# Sectoral Analysis of Ontario Productivity

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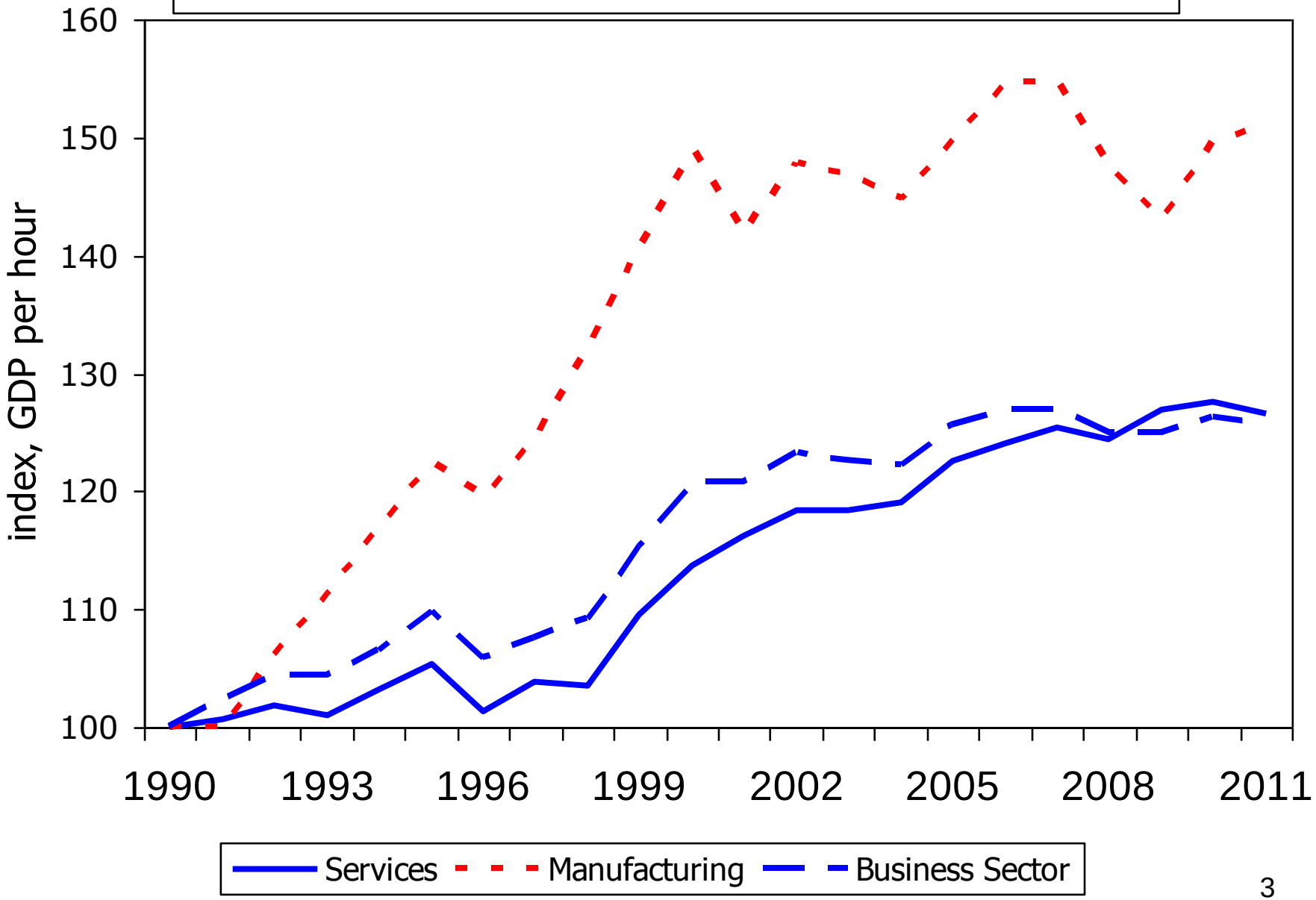
# Historical trends in labour productivity growth

- Labour productivity, defined as GDP per hour worked, varies greatly across sectors.
- It partly reflects differences in capital intensity, and does not imply a correspondingly higher wage rate for a sector with high labour productivity.
- E.g., the pipeline sector has GDP/hour of about $1000 because it has to earn a rate of return on the invested capital.
- In some parts of the finance sector, the GDP/hour similarly primarily reflects returns on financial capital.
- Historically, there was more scope for replacing labour with capital in manufacturing than in services.
- Manufacturing acquired a higher level of productivity, and had faster productivity growth than services.
- In the past decade, by contrast, manufacturing productivity has often had negative productivity changes due to adverse demand shocks.

# Level of Labour Productivity, Ontario




Source: Canadian Productivity Accounts.

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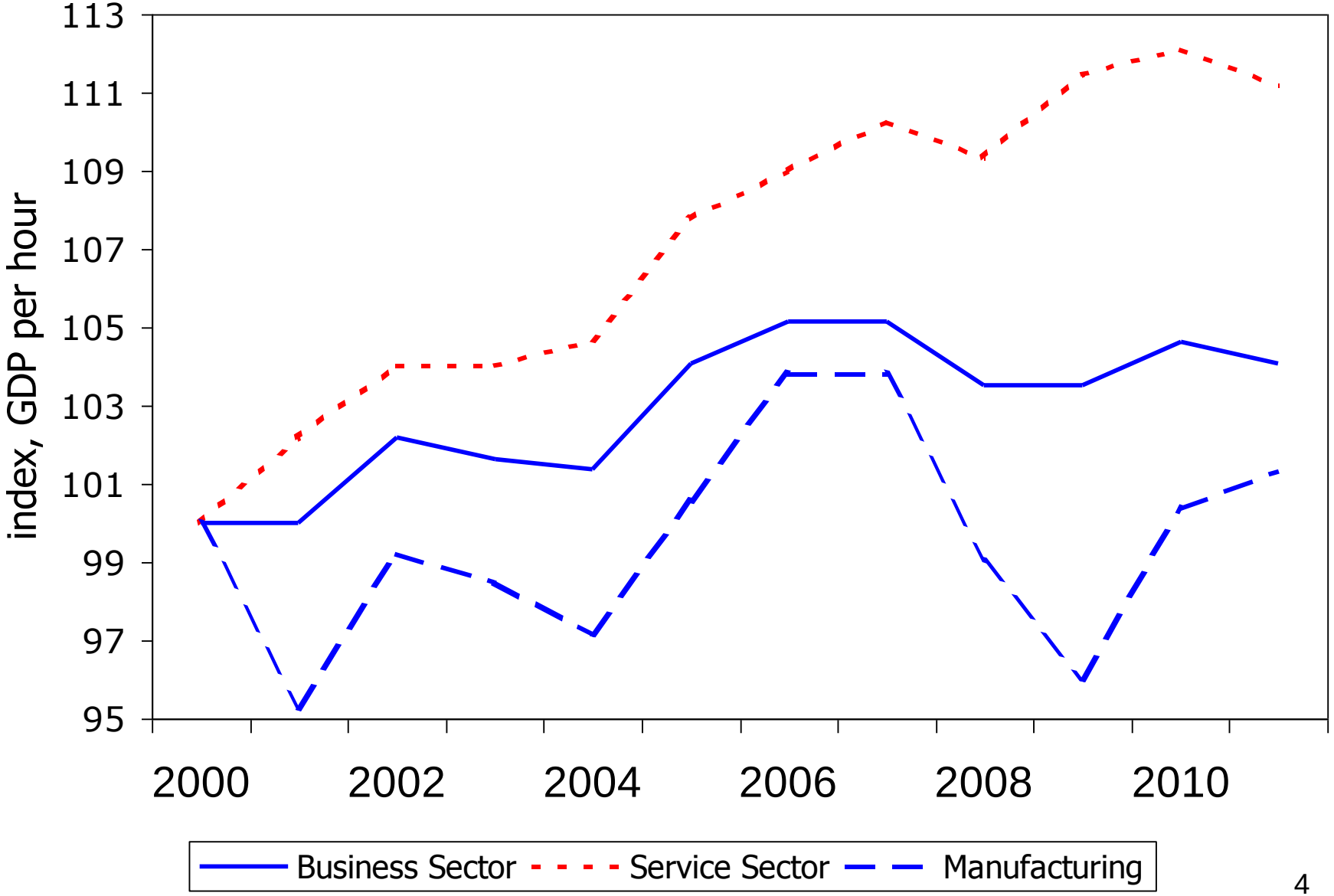
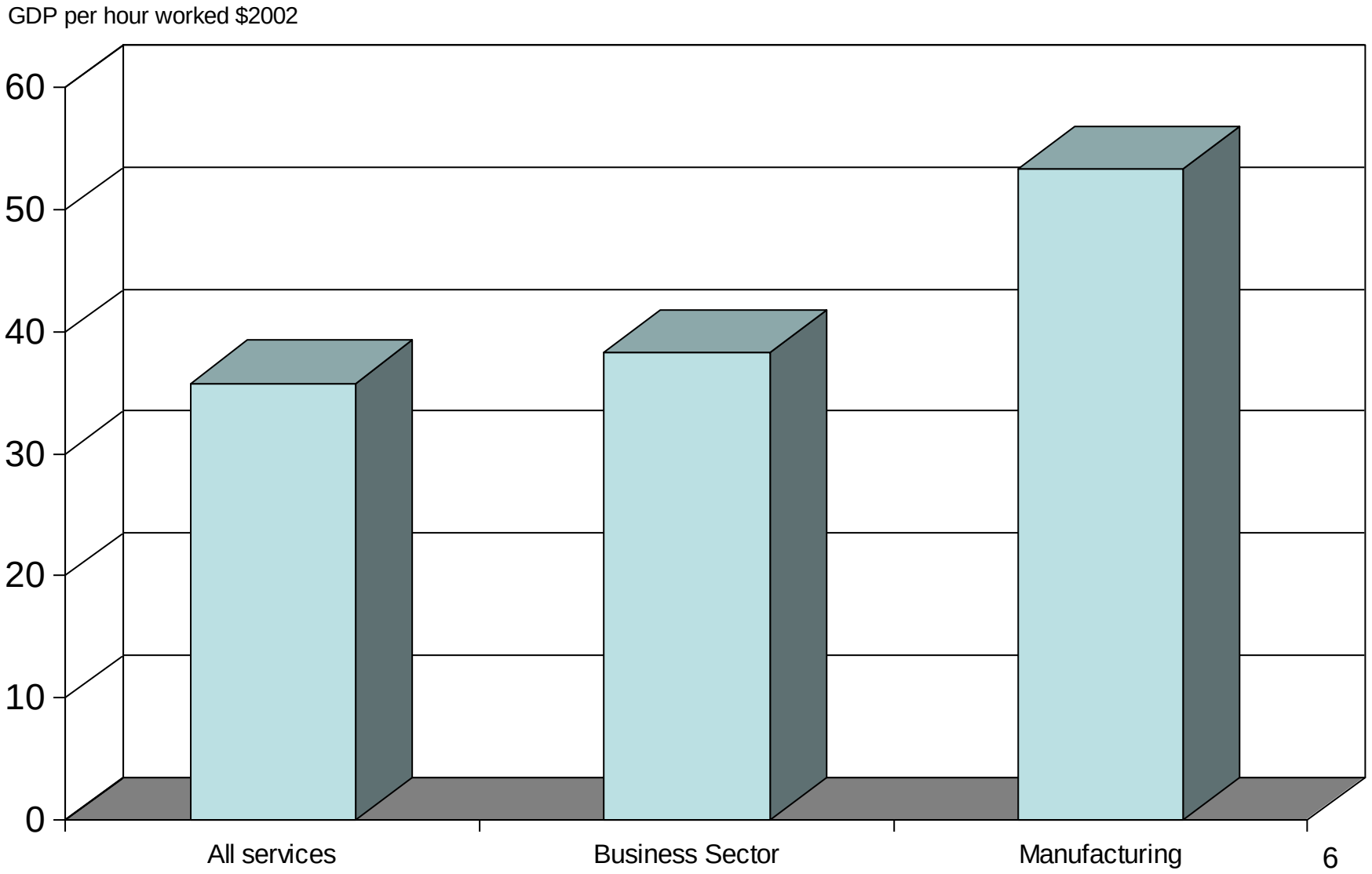



Source: Canadian Productivity Accounts.

# Average productivity growth is often misleading

- Ontario business sector productivity growth has been zero for the past six years.
- Looking at just the average is misleading when there is so much diversity from one sector to the next.
- Underlying this total is a service sector that has had continuing productivity growth, and manufacturing with numerous sub-sectors where the ***level*** of productivity has declined.
- Changes in the composition of output affect the average.
- Even if there was positive productivity growth in all sectors, the average productivity in the economy could decline if a smaller share of output comes from the above-average sectors.
- Manufacturing has above-average productivity, and its share has declined substantially.

# Ontario labour productivity by broad categories, 2011



# Adverse changes in the composition of employment

- The weakness of exports has led to an overall decline of economies of scale in Ontario, as exporting companies tend to be larger.
- The number of jobs in firms with over 500 employees has seen a large percentage decline of about 14%.
- The largest percentage change in job growth of any category has been self-employed without employees.
- This category has productivity that is less than half of the private sector average.

**Recent Ontario employment changes by type of employment**

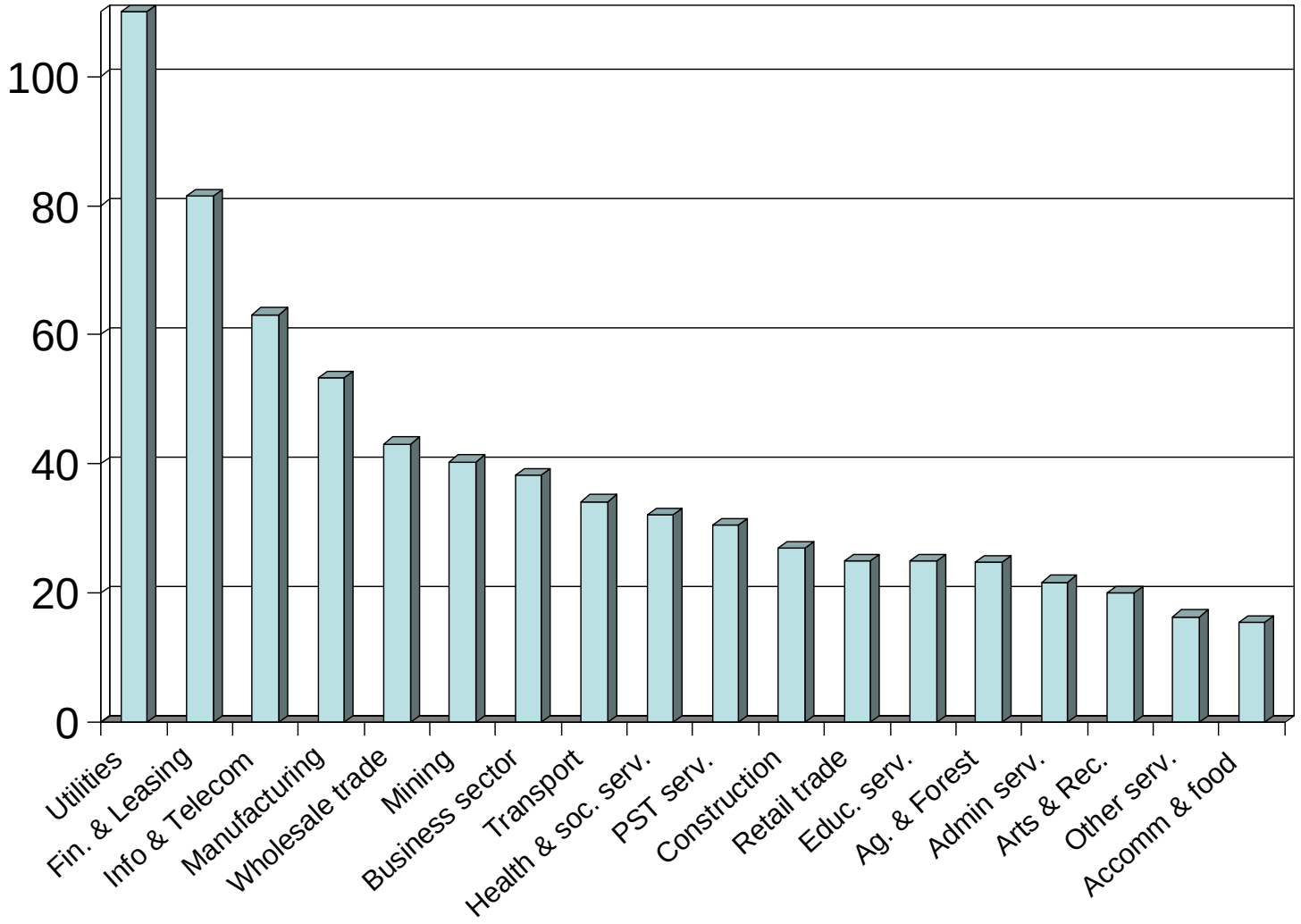
| | Thousands of jobs | | **Percent change** |
|---|---|---|---|
| Class of worker | **2007** | **2011** | |
| Total private sector employment | 5365 | 5388 | 0.4 |
| Total employees, firms with 500+ employees | 547 | 472 | -13.7 |
| Self-employed with employees | 317 | 309 | -2.6 |
| Self-employed without employees | 653 | 719 | 10.1 |

# Average productivity growth is often misleading: Services

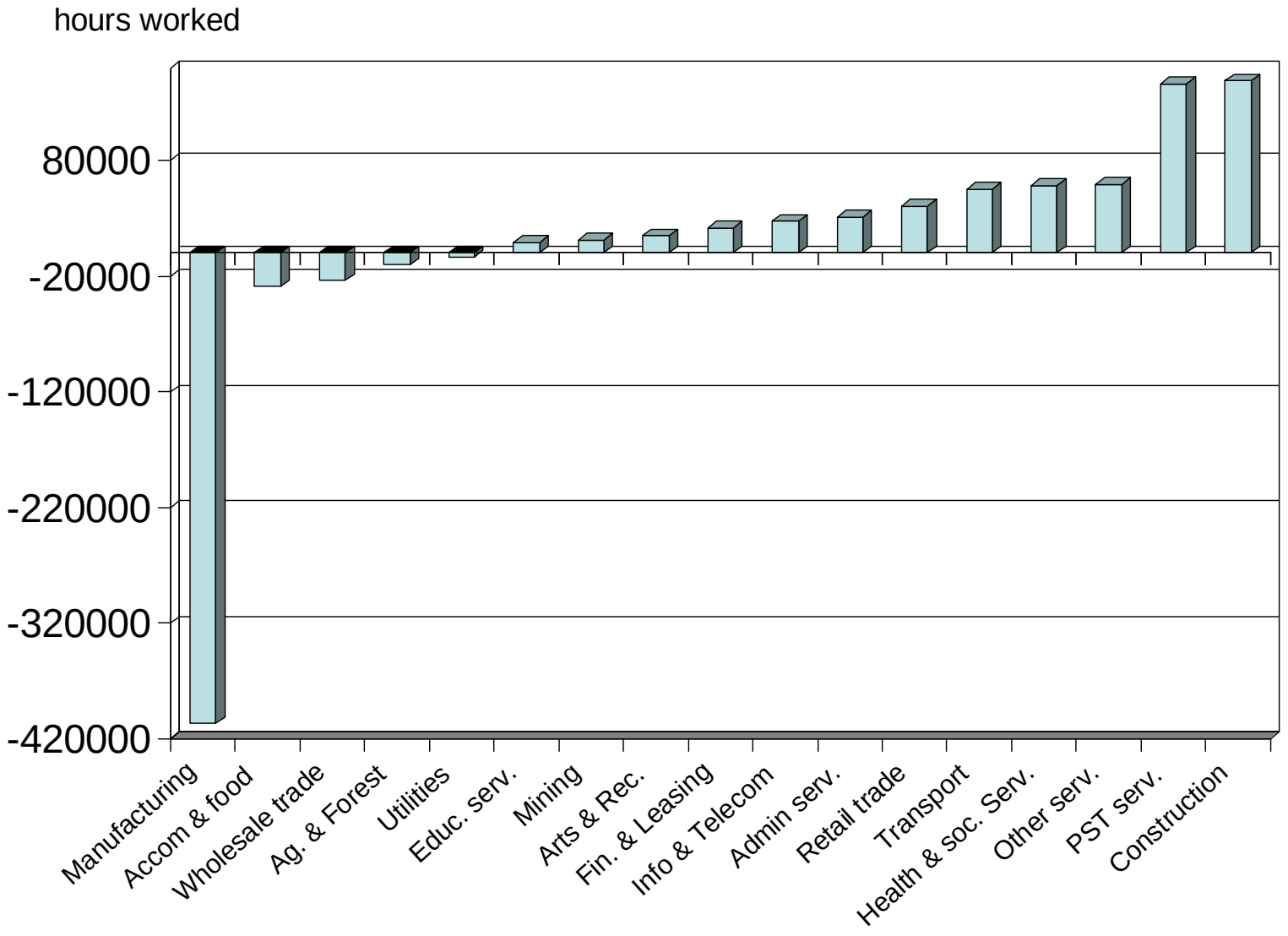
- The compositional change has also been unfavourable within services.
- The largest areas of employment growth have been in sub-sectors that are below the average of productivity for services.
- One of the largest has been “professional, scientific and technical” services.
- In spite of the grand sounding name, this includes a lot of lower paid occupations such as bookkeeping services.
- It has more than 500,000 jobs, with large growth in the proportion of self-employed in the last few years.

# Ontario labour productivity by 2 digit NAICS sectors, 2011

GDP per hour worked $ 2002



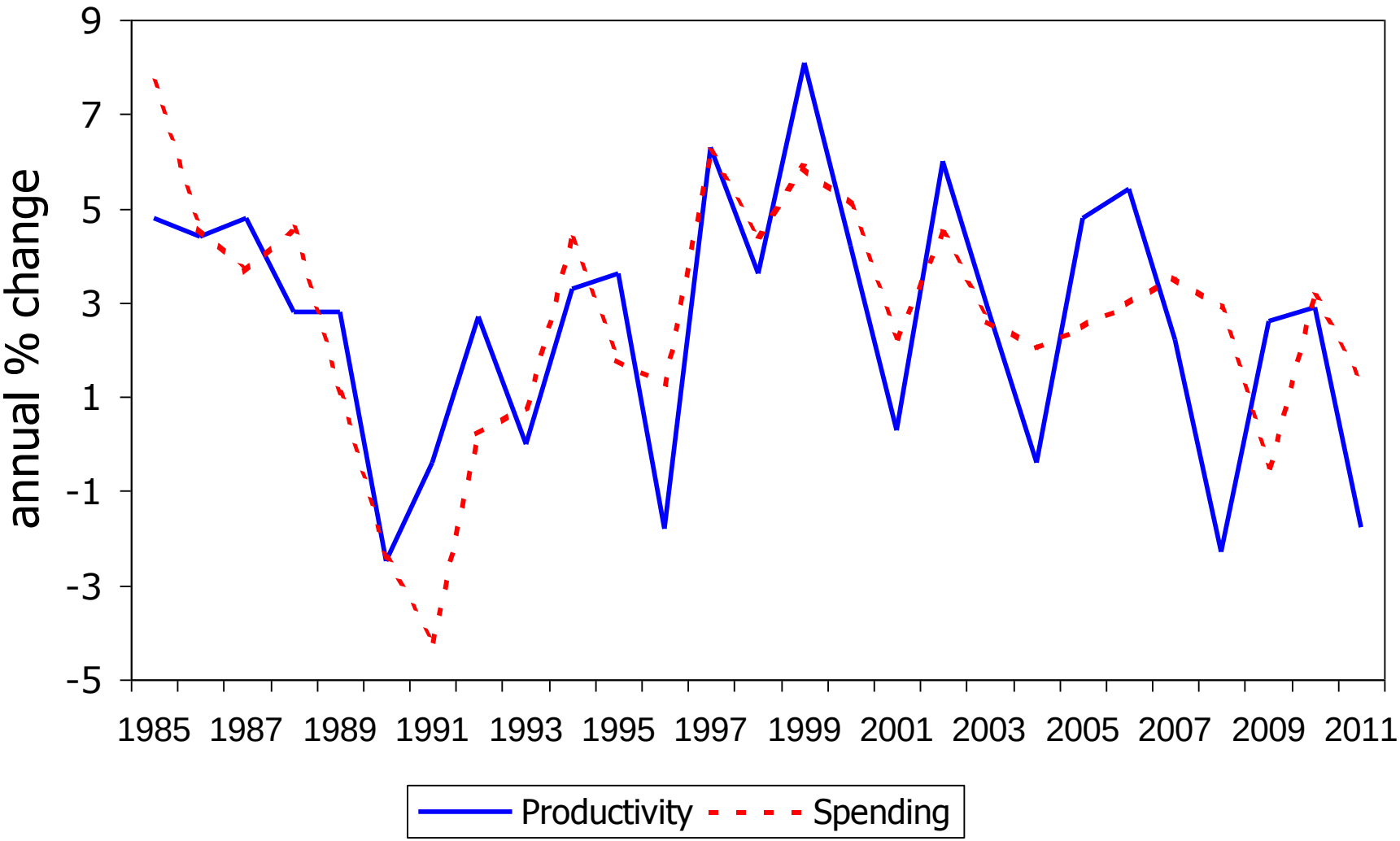
# Ontario change in hours worked by 2 digit NAICS sectors, from 2005 to 2011



# Weak demand also affects service sector productivity growth

- Ontario has had positive growth in service sector productivity, but at a lower rate than in the rest of Canada.
- For example, in retail and wholesale trade services, productivity growth in the rest of Canada has been much higher than in Ontario.
- At the same time, actual growth of retail and wholesale spending was about two-thirds higher in the ROC than in Ontario.
- The weaker service productivity growth in Ontario is explained by lower income growth and resulting weaker consumer spending growth.
- Weaker demand means lower capacity utilization, e.g. sales clerks standing around, serving fewer customers who buy less, translating into lower output per hour worked.

# Ontario retail and wholesale sector productivity and consumer spending on goods

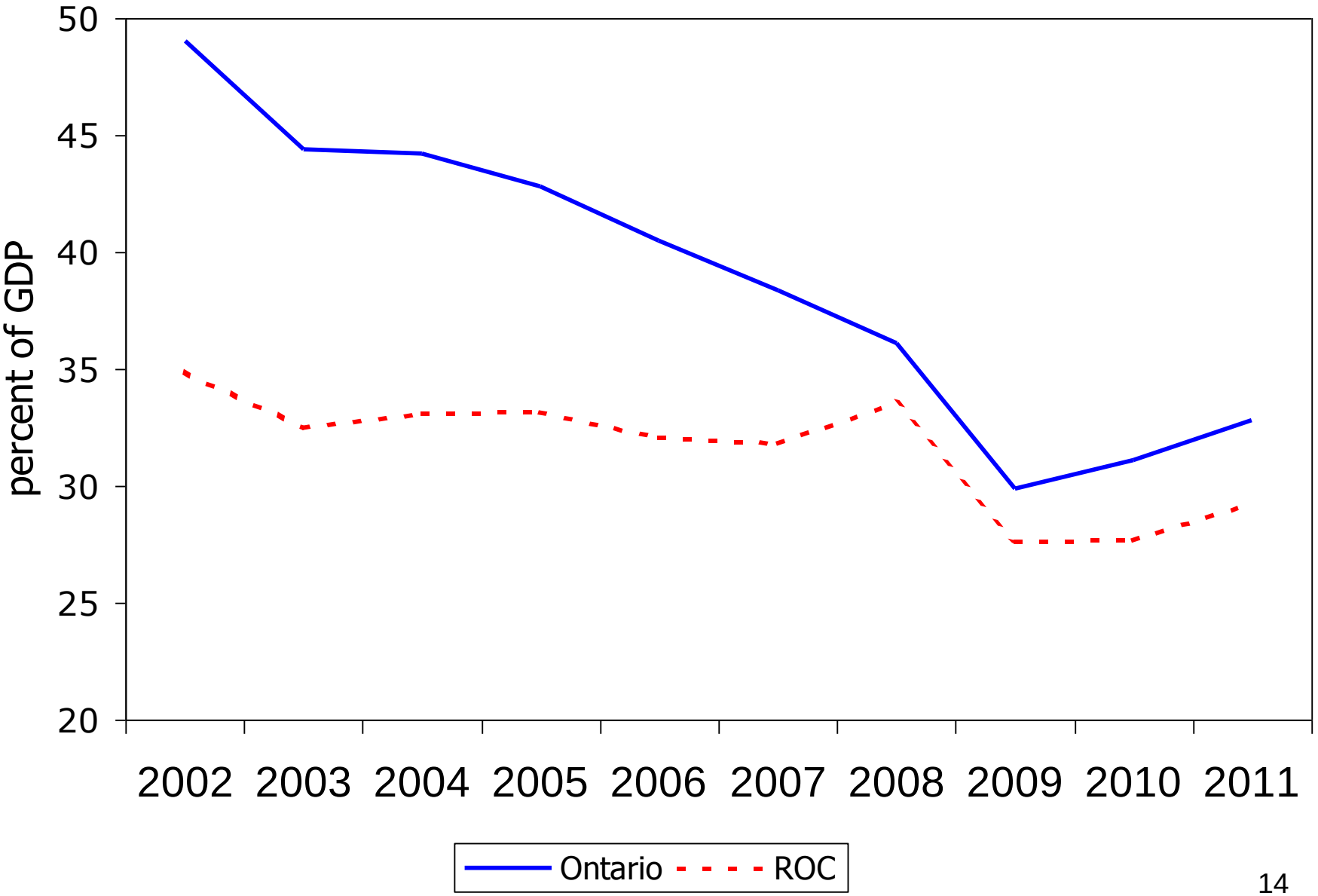



Source: Productivity Accounts and Provincial Economic Accounts.

# Ontario has suffered a much worse decline in demand than the rest of Canada

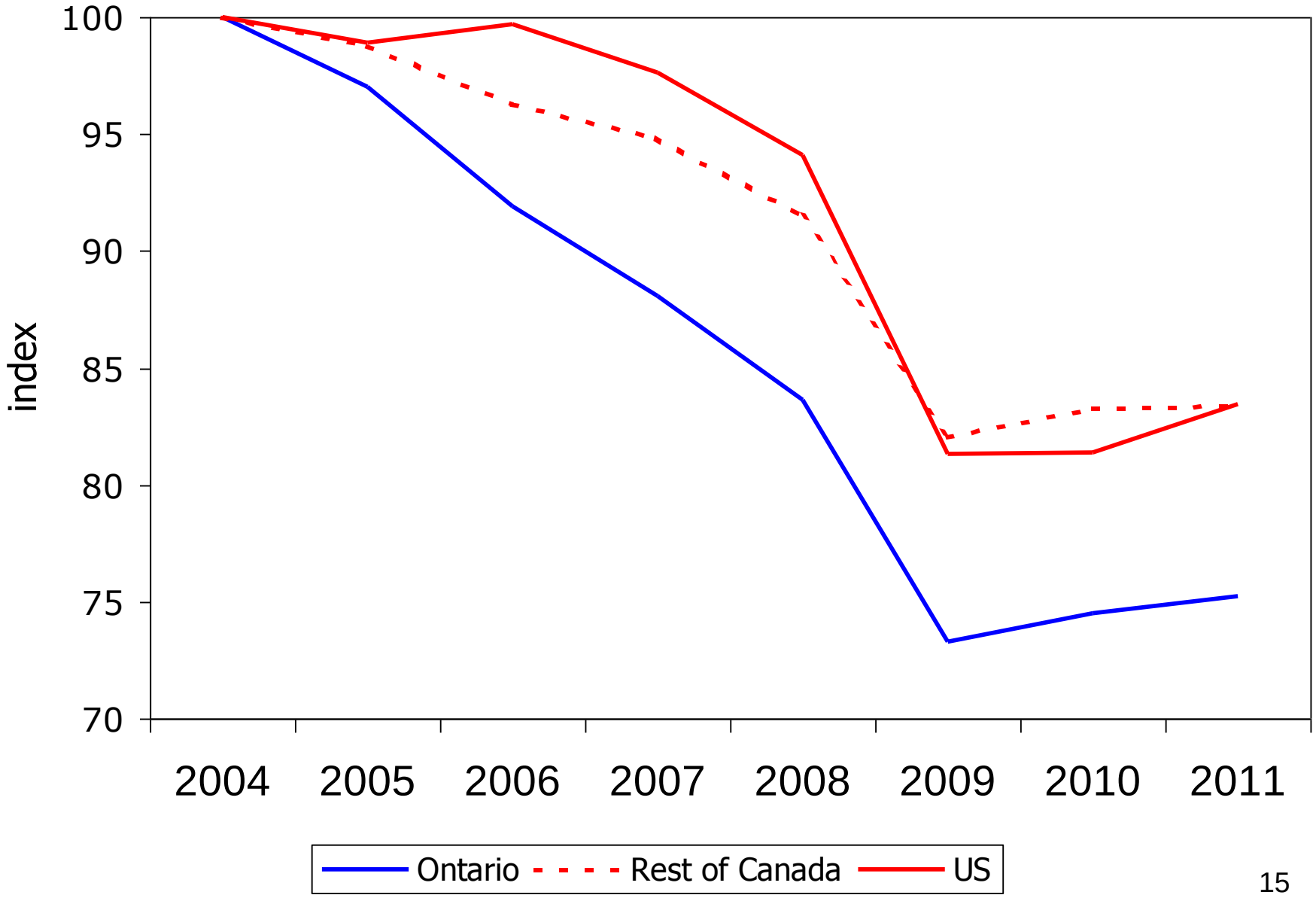
- Ontario's manufacturing is quite different in composition than the rest of Canada.
- Much of the manufacturing class in other provinces consists of natural resources processing and inputs into the natural resource sector.
- Econometric analysis finds a much smaller impact of the exchange rate on the output of the other provinces.
- Ontario had suffered a huge drop in international exports even prior to the recession, while the other provinces were almost unscathed.
- Ontario's exports appear to have bottomed out, and turned up slightly.
- The bulk of the dollar's impact has already occurred.
- If US economic growth continues at a reasonable pace, Ontario's manufacturing should growth with it, and bring a recovery in productivity growth as well

# International Exports




Source: Provincial Economic Accounts.

# Total Hours Worked in Manufacturing




Source: Provincial Economic Accounts.

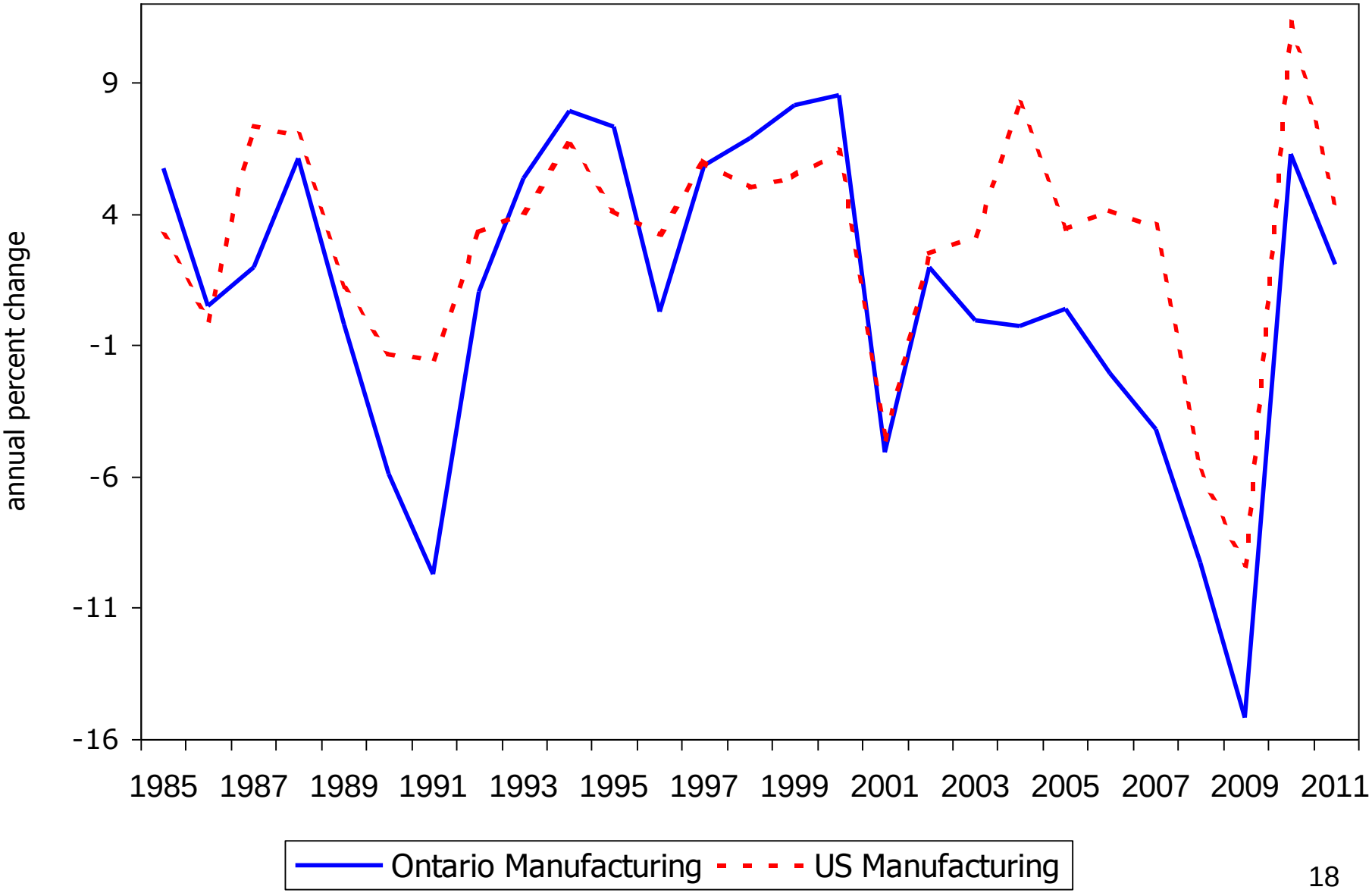
# Weak manufacturing productivity is explained by demand shocks

- Historically, there has been a strong correlation between output growth and productivity in manufacturing.
- A large proportion of manufacturing consists of durable goods, where demand is discretionary.  Manufacturing output is much more volatile than overall GDP.
- The twin shocks of a high dollar and US recession have led to a decline of more than 20% in Ontario manufacturing output, but there are now signs it has bottomed out.  Manufacturing productivity should recover gradually over the coming years

# Ontario manufacturing is much more sensitive to the exchange rate

- Econometric analysis was undertaken, explaining manufacturing output by US growth and the exchange rate.
- Ontario manufacturing output was found to fall 0.77% for each cent of overvaluation of the Canadian dollar (distributed over a 4 year period).
- The corresponding value for the rest of Canada was only 0.27% (and it was statistically insignificant).
- Ontario's manufacturing output generally follows the ups and downs of the US manufacturing cycle. However, in the mid-2000s, Ontario was falling while US output was rising, due to the exchange rate.

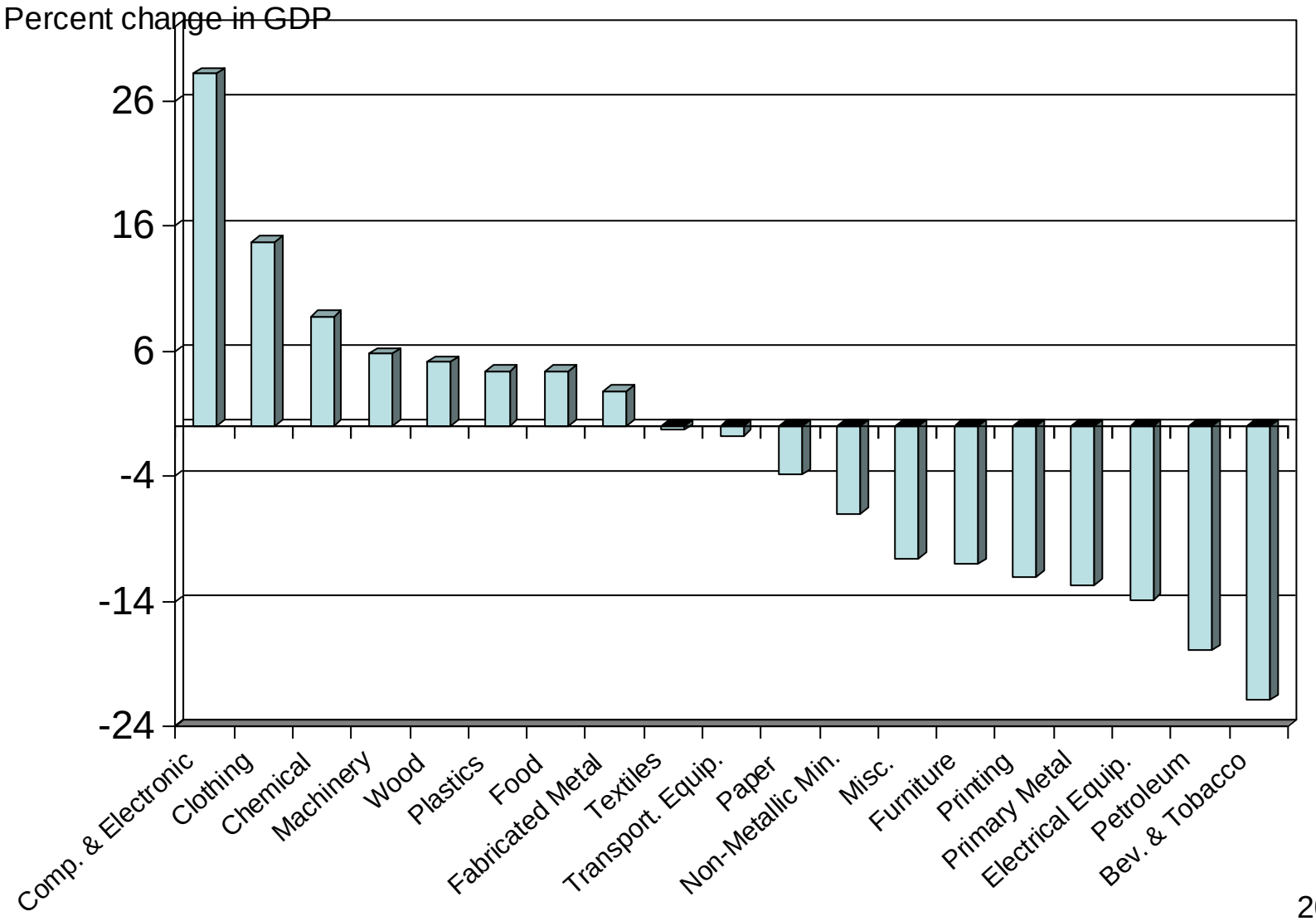
# Ontario and US manufacturing output



# Average productivity growth is often misleading: manufacturing

- Total manufacturing productivity growth in the past several years has been near zero.
- Underlying this total, there are some sub-sectors with strong positive growth, and others where productivity has declined.
- An average based on this does not tell us very much.
- Lower level of productivity in some sectors is not a sign that workers have gotten lazy. It either reflects lower capacity utilization, or change in composition of the operations within the sector.
- E.g., the worst performing 3 digit sector has been beverages and tobacco. Within this, tobacco has a productivity level about triple the sector total, and its share has been declining.

# Productivity change in Ontario Manufacturing, 3 digit NAICS sectors, 2005 to 2011



# Conclusions

- The overall productivity growth rate in Ontario has been zero for the past several years. This average is misleading, as it obscures the fact that some sectors have strong productivity growth while others are negative.
- The weakness in Ontario's productivity compared to the rest of Canada can be largely explained by adverse demand shocks.
- The twin shocks of a high dollar and US recession have seriously worsened Ontario's output and productivity. There are now signs it has bottomed out. Productivity growth should recover gradually over the coming years.
- Export weakness has been the main problem of the Ontario economy, and government policy measures should be aimed at trying to restore Ontario's export market share.