Topics for Today

1.) National Income Accounting

2.) Inflation and the "Cost of Living"

3.) The "Twin Deficits"

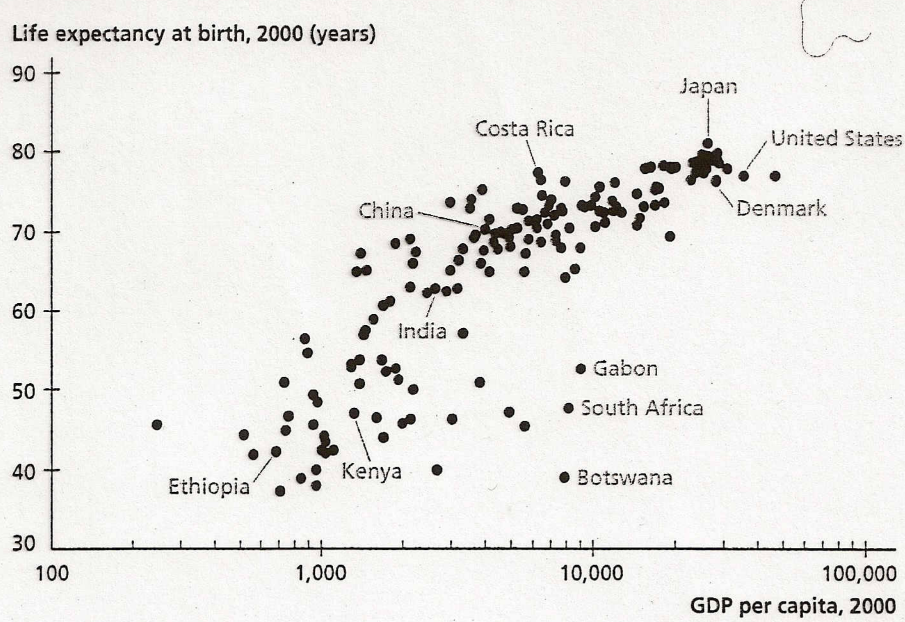
4.) The Balance of Payments

A Comment on GDP

"GDP does not allow for the health of our children, the quality of their education, or the joy of their play. It does not include the beauty of our poetry or the strength of our marriages, the intelligence of our public debate or the integrity of our public officials. It measures neither our courage, nor our wisdom, nor our devotion to our country. It measures everything, in short, except that which makes life worthwhile, ..."

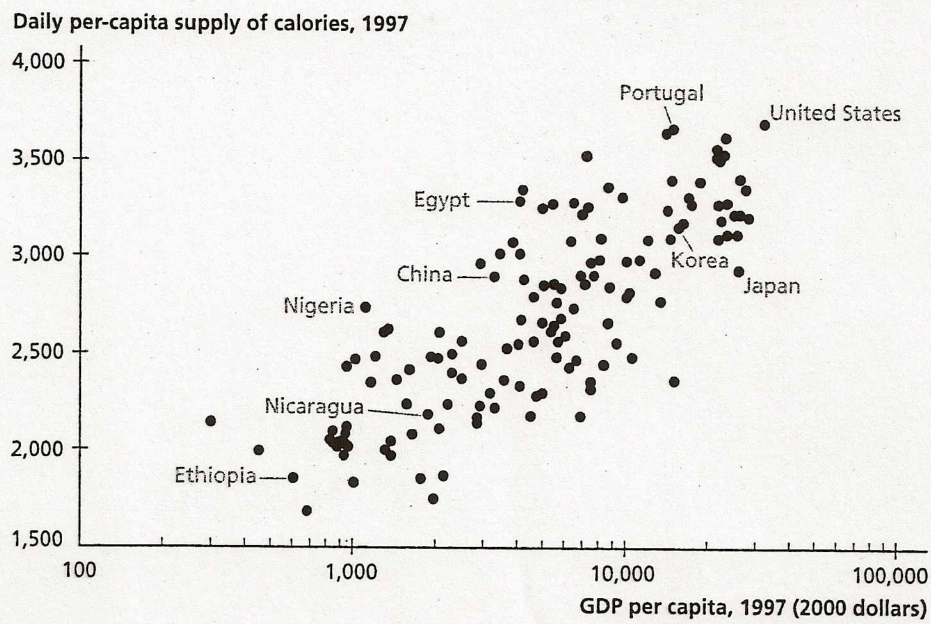
- Robert Kennedy, 1968

FIGURE 6.2
Life Expectancy Versus GDP per Capita

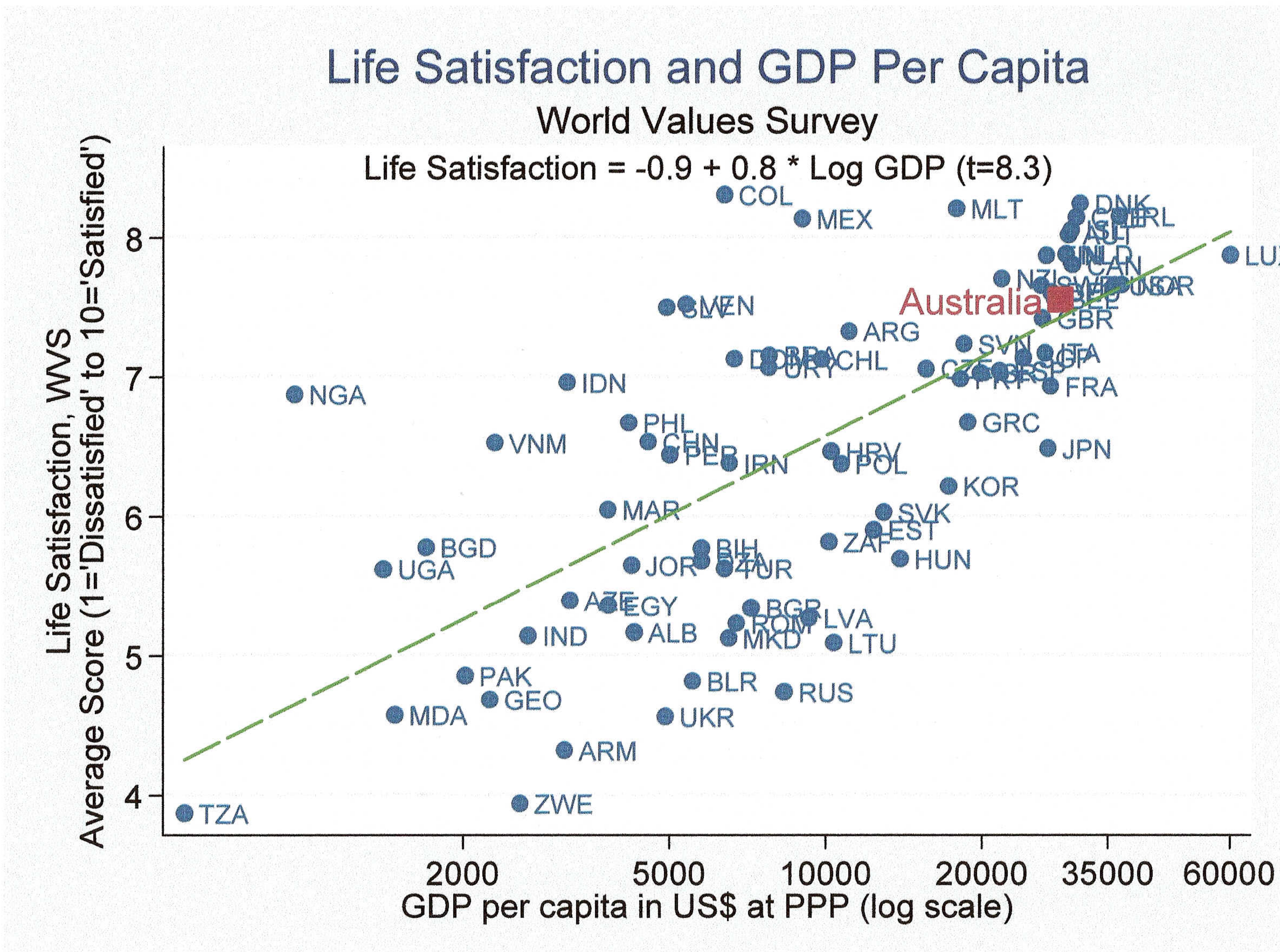


Source: Heston et al. (2002), World Bank (2003b).

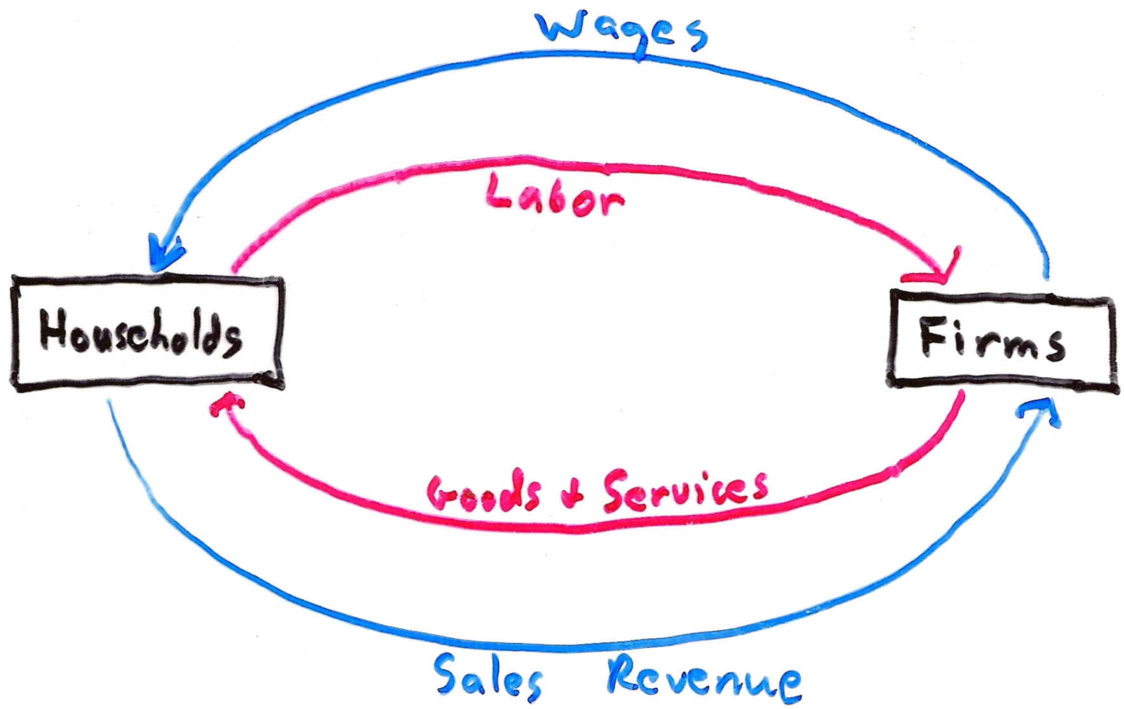
FIGURE 6.1
Nutrition Versus GDP per Capita



Source: FAOSTAT database, Heston et al. (2002).


Life Satisfaction and GDP Per Capita
World Values Survey
Life Satisfaction = -0.9 + 0.8 * Log GDP (t=8.3)
Life Satisfaction, WVS
Average Score (1='Dissatisfied' to 10='Satisfied')
GDP per capita in US$ at PPP (log scale)
2000
5000
10000
20000
35000
60000
4
5
6
7
8
Australia
COL
MEX
MLT
DNK
LUX
NGA
IDN
ARG
CHL
VNM
PHL
IRN
GRC
JPN
KOR
FRA
GBR
MAR
BGD
UGA
JOR
ZAF
HUN
SVK
EST
POL
IND
ALB
LVA
LTU
MKD
PAK
GEO
MDA
BLR
RUS
UKR
ARM
TZA
ZWE

The Circular Flow of Economic Activity



3 equivalent ways to interpret GDP:

1.) What people earn
2.) What people buy
3.) What firms produce

GDP = Wages + Profits + Interest

GDP = C + I + G + NX

GDP = Manufacturing + Services + Agriculture + ..

GDP: Gross Domestic Product

GDP is an attempt to summarize in a single number the dollar value of the economy's activity during a given time period.

5 Things to Know About GDP

1.) GDP can be computed by adding-up either total expenditure, total income, or total production.

2.) GDP is a rate, i.e., a flow per unit time.

3.) GDP only counts market transactions.

4.) GDP only includes sales + purchases of final goods. Used + intermediate goods are excluded.

5.) GDP is measured in dollars, and can change when either prices or quantities change.

Things to Note About Expenditure-Based GDP

$(Y = C + I + G + NX)$

1.) Consumption is the largest component of expenditure. (58% in 1999)

2.) Services is the largest component of consumption. (54% in 1999)

3.) Investment is the most volatile component of GDP.

4.) The Government consistently absords about 20-25% of Canadian GDP.

5.) Canada exports about 40% of its GDP.

6.) Recently, Canada has been running trade surpluses.

Prices=Current prices

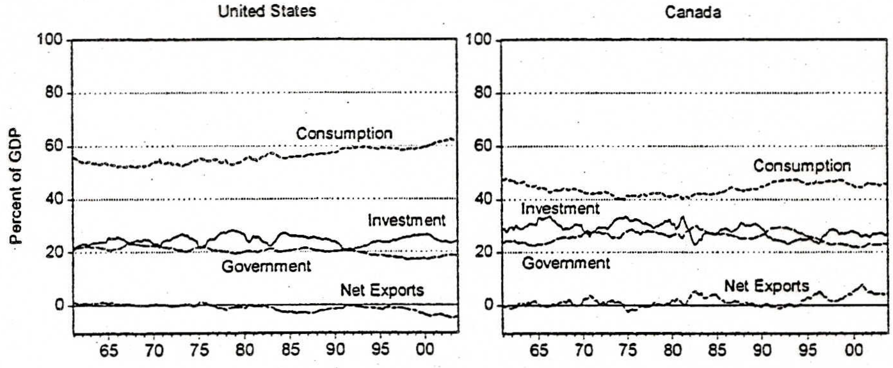
Expenditure-based estimates	2004	2005	2006	2007
Gross Domestic Product (GDP) at market prices	1,290,906	1,372,626	1,450,490	1,535,646
Personal expenditure on consumer goods and services	719,917	759,239	803,260	852,770
Government current expenditure on goods and services	247,397	260,197	278,922	296,472
Government gross fixed capital formation	32,504	36,952	40,899	45,711
Government investment in inventories	21	27	-41	15
Business gross fixed capital formation	229,755	255,319	283,082	301,690
Business investment in inventories	5,238	9,330	8,093	9,806
Exports of goods and services	495,980	518,909	522,698	532,118
Deduct: imports of goods and services	440,314	467,852	487,048	502,255

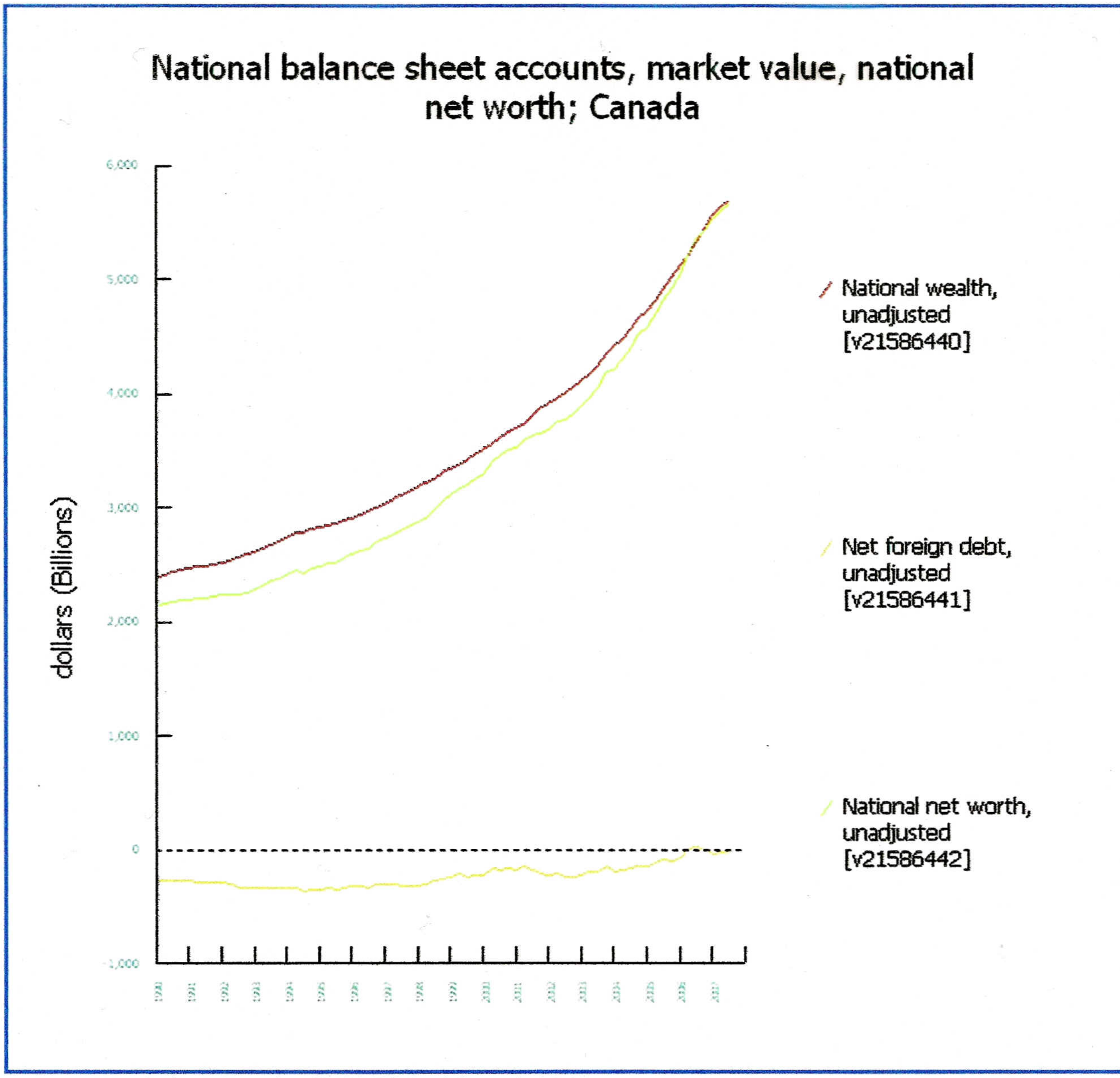
Source: Statistics Canada. *Table 380-0017 - Gross Domestic Product (GDP), expenditure-based, annual (dollars unless otherwise noted)*, CANSIM (database), Using E-STAT (distributor).

Income-based estimates	2004	2005	2006	2007
Gross Domestic Product (GDP) at market prices	1,290,906	1,372,626	1,450,490	1,535,646
Net Domestic Product (NDP) at basic prices	1,033,888	1,103,550	1,169,650	1,240,308
Wages, salaries and supplementary labour income	657,249	695,093	743,313	788,357
Corporation profits before taxes	168,219	185,895	196,719	203,231
Government business enterprise profits before taxes	12,815	15,323	14,638	15,539
Interest and miscellaneous investment income	54,020	61,247	66,421	71,515
Accrued net income of farm operators from farm production	2,897	1,098	-154	110
Net income of non-farm unincorporated business, including rent	81,313	83,955	86,540	90,363
Taxes less subsidies on products	89,603	93,621	96,260	99,428
Taxes less subsidies on factors of production	59,219	61,846	64,580	67,921
Capital consumption allowances	167,823	175,961	185,206	195,229

Source: Statistics Canada. *Table 380-0016 - Gross Domestic Product (GDP), income-based, annual (dollars)*, CANSIM (database), Using E-STAT (distributor).

FIGURE 1.2
GDP Expenditure Components
United States and Canada
1961.1 - 2003.4





Source: Statistics Canada, CANSIM table 378-0008.

Why is wealth about 3.5 × GDP?

Let K_t = capital stock ≈ Wealth

$$K_t = (1-\delta) K_{t-1} + I_t \qquad \delta\text{: depreciation rate}$$

$$\frac{K_t}{Y_t} = (1-\delta)\frac{K_{t-1}}{Y_{t-1}} \cdot \frac{Y_{t-1}}{Y_t} + \frac{I_t}{Y_t}$$

Let $\frac{Y_t}{Y_{t-1}} = 1+g$ $\qquad$ g : growth rate

$k_t = K_t / Y_t$ $\qquad$ capital/output ratio

$i_t = I_t / Y_t$ $\qquad$ investment/saving rate

$$k_t = \frac{1-\delta}{1+g} k_{t-1} + i_t$$

In the data, $i_t \approx .21$ $\quad g \approx .02$

Suppose $\delta = .05$

Then, in the steady-state $[k_t = k_{t-1} = \bar{k}]$

$$\boxed{\bar{k} = \frac{1+g}{g+\delta} i = \frac{1.02}{.07}(.21) = 3.1}$$

GDP vs. GNP

GDP = Gross Domestic Product

= Output Produced within the Country

GNP = Gross National Product

= Output Produced by domestic factors of production

NFP = Net Factor Payments

= (Foreign Earnings of Domestically-Owned Factors)

− (Domestic Earnings of Foreign-Owned Factors)

GNP = GDP + NFP

For Canada, GDP is slightly larger than GNP.
For the U.S., GDP is slightly smaller than GNP

Things to Note About Income-Based GDP

(Y = wages + Profits + Interest)

1.) Labor income is by far the largest category of income.

2.) Labor's share is quite stable over time.

3.) Corporate profits are the most volatile component of income.

AQ 3150

FIGURE 1.1
GDP Income Components
United States and Canada
1961.1 - 2003.4

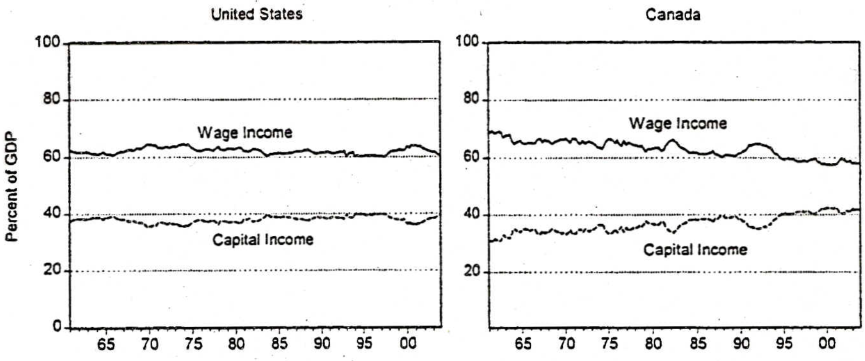


Table 379-0023[1,2]

Gross Domestic Product (GDP) at basic price in current dollars, System of National Accounts (SNA) benchmark values, by North American Industry Classification System (NAICS), annual (data in millions)

Survey or program details:

Input-Output Structure of the Canadian Economy in Current Prices - 1401

Geography=Canada

Sector = Total economy

Refresh table

Geography=Canada

Sector=Total economy

North American Industry Classification System (NAICS)[1,2]	2001	2002	2003	2004
Crop and animal production [1A]	15,186	14,630	15,349	17,438
Forestry and logging [1B]	5,226	5,893	5,429	6,060
Fishing, hunting and trapping [1C]	1,066	1,118	1,170	1,139
Support activities for agriculture and forestry [1D]	1,621	1,653	1,756	1,760
Mining and oil and gas extraction [21]	59,442	53,488	71,545	85,475
Utilities [22]	28,529	28,883	31,176	31,223
Construction [23]	54,210	57,775	61,182	67,215
Manufacturing [3A]	179,951	182,736	180,653	188,067
Wholesale trade [41]	53,360	55,226	58,874	62,883
Retail trade [4A]	54,471	58,483	63,061	66,170
Transportation and warehousing [4B]	48,776	50,066	50,991	53,705
Information and cultural industries [51]	35,998	38,229	40,122	42,757
Finance, insurance, real estate and rental and leasing [5A]	195,077	202,959	212,143	223,900
Professional, scientific and technical services [54]	46,323	48,481	51,540	54,354
Educational services [61]	48,995	51,593	54,065	56,690
Universities [6113]	10,235	11,183	12,186	13,075
Health care and social assistance [62]	64,706	68,142	72,927	77,124
Arts, entertainment and recreation [71]	9,638	10,398	10,880	11,704
Accommodation and food services [72]	24,192	25,408	25,413	27,058
Public administration [91]	57,317	61,523	65,187	66,904

Footnotes:

1. The alphanumeric codes appearing in square brackets besides each industry title represent the identification code of the NAICS-based classification for use with the Canadian System of National Accounts (SNA-NAICS). The identification scheme uses a two-digit code to represents industries at the Small (S) level of aggregation. A three-digit code is used to represents industries at the Medium (M) level of aggregation and a four-digit code is used to represents industries at the Historical-Link (L) level

Price Indexes and Inflation

Price indexes attempt to measure the "cost of living".

Changes over time in broadly defined measures of the cost of living is called inflation

2 Basic Alternatives

1.) GDP Deflator: $\frac{\sum Q_i^{07} \times P_i^{07}}{\sum Q_i^{07} \times P_i^{02}} = \frac{\text{Nominal GDP}}{\text{Real GDP}}$

[Paasche Index]

2.) Consumer Price Index (CPI) [Laspeyres Index]

$$CPI = \frac{\sum Q_i^{02} \times P_i^{07}}{\sum Q_i^{02} \times P_i^{02}}$$

Both measure inflation from 2002 to 2007. The GDP deflator weights price changes using a current basket of goods. The CPI weights prices changes using a base-period basket of goods.

CPI vs. GDP Deflator

1.) Basket changes from year to year in the GDP deflator. Basket held fixed for the CPI.

2.) All currently produced goods are in the deflator. Only a subset of consumer goods is in the CPI.

3.) The GDP deflator excludes imports

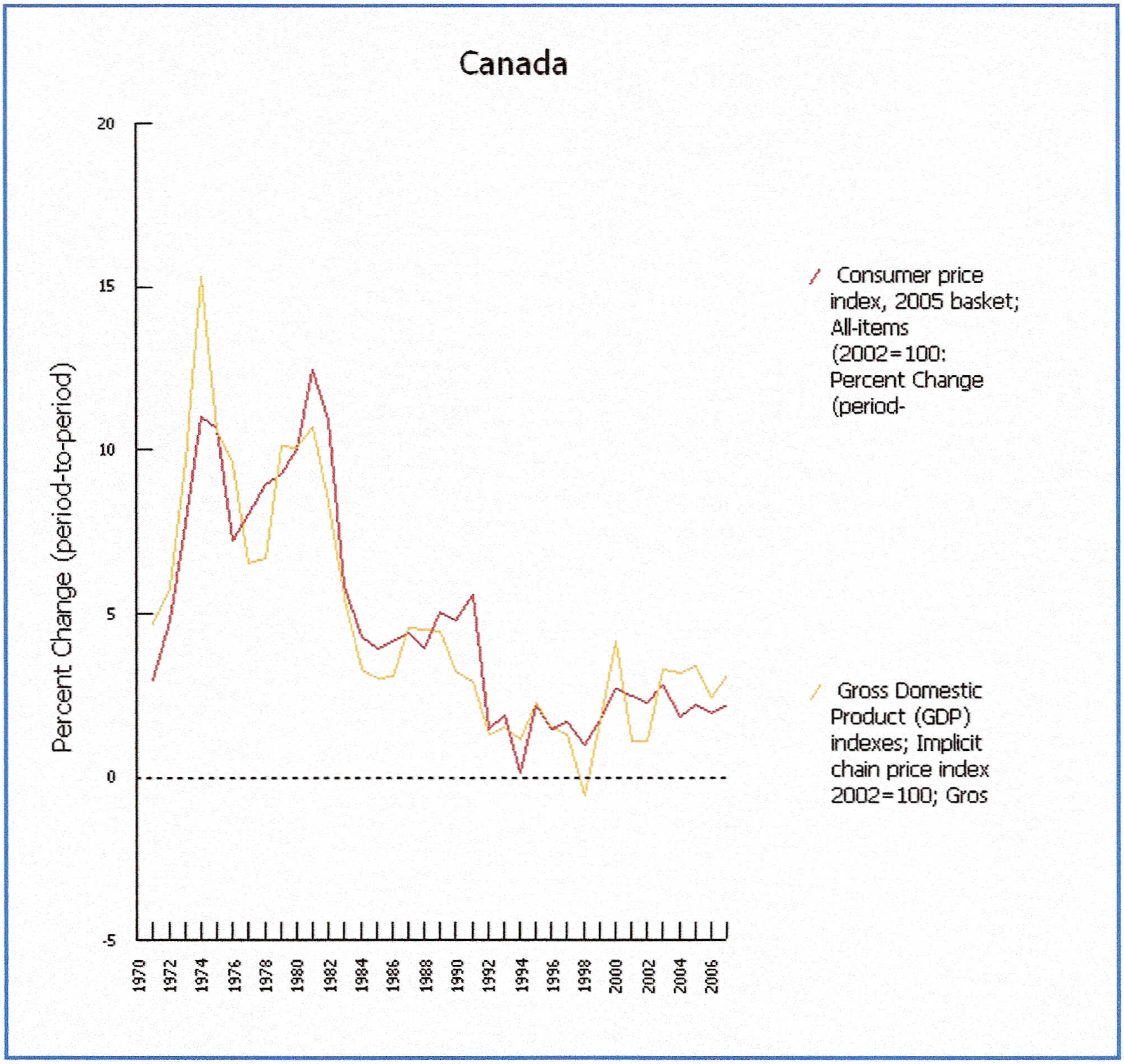
4.) The CPI tends to overstate increases in the cost of living. By holding the basket fixed, it ignores the ability of consumers to substitute toward cheaper goods. Estimates put this bias at about ½ - 1% per year. (By the same token, the GDP deflator tends to understate changes in the cost of living).

Problems With Price Indexes

1.) Quality changes (Computers!)

2.) New Goods (iPods)

Of course, the difference between 1 & 2 is a bit ambiguous. It depends on how a good is defined.



Source: Statistics Canada, CANSIM tables 326-0021, 380-0056.

The "Twin Deficits"

$$Y = C + I + G + NX$$

$$GNP = Y + NFP = C + I + G + (NX + NFP)$$

$$= C + I + G + CA \rightarrow \text{current acct.}$$

$$GNP - T - C = I + (G - T) + CA$$

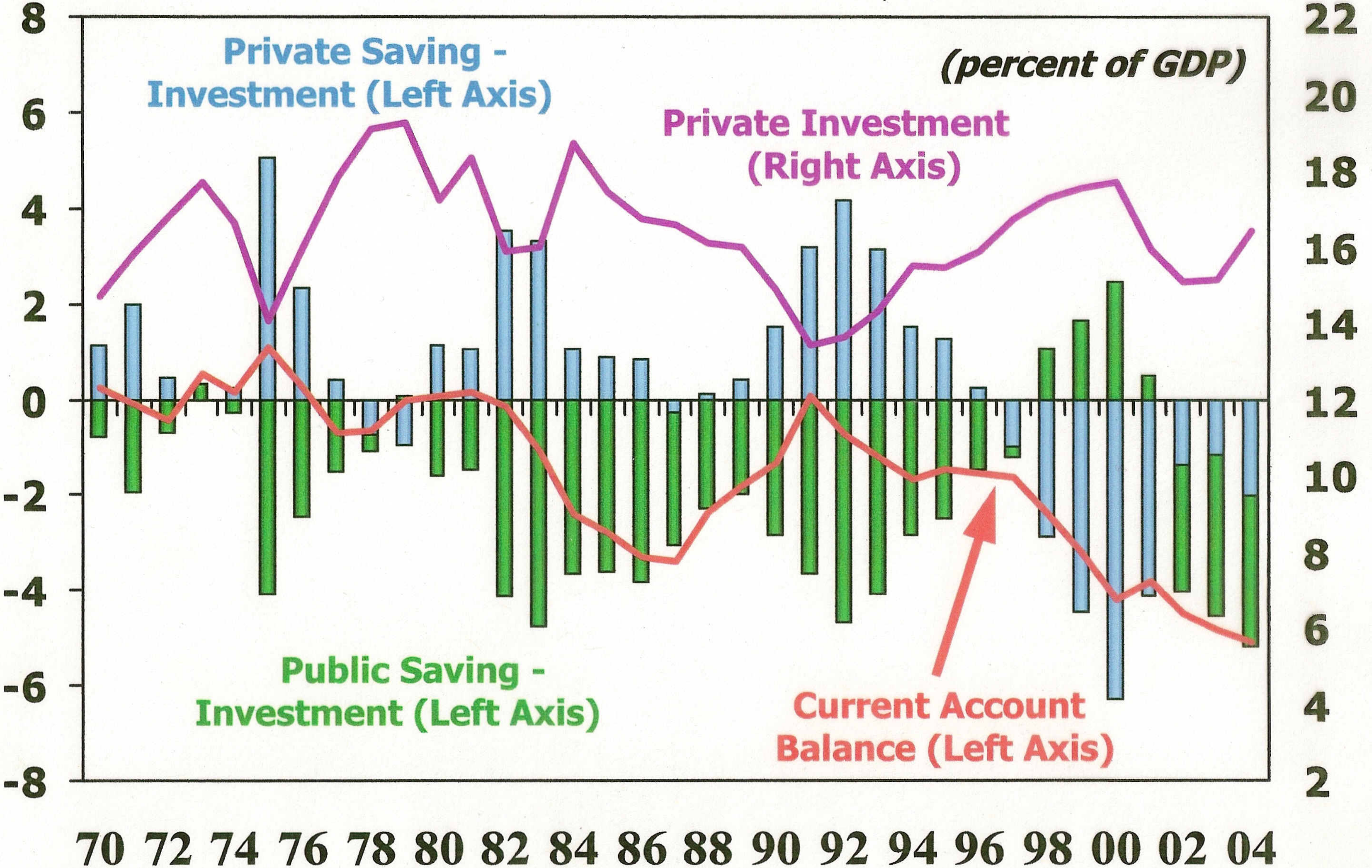
Define $S_g = T - G$ } govt. saving

$$S_p + S_g = I + CA$$

$$-CA = -S_g + (I - S_p)$$

Current Acct. Deficit = Govt. Budget Deficit $+ (I - S_p)$

Figure 6: US Current Account and Saving-Investment



The Balance of Payments

A detailed account of the composition and financing of NX.

Current Account = Trade in Goods + Services

Financial Account = Trade in Financial Assets

Current Account = Merchandise Trade
+ Services
+ Investment Income

Financial Account = Portfolio Investment
+ Foreign Direct Investment

By double-entry book-keeping,

$$CA + FA \equiv 0$$

Bureau of Economic Analysis

International Economic Accounts

U.S. International Transactions Accounts Data

Today's Date: January 17, 2008 Release Date: December 17, 2007 Next Release Date: March 17, 2008
Earliest Year Revised on December 17, 2007: No Revision

Table 1. U.S. International Transactions

[Millions of dollars]

Line	(Credits +; debits -) [1]	2003	2004	2005	2006
	Current account				
1	**Exports of goods and services and income receipts**	**1,338,325**	**1,559,191**	**1,788,557**	**2,096,165**
2	Exports of goods and services	1,017,757	1,157,250	1,283,070	1,445,703
3	Goods, balance of payments basis[2]	713,415	807,516	894,631	1,023,109
4	Services[3]	304,342	349,734	388,439	422,594
12	Income receipts	320,568	401,942	505,488	650,462
18	**Imports of goods and services and income payments**	**-1,789,819**	**-2,114,926**	**-2,454,871**	**-2,818,047**
19	Imports of goods and services	-1,514,672	-1,769,341	-1,997,441	-2,204,225
20	Goods, balance of payments basis[2]	-1,264,307	-1,477,094	-1,681,780	-1,861,380
21	Services[3]	-250,365	-292,247	-315,661	-342,845
29	Income payments	-275,147	-345,585	-457,430	-613,823
35	**Unilateral current transfers, net**	**-70,607**	**-84,414**	**-88,535**	**-89,595**
	Capital account				
39	**Capital account transactions, net**	**-3,480**	**-2,369**	**-4,054**	**-3,913**
	Financial account				
40	**U.S.-owned assets abroad, excluding financial derivatives (increase/financial outflow (-))**	**-325,424**	**-905,024**	**-426,875**	**-1,055,176**
41	U.S. official reserve assets	1,523	2,805	14,096	2,374
42	Gold[7]	0	0	0	0
43	Special drawing rights	601	-398	4,511	-223
44	Reserve position in the International Monetary Fund	1,494	3,826	10,200	3,331
45	Foreign currencies	-572	-623	-615	-734
46	U.S. Government assets, other than official reserve assets	537	1,710	5,539	5,346
50	U.S. private assets	-327,484	-909,539	-446,510	-1,062,896
51	Direct investment	-149,564	-279,086	7,662	-235,358
52	Foreign securities	-146,722	-146,549	-197,098	-289,422
53	U.S. claims on unaffiliated foreigners reported by U.S. nonbanking concerns	-18,184	-124,137	-39,603	-83,531
54	U.S. claims reported by U.S. banks, not included elsewhere	-13,014	-359,767	-217,471	-454,585
55	**Foreign-owned assets in the United States, excluding financial derivatives (increase/financial inflow (+))**	**864,352**	**1,461,766**	**1,204,231**	**1,859,597**
56	Foreign official assets in the United States	278,069	397,755	259,268	440,264
57	U.S. Government securities	224,874	314,941	213,334	380,734
60	Other U.S. Government liabilities[11]	-723	-134	-421	3,133
61	U.S. liabilities reported by U.S. banks, not included elsewhere	48,643	69,245	26,260	22,040
62	Other foreign official assets[12]	5,275	13,703	20,095	34,357
63	Other foreign assets in the United States	586,283	1,064,011	944,963	1,419,333
64	Direct investment	63,750	145,812	108,996	180,580
65	U.S. Treasury securities	91,455	93,608	132,300	-35,931
66	U.S. securities other than U.S. Treasury securities	220,705	381,493	450,386	591,951
67	U.S. currency	16,640	14,829	18,969	12,571
68	U.S. liabilities to unaffiliated foreigners reported by U.S. nonbanking concerns	96,526	93,522	31,804	235,769
69	U.S. liabilities reported by U.S. banks, not included elsewhere	97,207	334,747	202,508	434,393
70	**Financial derivatives, net**	**n.a.**	**n.a.**	**n.a.**	**28,762**
71	**Statistical discrepancy (sum of above items with sign reversed)**	**-13,348**	**85,775**	**-18,454**	**-17,794**
	Memoranda:				
72	Balance on goods (lines 3 and 20)	-550,892	-669,578	-787,149	-838,271
73	Balance on services (lines 4 and 21)	53,977	57,487	72,778	79,749
74	Balance on goods and services (lines 2 and 19)	-496,915	-612,092	-714,371	-758,522
75	Balance on income (lines 12 and 29)	45,421	56,357	48,058	36,640
77	Balance on current account (lines 1, 18, and 35 or lines 74, 75, and 76)[13]	-522,101	-640,148	-754,848	-811,477

Footnotes

Download these estimates as a csv (comma-separated values) file
Download all quarters and years for the entire table as a csv or xls file
Help with downloading

Statistics Canada Statistique Canada

Canada

Table 376-0053
International investment position, Canadian direct investment abroad and foreign direct investment in Canada, by country based on the Standard Industrial Classification for Companies and Enterprises, 1980 (SIC-C), annual (dollars x 1,000,000)

Survey or program details:

Canada's International Investment Position - 1537

Geography=Canada

Industries = Total, all industries

Refresh table

Geography=Canada
Industries=Total, all industries

Canadian and foreign direct investment	Countries	2007
Canadian direct investment abroad[5]	United States	226,147 p
	United Kingdom	54,600 p
	Other European Union countries[1]	68,168 p
	Japan and other Organisation for Economic Co-operation and Development (OECD) countries[2]	29,541 p
	All other foreign countries	136,084 p
Foreign direct investment in Canada[6]	United States	288,631 p
	United Kingdom	54,760 p
	Other European Union countries[1]	84,307 p
	All other foreign countries	36,883 p
	Japan	13,410 p
	Other Organisation for Co-operation and Development (OECD) countries	22,859 p

Symbol legend:

p Preliminary

Footnotes:

1. Other European Union (EU) countries includes currently Belgium, Denmark, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal and Spain. From January 1995, includes Austria, Finland, and Sweden.
2. Other Organisation for Economic Co-operation and Development (OECD) countries includes currently Australia, Iceland, New Zealand, Norway, Switzerland, Turkey; from July 1994, Mexico; from December 1995, the Czech Republic; from May 1996, Hungary; from November 1996, Poland; from December 1996, Republic of Korea; from January 2001, Slovakia; up to December 1994, Austria, Finland and