual data from Statistics Canada (Table 36-10-0480-01) from 1997 to 2023 (Statistics Canada, 2025). Our primary dataset comprises sectoral labour productivity—measured as real GDP per hour worked (in chained 2017 dollars)—and sectoral hours worked by workers. This study builds on established methodologies and ideas from previous research (Duarte and Restuccia, 2010; Huan, 2023).

2.1 Model:

We begin with a simple production function:

$$Y = A \cdot N \tag{1}$$

where N stands for hours worked by labor; Y is real GDP; A is labour productivity. Aggregate productivity, A_t, is computed as the weighted average of sectoral productivity:

$$A_t = \sum_i A_{it} \cdot \frac{N_{it}}{N_t} \tag{2}$$

Here A_{it} is the productivity of sector i, and $s_{it} = \frac{N_{it}}{N_t}$ is its sectoral share of total hours worked.

Employing a shift-share decomposition framework (Huan, 2023), we decompose ΔA as:

$$\Delta A = \sum_i s_i \cdot \Delta A_i \quad \text{(Within-sector effect)} + \sum_i A_i \cdot \Delta s_i \quad \text{(Between-sector effect)}. \tag{3}$$

Within-sector effect: Productivity changes within each sector.
Between-sector effect: Captures the impact of shifting labour between sectors.

3   Economy-Wide Analysis

3.1   Macroeconomics Trends

Figure 1 displays the logarithm of Canada's real GDP per capita from 1997 to 2023. The slowdown becomes evident after the early 2000s, as the trend diverges from the benchmark 2% growth rate. This deceleration is primarily attributed to a decline in productivity.

3.2   Goods vs Services: Sectoral Productivity Trends

Rogerson (2008) mentions differences in productivity growth between the goods-producing sector and the service sector in Europe. Labor reallocation from good sectors to service sector then lowered the aggregate productivity. This pattern does not hold in Canada.

Sector-level data in Canada reveals that productivity in both goods-producing and service-producing sectors closely track each other. Figure 2 shows a correlation coefficient of 0.976 between annual productivity growth rates of these two sectors over 1997-2023, indicating strong co-movement. Before 2020, as shown in Table 3, both sectors experienced positive productivity growth, followed by notable slowdowns afterward. Figure 1 provides additional detail on sectoral trends.

3.3   Sectoral Employment Share : Minimal effect on Aggregate A

The distribution of hours worked has evolved gradually. Figure 4 shows that the gap in employment shares widened from 24% to 32%. The service-producing sector has consistently grown, while the goods-producing sector has declined. Given that productivity growth in both sectors has slowed in recent years, labor reallocation (i.e. from goods to services) has modest effect and is unlikely to be the main driver of the aggregate productivity slowdown. Table 1 presents a counterfactual experiment using 1997 employment shares with 2023 sectoral productivity. In short, Canada's productivity weakness reflects widespread within-sector stagnation rather than labour misallocations between sectors.

3.4   Shift-Share Decomposition: All industries

The shift-share decomposition reinforces the above findings. The analysis divides the period into four sub-periods for simplicity. As shown in Figure 5, the within-sector component accounts for most of the variation in productivity changes across these sub-periods. Detailed data is provided in Table 2.

4   Goods Sector: Sub-Sectors Analysis

Goods sector included sub-sectors such as Agriculture, forestry, fishing and hunting, Mining and oil and gas extraction, Utilities, Construction, and Manufacturing. Table 4 and Figure 6 describes productivity trends in these sub-sectors. As shown in Figure 6, Constructions and Mining shows stagnation and fluctuation in productivity. The other sub-sectors shows gradual growth before 2020, and all experienced sharp decline after 2020.

A similar shift-share decomposition is done in Table 5 and Figure 7 between goods sub-sectors. Within-effects dominate. However, between-sector effects moderately contribute positively during 2000–2015. This suggests that goods sector productivity slowdown is mainly due to weakening productivity within each sub-sectors it comprised of.

5   Service Sector: Sub-Sectors Analysis

Service sector included sub-sectors such as Trade, Transport, FIRR, Health care, etc. Table 6 and Figure 8 illustrate productivity trends in these sub-sectors. FIRR having extremely high levels of productivity is dropped from the graph to avoid confusion.

Most sub-sectors demonstrate consistent productivity growth before 2015 except Health Care. Since 2016, Trade started to decline, and others sectoral productivity started to stagnate. All service sub-sectors experienced decline after 2020.

A similar shift-share decomposition is done in Table 7 and Figure 9 between service sub-sectors. Within-effects dominate. However, between-sector effects contribute negatively during 2020-2023, worsening the decline in aggregate productivity. Thus, recent service sector productivity decline in 2020-2023 is also result of labor reallocation across services sub-sectors.

6   Sectoral Contribution to Aggregate Labour Productivity

We knows aggregate productivity A is a weighted sum of sector-level productivity, with weights being sectoral employment share. To quantify sectoral contribution to aggregate labour productivity, we multiplied each sector's productivity level by its employment share in each year and divided it by the aggregate labour productivity.

The resulting calculations are shown in Table 8 and Table 9. Among that, FIRR, Manufactuing, Trade, and Construction are some of the high contribution sectors. The calculations provides directions for further sectoral productivity analysis.

7 Productivity Slowdown within Sectors: Factors behind

7.1 Healthcare

According to Teja (2014), Baumol's Cost Disease helps explain: healthcare is a labour-intensive sector where gains in productivity are structurally limited. Moreover, Canada Healthcare sector, subsidized by the government, reduces competitive pressure for firms to invest in and adopt new technology.

7.2 Manufacturing

Reports by Canadian Manufacturers and Exporters (CME) (2023) and Canadian SME Magazine (2024) attributed productivity slowdown to severe skilled labour shortages. Canada's inability to attract and retain skilled workers results in low sectoral labor productivity. Moreover, Canadian regulations are complex for new facilities and investment: much more time-consuming than the U.S., which reduces investment incentive in Canada Manufacturing (BDO Canada, 2025).

7.3 Construction

Canada's construction sector productivity kept stagnated since 1997 and decline in recent years. Highly fragmented market structure—69% of construction firms have fewer than five employees—limited economies of scale and hampers innovation adoption. (DirectPath Canada, 2023). Even with a record number of skilled workers, housing output remains critically low, pointing to possible resource misallocation across firms (TD Economics, 2024).

7.4 General

Wilson Center (2024) highlights Canada's oligopolistic economic structure. A few dominant firms in banking and communications stifle innovation by limiting the diffusion of productivity-enhancing technologies to smaller competitors. This suppress long-term Canada productivity growth.

8 Conclusion

Canada productivity depression is not driven by reallocation across sectors, but by widespread stagnation within both goods and service sectors. Even leading sectors in productivity contribution observed a noticeable deceleration, especially after 2020. Understanding the challenges of those leading sectors is crucial for pertinent policy responses and revitalizing Canada's long-run growth potential.

Appendix A

References

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Appendix B: Tables

Table 1: Counterfactual productivity in 2023

Aggregate Labour Productivity	Chained 2017 $
Actual A_{2023} with 2023 Employment Shares	63.50
Counterfactual A^{cf} with 1997 Employment Shares	63.91
Differences	0.41

Statistics Canada (2025)

Table 2: Shift-Share Decomposition – All industries

Annualized labour productivity growth (chained 2017 $ per year).

Sub-period	Actual ΔA	Within	Between
1997–2000	1.27	1.37	-0.10
2000–2015	0.58	0.60	-0.02
2015–2020	1.34	1.26	0.09
2020–2023	-1.40	-1.31	-0.09

Statistics Canada (2025)

Table 3: Average Annualized Labour Productivity Growth by Sector in 1997–2023

Sector	1997–2000	2000–2015	2015–2020	2020–2023
All Industries	2.55%	1.03%	2.11%	-2.11%
Goods-Producing	4.67%	0.88%	1.89%	-3.12%
Service-Producing	2.75%	1.32%	2.55%	-1.62%
Non-Business Sector	0.30%	0.97%	-6.26%	-1.08%

Statistics Canada (2025)

Table 4: Sub-period Productivity Growth by Goods Sub-sectors (Annual Average, %)

Sector	1997–2000	2000–2015	2015–2020	2020–2023
All Goods Industries	4.67%	0.88%	1.89%	-3.12%
Agriculture, Forestry, Fishing & Hunting	9.71%	3.19%	3.08%	-2.25%
Mining and Oil & Gas Extraction	3.84%	-1.76%	2.68%	-3.19%
Utilities	-0.70%	0.82%	2.32%	-6.35%
Construction	0.92%	0.29%	2.21%	-6.67%
Manufacturing	6.03%	1.08%	0.85%	-0.10%

Statistics Canada (2025)

Table 5: Shift-Share Decomposition – Good Sectors

Annualized labour productivity growth (chained 2017 $ per year).

Sub-period	Actual ΔA	Within	Between
1997–2000	2.70	2.57	0.02
2000–2015	0.59	0.38	0.30
2015–2020	1.42	1.40	0.06
2020–2023	-2.40	-2.47	0.04

Statistics Canada (2025)

Table 6: Sub-period Productivity Growth by Services Sub-sectors (Annual Average, %)

Sector	1997–2000	2000–2015	2015–2020	2020–2023
All Service Industries	2.75%	1.32%	2.55%	-1.62%
Trade	4.97%	2.15%	2.88%	-1.50%
Transport & Warehouse	1.97%	1.34%	-2.53%	3.76%
FIRR & Holding	2.71%	1.63%	4.53%	-0.95%
Professional & Admin	1.26%	0.55%	1.66%	-1.00%
Health Care & Social Assistance	-0.73%	-0.20%	0.46%	-4.65%
Accomm. & Food Services	1.42%	0.62%	0.17%	0.28%
Others: Services	4.47%	1.36%	3.43%	-1.15%

Statistics Canada (2025)

Table 7: Shift-Share Decomposition – Service Sector

Annualized labour productivity growth (chained 2017 $ per year).

Sub-period	Actual ΔA	Within	Between
1997–2000	1.07	1.06	0.03
2000–2015	0.59	0.59	0.01
2015–2020	1.34	1.21	0.12
2020–2023	-0.90	-0.51	-0.38

Statistics Canada (2025)

Table 8: Sectoral Contribution to Aggregate Labour Productivity

Sector	2000	2015	2020	2023
Trade	4.64	6.31	7.34	6.62
Transportation and Warehousing	2.26	2.66	2.48	2.75
FIRR and Holding Companies	5.37	7.04	8.38	7.45
Professional & Admin Services	4.20	5.39	6.06	6.28
Health Care & Social Assistance	1.62	1.74	1.89	1.82
Accommodation & Food Services	1.24	1.40	1.05	1.30
Others: Service	2.65	3.19	3.44	3.54
Agriculture, Forestry, Fishing & Hunting	1.16	1.18	1.37	1.10
Mining and Oil & Gas Extraction	2.83	3.09	3.40	3.18
Utilities	1.18	1.25	1.45	1.22
Construction	3.30	4.89	5.23	4.71
Manufacturing	8.43	6.49	6.65	6.11
Non-Business Sector (estimated)	13.22	16.35	18.95	17.34
Aggregate Labour Productivity	**52.11**	**60.98**	**67.70**	**63.41**

Unit: Output per Hour in Chained 2017 dollar

Statistics Canada (2025)

Notes for Table 8:

Calculated simply by multiplying sectoral productivity with its employment share in the same year

Aggregate total match the aggregate value in the dataset.

Employment share calculated by dividing sectoral hours worked by total hours worked in all industries in Canada in that year

Table 9: Percentage Contribution to Aggregate Labour Productivity

Sector	2000	2015	2020	2023
Trade	8.91%	10.35%	10.85%	10.43%
Transportation and Warehousing	4.34%	4.35%	3.66%	4.34%
FIRR and Holding Companies	**10.30%**	**11.54%**	**12.38%**	**11.74%**
Professional & Admin Services	8.06%	8.84%	8.96%	9.90%
Health Care & Social Assistance	**3.11%**	**2.86%**	**2.80%**	**2.87%**
Accommodation & Food Services	2.38%	2.29%	1.55%	2.05%
Others: Service	5.09%	5.23%	5.08%	5.58%
Agriculture, Forestry, Fishing & Hunting	2.22%	1.94%	2.03%	1.73%
Mining and Oil & Gas Extraction	5.44%	5.07%	5.03%	5.01%
Utilities	2.27%	2.06%	2.14%	1.93%
Construction	**6.32%**	**8.02%**	**7.72%**	**7.43%**
Manufacturing	**16.18%**	**10.64%**	**9.82%**	**9.64%**
Non-Business Sector (estimated)	25.36%	26.81%	28.00%	27.34%

Statistics Canada (2025)

Notes: Calculation above use Table 8 data and divided each sectors contributions by aggregate labour productivity in each year.

Appendix C: Figures
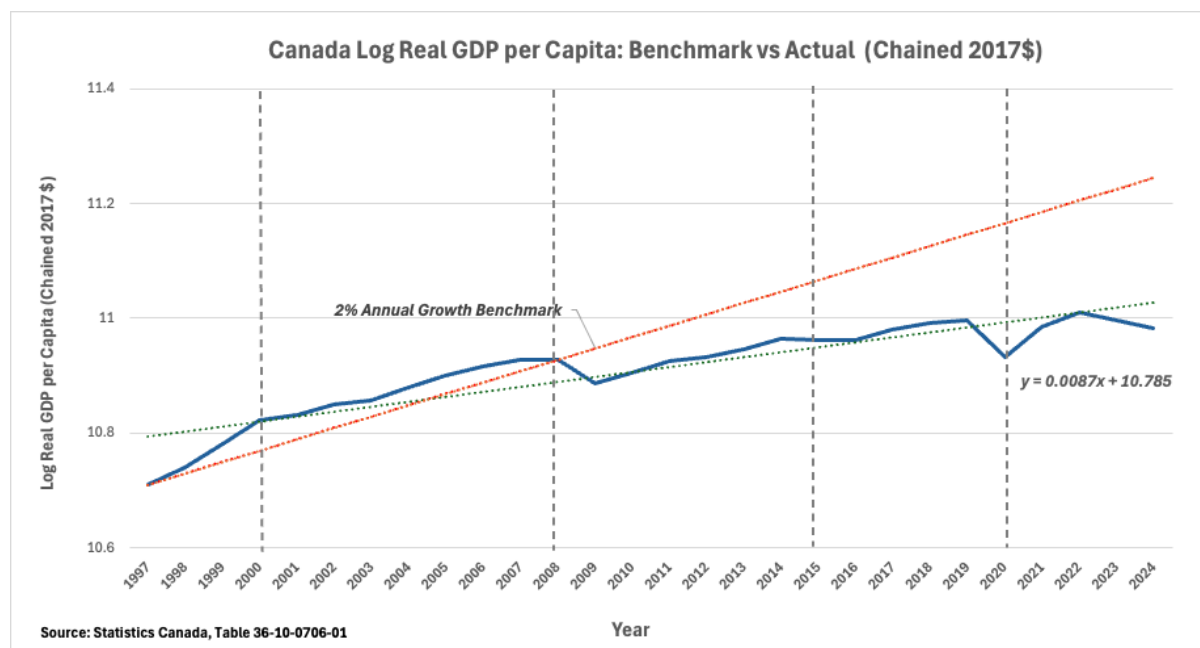
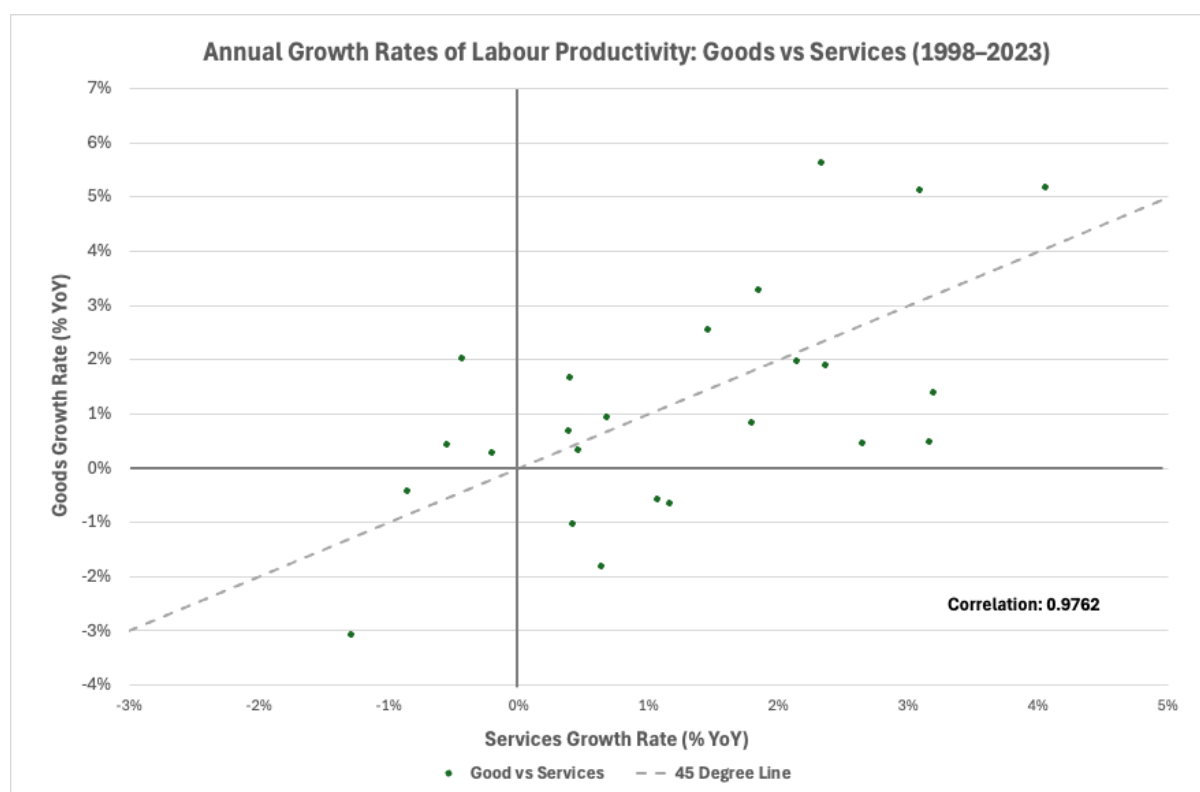Figure 1: Canada Log Real GDP per Capita

Figure 2: Annual Growth Rates of Labour Productivity in Goods vs Services Sectors (1998–2023). Each point represents a year. The strong positive correlation (0.9762) suggests that productivity in goods and services sectors tends to move together over time.
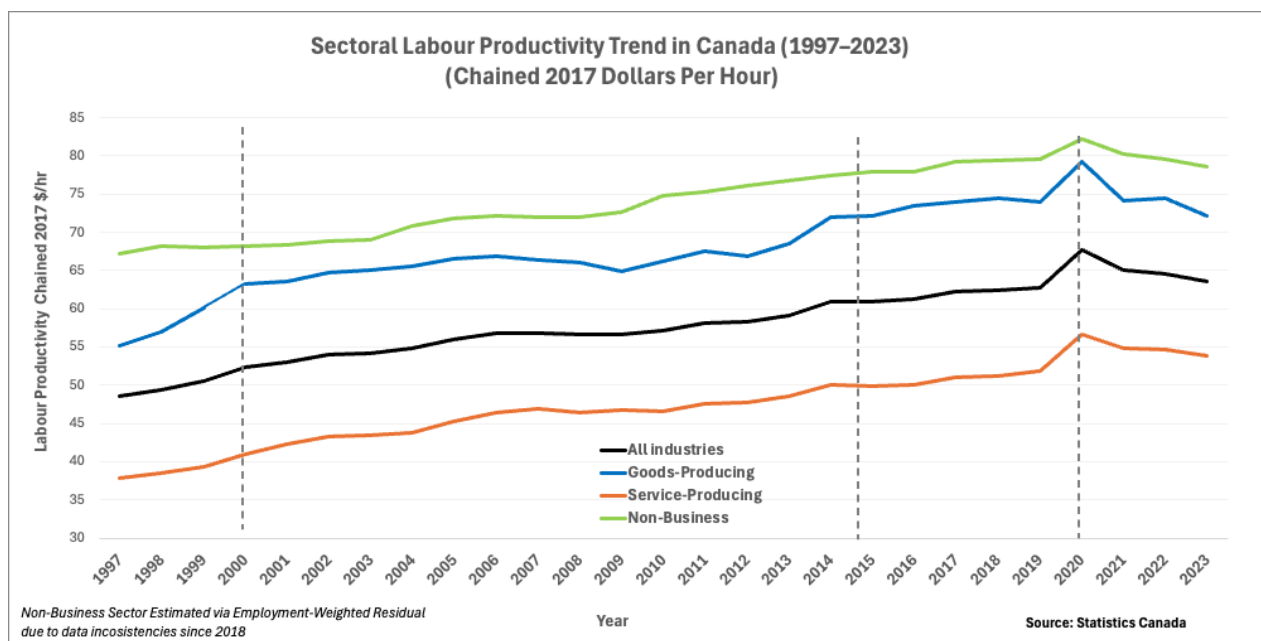
Figure 3: Sectoral Labour Productivity Trend in Canada (1997–2023). Figure shows level for more detailed observation, if necessary

Figure 4: Sectoral Share of Hours Worked in Canada (1997–2023). Figure shows moderate structural transformation.
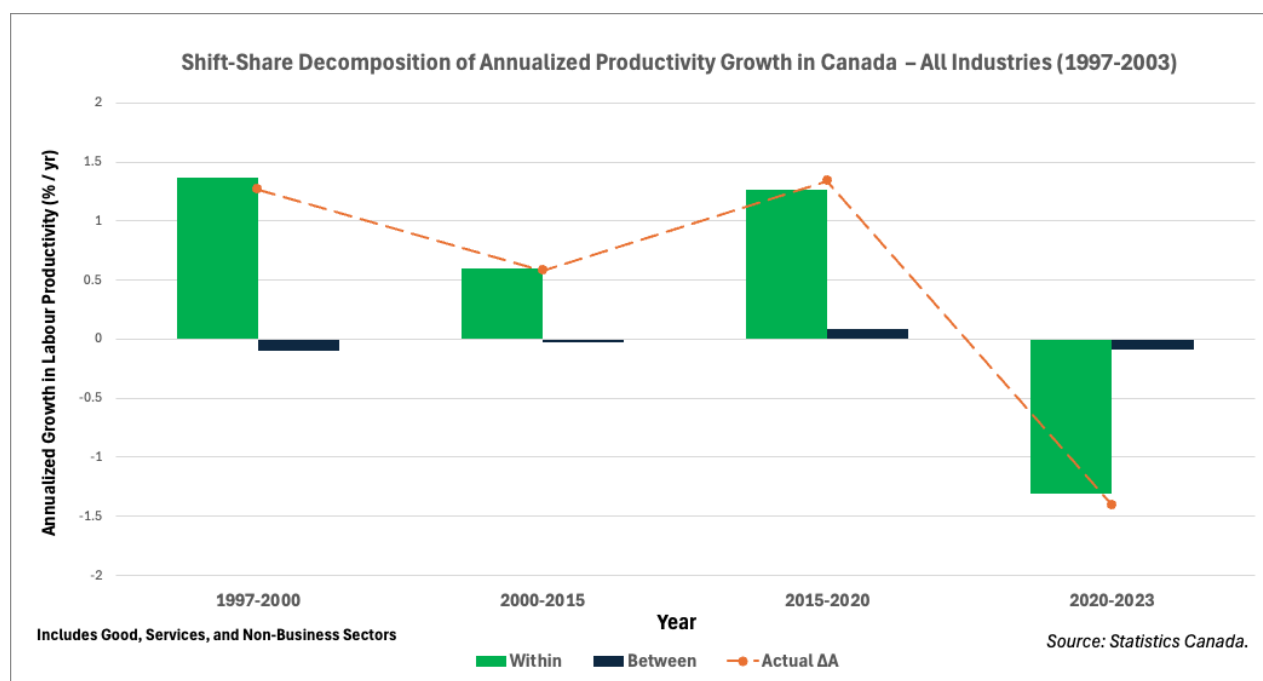
Figure 5: Shift-Share Decomposition – All Industries (1997–2023).
The figure shows annualized productivity growth in four sub-period, decomposing into within-sector and between-sector components.

Figure 6: Labour Productivity by Subsector in the Goods Sector (1997–2023)
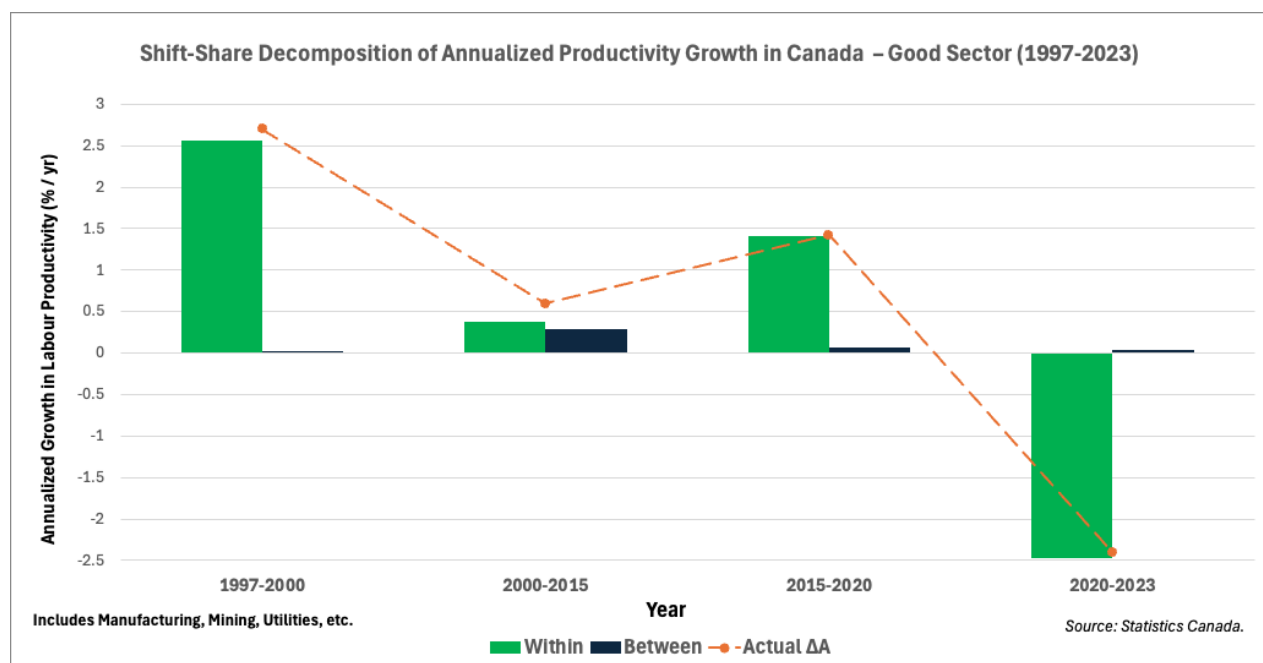Measured in chained 2017 dollars per hour.

Figure 7: Shift-Share Decomposition – Goods-Producing Sub-Sectors (1997–2023). Within-sector dynamics dominate throughout, with a significant post-2020 decline. Between-Sector has contributions in 2000s.
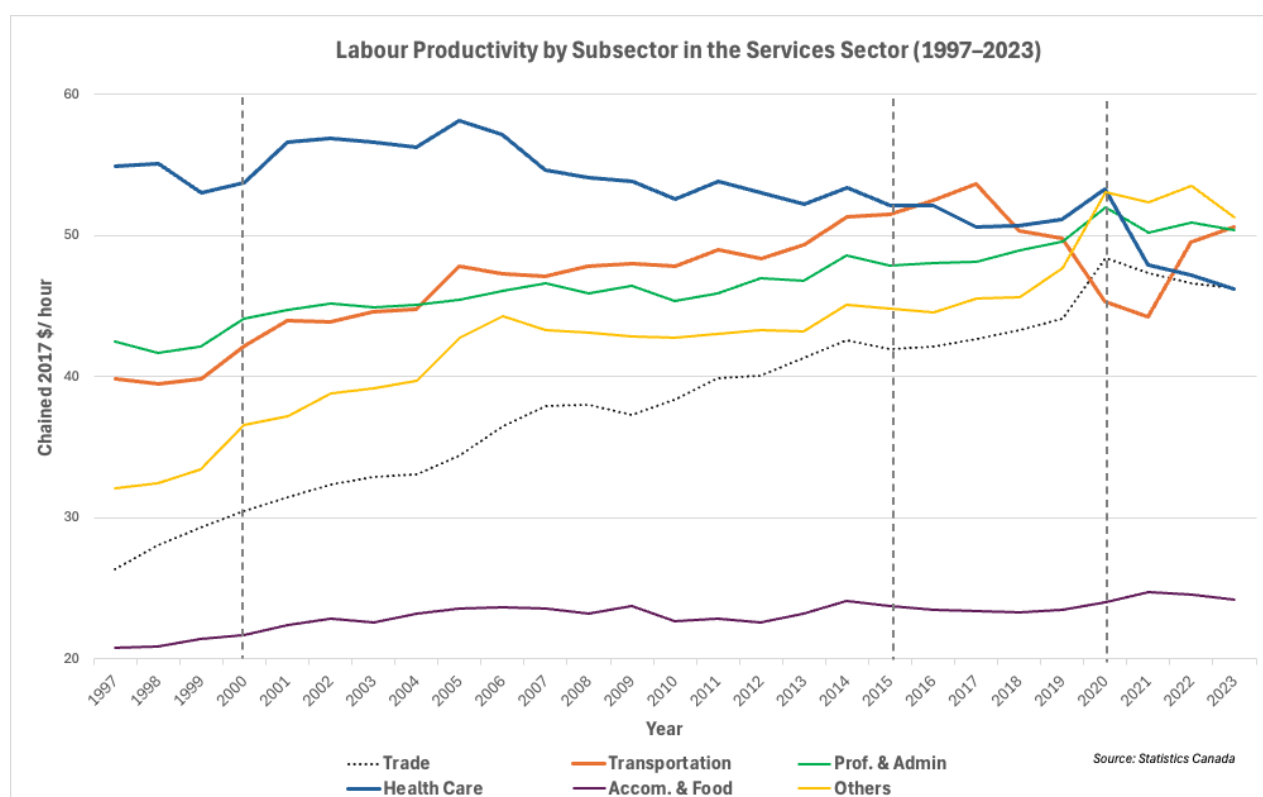

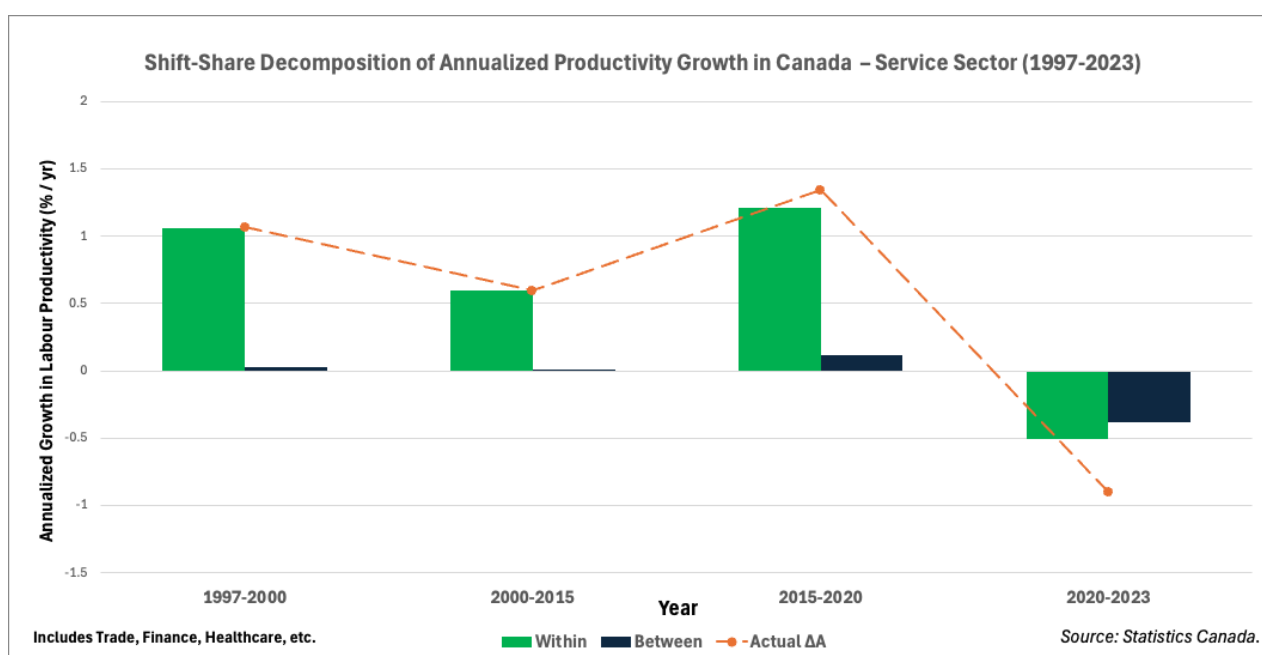Figure 8: Labour Productivity by Subsector in the Services Sector (1997–2023) FIRR & Holding Company dropped

Figure 9: Shift-Share Decomposition – Services-Producing Sub-Sectors (1997–2023). The between-sector effects are minimal. With-in Sectors influenced most aggregate productivity change.