Class 1. Friday November 27, 2015 Aviation Economics & Finance

Macroeconomics I - the basics, the firm and the economy.
Contents: explaining how the whole economy fits together and how the firm is affected by broad economic fluctuations.

(A) From the aggregate economy to the firm: macro to microeconomics

Defining and measuring macro-variables

What is economics all about?

Scarcity Choice

- competing uses for scarce resources
- abundance does not negate choice

Choice forgone alternatives
"Opportunity cost"

Production Possibilities:

more cars less housing;
more today less tomorrow

Building a model - establishing relationships

(B) aggregation and measurement

micro-macro distinction
averages: the representative individual
benefits/costs of aggregation theories
measurement problems and the definition of economic variables

(C) exogenous and endogenous variables

exogenous variables - outside the operating environment but influencing/defining the operating environment.

endogenous variables: determined inside the operating environment ....manager has *some* control over these.

→ predict the environment
→ predict the behavior of rivals
→ develop strategies

(D) equilibrium

How do we conceptualize a prediction: "where are we headed?"

...given external conditions, a state in which the variables we are interested in become stable → equilbrium

eg. Given current market conditions, and our current production schedule, we expect the market equilibrium price to settle down at $5.37

(E) comparative statics

suppose that some of the market conditions change?
- Rivals crank up production
- Government lifts and export ban
- Financial markets react to a referendum vote for independence in BC

...what will happen to the equilibrium?

(F) micro markets

in a micro market we are looking at the aggregate behavior of all potential consumers and producers in a particular market as defined by:

the good being produced...
- newspapers
- news
- sports information

what is observed in micro markets?
- Product characteristics
- Consumer characteristics
- producer characteristics
- Market characteristics

(G) a macro system

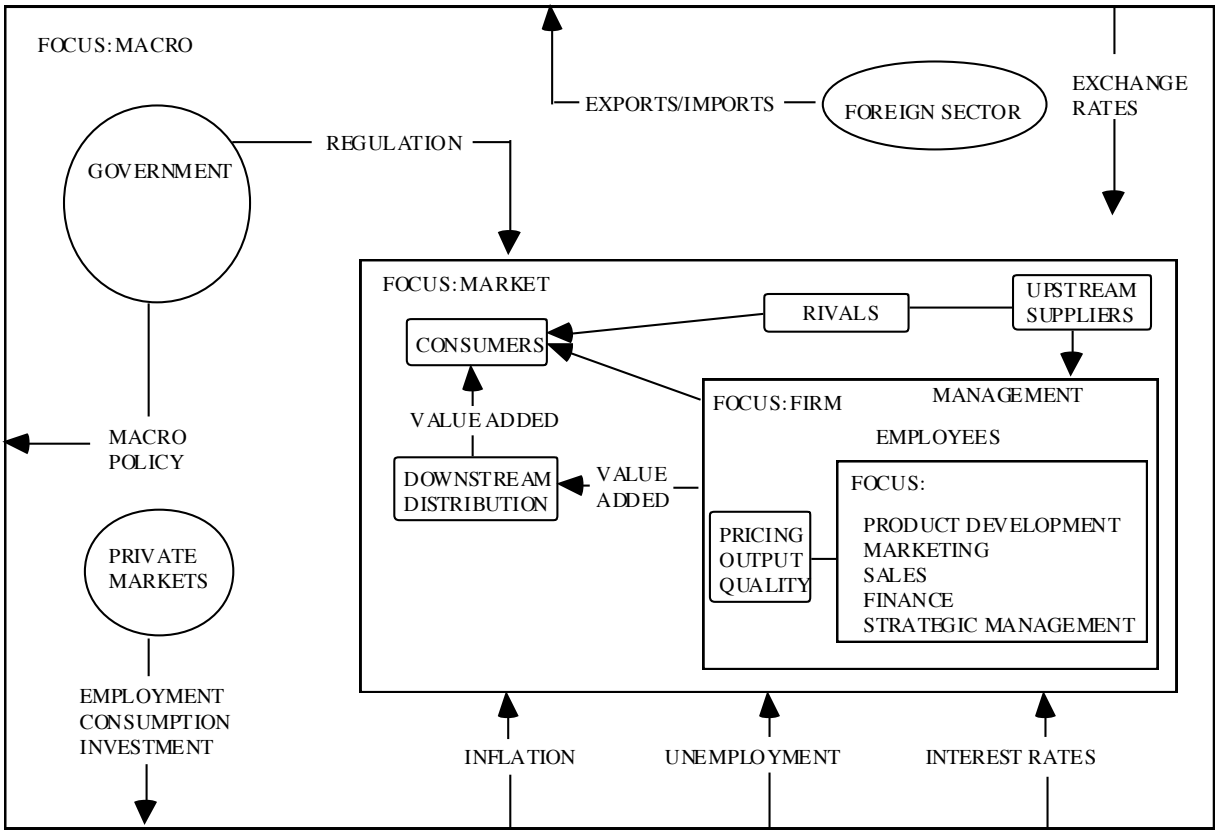
Analyzing the aggregate behavior of all consumers and producers in an economy.

Observed :
- prices and price trends:
  - inflation
  - exhange rates
  - interest rates
- aggregate output for the economy
- expenditures by:
  - consumers
  - investors

governements
firms

employment
debt

(H) The manager's perspective...zooming in on the economy



(I) Defining and measuring macro-variables

inflation

What is inflation? How is it measured? Why is inflation a problem?

Defined: inflation is a measure of how the "price level" changes over time (usually increasing!)

The price level: a measure the general level of prices in an economy

How is this measure constructed?

Statistical Agency surveys households and uses the information from the survey to define a representative basket of goods

it then converts the price of this basket of goods into an index number :

the CPI (consumer price index)

→ a price index measures the average % change in a group of prices over time.

The "base" index is the number 100, so if the index jumps from 100 in the base year to 110 in the following year, we can see that on average the prices in the group have risen by 10%.

Procedure for calculating a price index:

1. Survey the spending habits of households in the economy and construct a representative "basket of goods"

2.Weight each item in order of importance in the household budget
eg. suppose food = 40%
shelter = 20%
entertainment = 30%
travel = 10%
The weight for food items will be 40 units, for shelter be 20 units etc.

3. Muliply the prices of items in the basket of goods by these weights

			unit values	
weight	price in 1990	price in 1991	1990	1991

40	$1	$2	40	80
20	$2	$3	40	60
30	$5	$7	150	210
10	$3	$6	30	60
			260	410

4. calculate the index using the unit value in the base year as the bottom half of a fraction:

let 1990 be the base year:

the index in 1990 = $\frac{260}{260}$ x 100 = **100**

the index in 1991 = $\frac{410}{260}$ x 100 = **157**

some problems:

1. individuals or regions may differ from the average
2. households may switch away from high priced items.
if this is not allowed for, the index will overstate the index.
3. new products may replace existing items in the basket over time

Why is inflation a problem?

Inflation redistributes income in an arbitrary way:

borrowers and lenders index linked?

Inflation provides a disincentive to save and thus reduces the funds available for investment

real savings depends upon the after tax rate of interest:

after tax yield on savings is: $i \cdot (1-t) - p`$

where p` = inflation
i = nominal interest rate
t = tax rate

eg. Suppose:

p` = 0
i = 6%
t = 50%

the real after tax yield is 3% [.06(1-.5)-0]

Now suppose that p` = 6% and that i increases by 6% to compensate:

the real after tax yield is now zero! [.12(1-.5)-.06] = 0
Why? Because we are taxed on our nominal incomes.

Other costs of inflation:

Changes in the rate of change of the price level impose adjustment costs on businesses, employee groups:

- cost of changing nominal prices
- cost of computing information about relative prices
- employment contracts...uncertainty, bargaining costs.

(J) (Un)employment

- What is unemployment?
- How do we measure it?
- Why is unemployment a problem?

→ Unemployed individuals are members of the labor force that do not have a job but want one.

The labor force means: individuals who are employed and those who are involuntarily unemployed; voluntarily unemployed, retired, students, not legally part of the labor force

The unemployment rate is just the ratio of involuntarily unemployed to the total labor force: $un = \frac{u}{L} \cdot 100$

The Discouraged Worker Effect (DWE)

a portion of the labor force may show up as being voluntarily unemployed in surveys because they have stopped actively seeking employment.

the presence of "discouraged" workers will mean that the unemployment rate is understated.

Measuring the discouraged worker effect:
Check the labor force participation rate :
participation rate =the ratio of the labor force to the population
if it is declining, this signals an increase in the DWE

Unemployment is everyone's problem:

- reduced consumer demand
- reduced savings and investment
- increased social unrest

income distribution

The distribution of income is determined (in the absence of interference) by market forces and "nature":

individuals receive endowments of land, labour skills (or potential), capital and trade these.

Value of a resource is determined by supply and demand conditions: who wants it? Who's got it?

Markets have no morals

(K) output and growth

"gross domestic product" (GDP) and ΔGDP is the standard way in which we measure the performance of economies around the world because [real] GDP per capita (GDP/pop.) is a measure of real income

GDP = the market value of all final goods and services produced in the economy in one year whether they are sold or not.

market prices express our valuation of those goods which are produced.

Gross National Product (**GNP**) = GDP + net property income from abroad

suppose an economy produces only two goods:

cars
granola bars

year	cars	granola bars
1	50	1 bar
2	10	100 bars

how productive is this economy?

→ without prices we cannot say.

the concept of "value added":

as a good moves through the stages of production it increases in value. at each stage in the process someone adds value to one or more intermediate goods and marks up the price to cover production costs and to make some profit.

eg. ranch sells treated fleece to wool processor
processor sells wool to clothing manufacturer
clothing wholesaler sells suit to retailer
retailer sells suit to Andrew/Andrea

		value added
rancher's price	$ 60	$ 60
processor's price	$100	$ 40
manuf.'s price	$125	$ 25
wholesale price	$175	$ 50
retail price	$250	$ 75
		$250

the value added concept illustrates that the market prices of final goods and services already includes the value of intermediate goods : if we included the value of intermediate goods in the calculation of GDP we would be double counting.

calculating GNP: 3 approaches

→ add up all the value added - GDP at factor cost (needs net income from abroad to yield GNP)
→ add up all the incomes earned by the various factors of production: profits and income from employment excludes transfers - measures GDP at factor cost
→ add up all the expenditures on final goods and services - consumption and investment expenditures (takes account of taxes and imports but excludes exports) - GNP would include this)

What is not included in calculations of GNP that should be?

→home production, quality change

What is included in calculations of GNP that should not be?

"externalities" : the external effects of producing goods (eg. pollution)

results in markets for offsetting these effects...expenditures/incomes from this market end up being calculated as additional output when in fact the use of these resources actually represents a cost (to society) of producing goods and services.

Note: measures of GDP are a composite of real quantities and dollar quantities. When GDP changes we need to be able to distinguish the source of the change - the amount we produce or the dollar value of what we produce. Therefore, the concepts of REAL GDP and Nominal GDP are used.

(L) interest rates

An interest rate is just a price: the price of borrowed money

The Bank Rate: the rate at which Chartered Banks can borrow from the Bank of Canada.

The Prime Rate: The rate at which banks lend to their "best" customers.
Prime = bank rate + markup for administration and profit.
Rates are adjusted to account for risk, inflation, duration etc...

Interest rates influence:
investment spending
consumer spending
government spending

(M) Deficits and the national debt

A government deficit/surplus is simply [revenues less expenditures]

The National Debt = accumulated deficits

1975-76: Debt = 33.4% of GDP
1985-86: Debt = 62.3% of GDP
1992-93: Debt = 87.5% of GDP

(N) Where to get economic data about the economy?

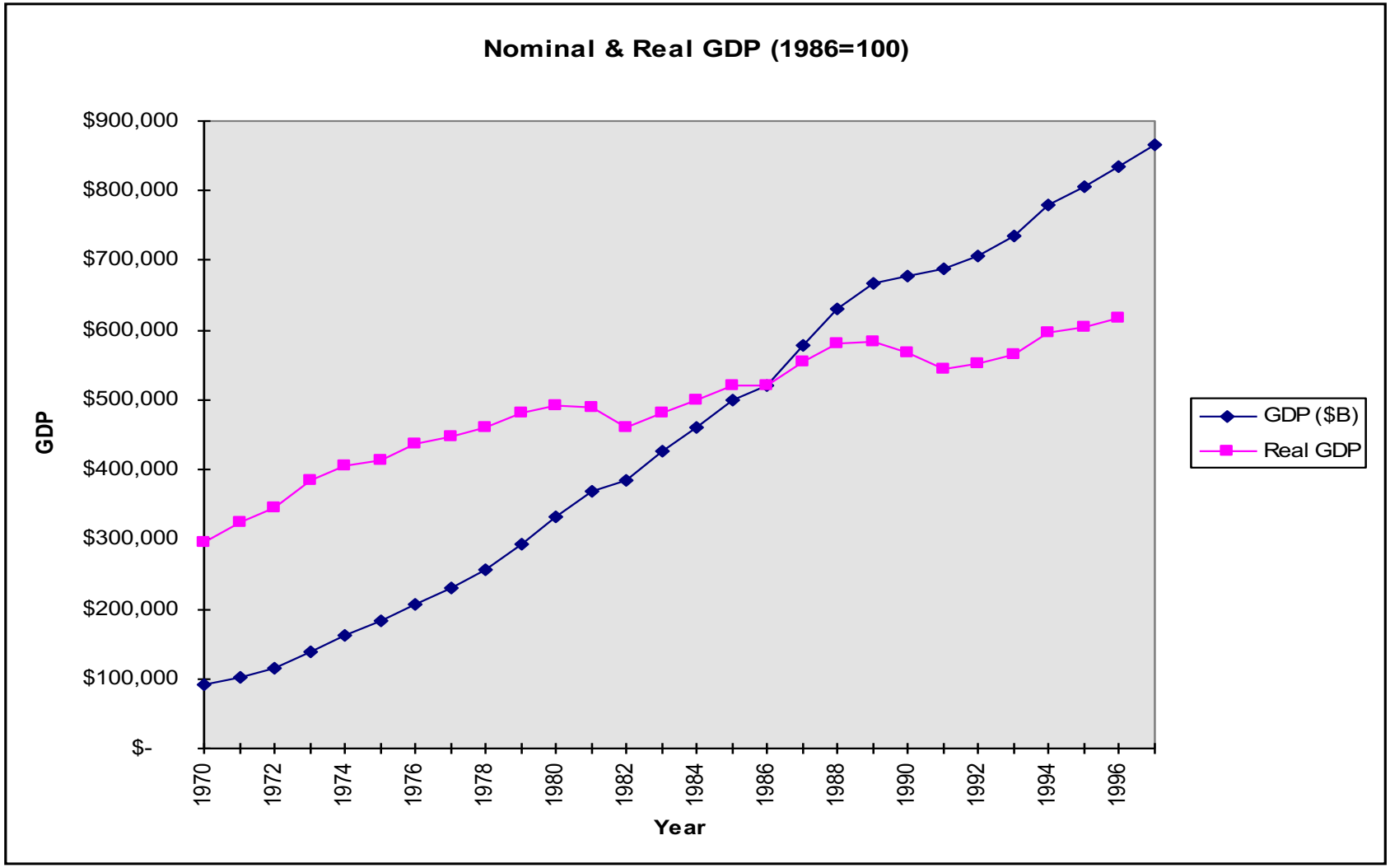
Statistics Canada
Department of Finance
Industry Canada
Consumer and Corporate Affairs
Bank of Canada

CANADIAN SOCIAL TRENDS

	1987	1988	1989	1990	1991	1992	1993	1994
Total Population (000)	26549·7	26894·8	27379·3	27790·6	28120·1	28542·2	28940·6	29248·1
Total Employment (000)	11861	12244	12486	12572	12340	12240	12383	12644
Total Unemployment (000)	1150	1031	1018	1109	1417	1556	1562	1458
Unemployment Rate (%)	8.8	7.8	7.5	8.1	10.3	11.3	11.2	10.3
Median Family Income (000)	38.9	41.2	44.5	46.1	46.7	47.7	47.1	*
Annual % change in Real GDP (1986$)	+4.2	+5.0	2.4	-0.2	-1.8	+0.06	+2.2	+4.5

Annual Inflation Rate (%)	4.4	4.0	5.0	4.8	5.6	1.5	1.8	2.0

Year	Gross Fixed I ($B)	PDI ($B)	Bond Yield (1 yr)	Exchange Rate	GDP ($B)	Pop	Income	CPI (1986=100)	Real GDP
1970	$ 19,011	$ 179,455	4.44	0.98	$ 92,032	21297	$ 8,426	31.0	$ 296,877
1971	$ 21,570	$ 191,834	3.21	1.00	$ 103,244	22026	$ 8,709	31.9	$ 323,649
1972	$ 23,878	$ 209,098	3.60	1.00	$ 115,700	22285	$ 9,383	33.4	$ 346,407
1973	$ 28,858	$ 227,391	6.35	1.00	$ 138,508	22560	$ 10,079	36.0	$ 384,744
1974	$ 35,780	$ 241,766	7.07	1.01	$ 162,200	22875	$ 10,569	39.9	$ 406,516
1975	$ 41,845	$ 256,624	8.64	0.99	$ 183,196	23209	$ 11,057	44.2	$ 414,471
1976	$ 46,707	$ 270,166	8.14	0.98	$ 207,020	23518	$ 11,488	47.5	$ 435,832
1977	$ 50,226	$ 275,717	7.16	0.91	$ 229,564	23796	$ 11,587	51.3	$ 447,493
1978	$ 54,579	$ 285,526	10.48	0.85	$ 256,348	24036	$ 11,879	55.8	$ 459,405
1979	$ 63,435	$ 295,041	13.60	0.86	$ 294,208	24277	$ 12,153	61.0	$ 482,308
1980	$ 72,288	$ 303,243	14.00	0.84	$ 331,288	24593	$ 12,330	67.2	$ 492,988
1981	$ 86,119	$ 314,741	15.33	0.84	$ 368,788	24900	$ 12,640	75.5	$ 488,461
1982	$ 81,327	$ 314,145	9.60	0.81	$ 384,896	25202	$ 12,465	83.7	$ 459,852
1983	$ 81,227	$ 311,732	10.04	0.80	$ 426,224	25456	$ 12,246	88.5	$ 481,609
1984	$ 84,699	$ 325,108	10.43	0.76	$ 461,512	25702	$ 12,649	92.4	$ 499,472
1985	$ 94,198	$ 334,610	9.28	0.72	$ 500,124	25942	$ 12,898	96.0	$ 520,963
1986	$ 101,560	$ 337,952	8.64	0.72	$ 519,992	26204	$ 12,897	100.0	$ 519,992
1987	$ 116,717	$ 346,174	9.54	0.76	$ 579,348	26550	$ 13,039	104.4	$ 554,931
1988	$ 132,790	$ 362,988	11.49	0.84	$ 629,520	26895	$ 13,496	108.6	$ 579,669
1989	$ 146,075	$ 378,955	11.70	0.86	$ 666,332	27379	$ 13,841	114.0	$ 584,502
1990	$ 141,376	$ 378,328	11.21	0.86	$ 678,248	27791	$ 13,613	119.5	$ 567,572
1991	$ 132,001	$ 369,283	7.03	0.87	$ 688,308	28120	$ 13,132	126.2	$ 545,410
1992	$ 128,865	$ 373,342	7.13	0.79	$ 705,848	28542	$ 13,080	128.1	$ 551,013
1993	$ 128,884	$ 374,492	4.23	0.75	$ 735,296	28941	$ 12,940	130.4	$ 563,877
1994	$ 138,118	$ 378,991	8.79	0.72	$ 779,188	29251	$ 12,957	130.7	$ 596,165
1995	$ 134,341	$ 380,686	5.74	0.73	$ 805,852	29606	$ 12,858	133.5	$ 603,634
1996	$ 139,971	$ 378,563	3.69	0.73	$ 835,608			135.6	$ 616,230


Nominal & Real GDP (1986=100)
$900,000
$800,000
$700,000
$600,000
$500,000
$400,000
$300,000
$200,000
$100,000
$-
GDP
1970
1972
1974
1976
1978
1980
1982
1984
1986
1988
1990
1992
1994
1996
Year
GDP ($B)
Real GDP