Panel Discussion: Future Directions in Measurement and Analysis

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Net Versus Gross Output

Diewert and Fox (2005): "The New Economy and an Old Problem: Net Versus Gross Output"

1. The OECD *Economic Outlook* for December 2002 mentioned GDP 531 times and did not make a single reference to NDP.

2. However, net output has long been considered the correct measure of output.

3. Quality adjustment of deflators may be driving up estimates of gross investment and hence GDP.

4. Using net investment reduces the share of investment in GDP and reduces the importance of the investment deflator.

5. Problem is then how to calculate net output.

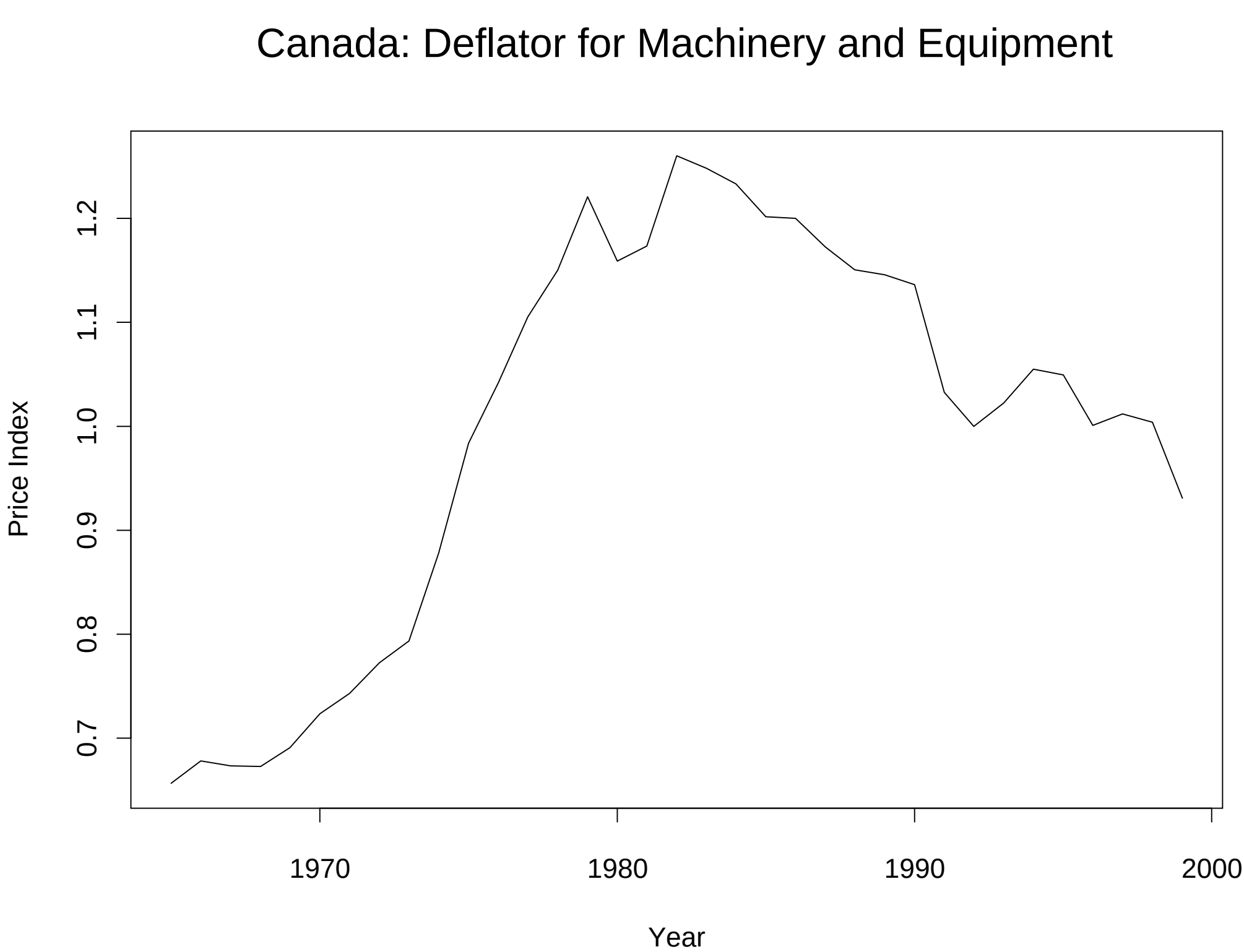
Hedonism versus Asceticism

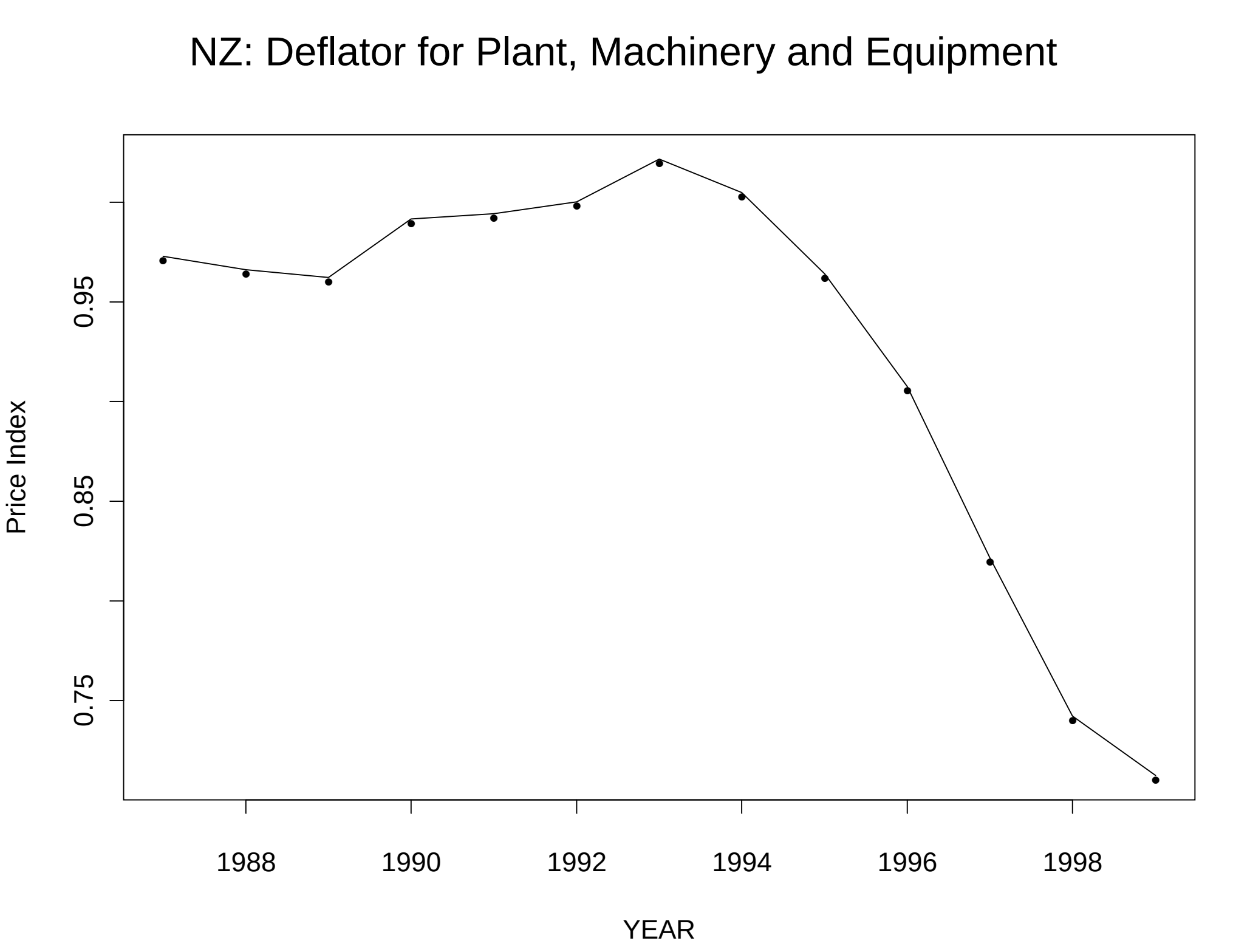
1. The possibility of hedonic adjustment potentially raising GDP growth has been noted and investigated:

   - Nordhaus (2002)
   - Schreyer (2001, 2002)
   - Coleccia and Schreyer (2001)
   - Landefeld and Grimm (2000)
   - Scheuer (2001)

2. Bottom line is that it can only partially explain growth differences between e.g. U.S. and European countries in the late 1990s.

3. But still a problem — different countries use different approaches and introduce methods at different times. Even small differences in comparisons can accumulate over time.


Canada: Deflator for Machinery and Equipment
Price Index
0.7
0.8
0.9
1.0
1.1
1.2
1970
1980
1990
2000
Year


NZ: Deflator for Plant, Machinery and Equipment
Price Index
0.75
0.85
0.95
1988
1990
1992
1994
1996
1998
YEAR

Net Output

1. If net output is the appropriate measure of output, then how should we measure it? Again, different approaches used by different countries.

2. Spant (2003): "Given the dominant role of GDP and low interest in NDP, it is very possible that the current estimates of depreciation for certain countries are not based on up-to-date estimates of the service lives of capital assets and hence may not be capturing true changes in depreciation patterns."

Table 1: Gross versus Net Domestic Product Growth

	Compound Average Annual Growth Rates 1995-2001		Difference: GDP growth— NDP growth	Real Depreciation as percentage of Real GDP		Difference: 2001-1995
	Real GDP	Real NDP		1995	2001	
Australia	3.87	3.59	0.27	15.63	16.95	1.33
Austria	2.40	2.26	0.15	14.05	14.78	0.73
Belgium	2.41	2.22	0.19	14.22	15.17	0.95
Canada	3.56	3.41	0.15	13.16	13.90	0.74
Denmark	2.48	2.05	0.43	15.98	18.07	2.09
Finland	4.11	4.67	-0.56	18.17	15.48	-2.69
France	2.48	2.42	0.06	13.74	13.98	0.24
Germany	1.60	1.38	0.21	14.79	15.87	1.07
Greece	3.54	3.50	0.04	9.07	9.28	0.22
Iceland	4.60	4.09	0.52	14.69	17.18	2.49
Italy	1.92	1.80	0.12	13.10	13.69	0.59
Netherlands	3.29	3.20	0.10	15.12	15.60	0.48
Spain	3.64	3.52	0.12	13.00	13.61	0.60
Sweden	2.90	2.68	0.22	13.34	14.44	1.10
United Kingdom	2.76	2.85	-0.09	12.09	11.65	-0.45
United States	3.42	2.93	0.48	11.58	14.03	2.45
Unweighted 16-country average	3.06	2.91	0.15	13.86	14.60	0.756

Source: Spant (2003), using OECD National Accounts. Data for France, 1995-2000 only.

3. Table 1: the Finnish and UK numbers looks unlikely. Large differences between countries.

4. Suggests that it is timely to consider different methods of calculating depreciation and their impact on estimates of net output growth.

5. Hyperbolic depreciation used by the ABS (and other agencies): appropriate?

Some Other Priorities

1. Land.
2. Inventories.
3. Coverage.
4. Imputing a net return to government capital.
5. Treatment of negative user costs?

6. Treatment of low internal rates of return?

7. Capitalization of R&D.