

Jan 9th, 2018

Intro to Macroeconomics

Canadian Macroeconomy: unemployment rate 5.7% in 2017 versus 8.7% in mid 2009

Nominal GDP adjusted for effects of inflation

GDP per capita (per person) is one of the factors of living standards

Weaker dollar helps exports, but hurts imports

Stronger dollar help imports, but hurts exports

Macroeconomic History:

1920's the Roaring Twenties

- Paradigm was the classical model

1930's the Great Depression

- Paradigm became the Keynesian model

1940's WWII

- Paradigm remained Keynesian model

1950's - 60's the Good old'Days

- Unprecedented economic growth and rising living standards

- Paradigm was still Keynesian model

1970's Stagnation + Inflation = Stagflation

- Keynesian paradigm begins to lose favour

1980's - steep recession followed by strong recovery

1990's low inflation and pretty high unemployment until second half of the decade

2000's return of the good old'days as far as the macroeconomy is concerned

- "The Great Moderation" until September of 2008

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2008-9 The financial meltdown (Great Recession)

- not as severe in Canada as in USA

2010-16

- The "great secular stagnation", fairly low growth in real GDP. unduly high employment rates

2017 ???

Macroeconomics theory over the last 90 years has tended to evolve with the actual macroeconomic performance. It has led to changes in these models over time which is not the case for microeconomics

In mid 2000's, financial economists screwed up

Macroeconomics Institutions: abstract structure created by humans to govern daily affairs
Ex: Common Law, Napoleonic Code, Banking/Monetary system,
social welfare state

Macroeconomic Policy: Fiscal policy, Monetary policy

Macroeconomic Models: Models or tools, are designed to show how the economy functions.

Like micro, macro uses: PPF, S&D framework, model of perfect competition markets

3 primary Markets of Macroeconomics

- Output Markets for goods and services
- Money Markets
- Employment/Labour Markets

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Output market for goods and services: Is part of the real economy, Q is GDP, (GDP: the \$ value of all final g&s produced over a given interval)

Aggregate Output → Gross domestic product

P is the composite price level (inflation rate measures the change in the price level over time)

Employment Market: Is part of the real economy, Q is employment, P is the wage level

Money Market: Is not part of the real economy, Q is the quantity of money circulating in the macroeconomy, P is the interest rate and the foreign exchange rate.

The P variables are the interest rate and the exchange for the dollar

Growth rate% = change in level / level

Good test question: GDP growth over time is used as an indicator of economic activity (Barometer),

- when growth is negative then the economy is shrinking (recession)
- When GDP growth exceeds 2% unemployment will fall otherwise it will rise

Real GDP levels are a measure of economic well-being, or living standards.

Currently economy is operating at about 3% below its estimate capacity.

For interest rates it is supply and demand for loanable funds especially supply

- Uncertainty causes supply to fall, pushing up the interest rate

For Exchange rates, it is supply and demand for the Canadian \$, especially demand.

Circular Flow Model

- Gives the structure or the skeleton of the macroeconomy

A flow quantity is an amount per unit of time, like a current of water passing through

A stock is an amount observed at a point in time, like the volume of water in a tank

Basic concept

- Flows of expenditures and incomes circulating through the markets that comprise the macroeconomy

Concept of Twos

2 by 2 by 2

- Output markets
- Input markets

2 types of actors

- Households
- Producers

2 types of flows

- Income flows from services rendered
- Expenditure flows from g&s produced

Green arrows denote: flow of dollars

Red arrows denote: flow of goods and services

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factor market (on the left)

g&s market (on the right)

Key point:

Expenditure for one actor is income for another within each of the 2 markets

- Every dollar which circulates is both income and expenditure
- Every dollar has a double identity
- As a result, total (aggregate) expenditure = total (aggregate) income
- "This equality is a crucial idea in the study of macroeconomics" (p.206)

Possible test question: Circular Flow Model is used to show the basic layout or structure (relationship of the flows) of the macroeconomy. NOT to measure GDP.

National Accounting:

- Measure GDP
- Similar to accounting at a firm level (track and measure economic activity)

Two major approaches

- Expenditure
- Income
- Textbook mentions value-added approach

$$\text{GDP} = C + I + G + \text{NX}$$

C - Consumption spending

I - Investment spending

G - refers only to government purchases, and does not reflect transfer payments

Money spent on imports is in the circular flow but also leaks out

Exports are injected into the circular flow

$$\text{NX} = X - \text{Imports} \rightarrow \text{Net Exports}$$

If $\text{NX} > 0$ then exports > imports

If $\text{NX} = 0$ then exports = imports

Injections enter the circular flow positive (+)

- Government/Investment/Export spending

Imports enter the circular flow negative (-)

- They are already counted in consumption so we do not want to double count them

Three types of investment activity, or capital spending

- Residential investing
- Plant and equipment
- Inventory accumulation

It IS possible for one economic agent to contribute to C, I, Im, and G simultaneously

Factor incomes approach

- Focuses on earning activity instead of spending activity
- Y - aggregate income broken down into
 - Factor payments
 - Indirect taxes
 - depreciation

NDP (net domestic production) = Factor incomes + indirect taxes

GDP (same as Y) = NDP + depreciation (capital consumption allowance)

Factor payments include:

- Salaries
- Rent to landlords
- Interest and dividends
- Profits to entrepreneurs

These quantities give income at factor cost. This is not

Indirect taxes fill this gap

- PST, GST, HST excise taxes

Depreciation refers to what is required in order to maintain the capital stock in its existing condition.

Apogee (climax)

- GDP as calculated by the expenditure approach should equal Y as calculated by the factor income approach
- GDP = Y, or gross domestic product = national income

Nominal GDP is used to measure changes in the volume of economic activity

January 23rd, 2018

GDP has to be measured by value, not physical volume and value depends on both volume and price.

A price deflator (index) is a time series of numbers that measures inflation. They are used to deflate nominal quantities into real ones.

% change nominal = % change real - inflation rate

Real GDP = (nominal GDP / deflator) * 100

- Take logs of both sides and differentiate this in order to obtain the expression above
- Memorise equation 7-3

Inflation rate = $[(\text{deflator}_t - \text{deflator}_{t-1}) / \text{deflator}_{t-1}] * 100$

In some ways GDP underestimate economic welfare, so actual economic welfare is higher than the official numbers indicate.

In some ways it overestimate it, economic welfare is actually lower than the official numbers.

Chapter 8

- Consumer price index (used to measure the cost of living)
- GDP deflator (supposed to reflect the prices of all goods that are produced domestically)

January 25th, 2018

Compounding = getting Interest on interest

Core inflation = CPI stripped of the prices of those goods and services with the most volatile prices, esp. Energy.

- Designed to show the more long-term trends in consumer pricing

Every year has a real GDP denominated in constant dollars of the base year.

Every year also has a value for nominal GDP denominated in current dollars of the year in question.

- In the base year nominal GDP = real GDP

Deflator in 2002 = 100 (choice of base year arbitrary, but use the same year throughout your analysis)

If deflator for a given year > 100, prices in that year are higher than they were in 2002. So nominal GDP in current dollars for that year > real GDP in constant 2002 dollars (vice-versa)

Applications on pg. 245 & 247

PPP (purchasing power parity)

The theory: a unit of any given currency should be able to buy the same quantity of goods in all countries.

Also called the 'law of one price' because goods are no more expensive in one country than another

January 30th, 2018

PPP only applies to tradeable, transferable goods.

Applying a PPP adjustment for nominal GDP

Chapter 9

Living standards measured by real GDP per capita

$\% \text{ change in real GDP} = \% \text{ change in nominal GDP} - \text{inflation rate}$

$\% \text{ change in real GDP per capita} = \% \text{ change in nominal GDP} - \text{inflation rate} - \% \text{ change in population}$

A poor country that grows rapidly can gain a lot of ground (Japan, S. Korea)

A rich country that grows slowly can lose a lot of ground (Britain, Argentina)

A country with negative growth over an extended period is in big trouble (Greece)

Significance of compounding:

- If real GDP grows at 1% the size of the economy will double in 70 years

- If real GDP grows at 2% the size of the economy will double in 35 years
'rule of 70'

Primary causes of economic growth and prosperity

- The endowments of land, labour

Productivity is highly desirable because it starts growing again in Canada as it has been stagnant for the past 5-6 years.

Production = product = output

Productivity = output divided by input

Determinants of Productivity

- Physical capital
- Human capital (knowledge, skills, and aptitude embodied in workers)
- Natural resources
- Technological Knowledge

February 1st, 2018

Natural resources are not a necessary condition nor a sufficient condition for prosperity.

Rates versus Levels - distinction between level of income and its rate of growth

Decreasing marginal returns and the catch-up effect

- Capital formation leads to higher real GDP, but additional increments of capital yield declining yet still positive increments to real GDP
- The catch-up effect is related to diminishing returns
- Developing countries have the potential to grow very rapidly for a while

Economic Growth and Public Policy

- Public policy means what can the government do about it?

Wants us to be able to identify and the six points on slide 21

Saving and Investment

- Forgoing present consumption through saving in order to produce more capital goods through investment spending, which augments the capital stock

Education (human capital)

- Critical at all levels of training and education including vocational, university, and professional
- Not just the level of formal education is important, but also the actual levels of general numeracy, literacy, and computer literacy

Clearly enforced Property Rights and Political Stability

- Property rights: ability of people to determine the use of the resources that they own
- Basic idea is that these institutional arrangements encourage economic agents to produce and are thus conducive to productive activity

Free trade

- Most economists believe that open economies are more productive than closed ones

Technological change and innovation

- It has to be diffused as well as invented
- It creates jobs as well as destroying them
- It can contravene the onset diminishing returns to capital

Chapter 10

Measuring labour market performance

Who is 'unemployed'

- Without work, 'actively' seeking work, on layoff expecting recall, hired but waiting to start within a month

Labour force = unemployed + employed

$$LF = U + E$$

Unemployment rate = unemployed / labour force

$$UR = U / LF$$

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If the minimum wage is greater than the equilibrium then the surplus of labour = unemployment

Types of Unemployment

Frictional

- Has a positive economic function

Associated with normal turnover as good labour market matches take time to form (3% rate is desirable)

Structural

- Very economically harmful and difficult to remedy
- Related

Pool of jobless workers ill-suited for jobs that are available.

Cyclical unemployment: a global shortage of jobs

The natural rate of unemployment is the one that exists when the economy is near its capacity

- Cyclical unemployment is zero and all unemployment can be characterised as either structural or frictional
- It is notional and can only be estimated
- A synonym is the NAIRU the 'non accelerating rate of unemployment'

The only sustainable UR is the natural rate of unemployment.

If actual rate dips below natural rate, inflation takes off

Left-wingers would say most unemployment is cyclical and only 5% or lower is natural

Right-wingers would say most unemployment is structural and 7-8% is natural

Unions

- Government set institutional framework for unions, but do not set wages
- Unions in Canada use British structure

Efficiency wages

- The going wage exceeds the equilibrium level, which contributes to real-wage, classical unemployment
- Employer pays this wage voluntarily
- Various rational reasons why he/she might pay more than the going wage but the level of employment is likely to be lower than what would otherwise be the case.

Government policy of Unemployment Insurance

- Called 'employment insurance' in Canada
- Most economists believe that it aggravates the level of unemployment by reducing the incentive to search for new work
- By greatly increasing the incomes of seasonal workers, increases their number (and hence the degree of seasonal unemployment)

January 15th, 2018

Chapter 11

The AD-AS model determines equilibrium real GDP and explains its fluctuations.

3 Facts regarding economic fluctuations

1. Real GDP has its ups and downs that comprise the business cycle, but this cycle is not regular (like the seasons)
 - Recession = period of contracting real GDP and rising unemployment
 - Depression = very severe recession

2. Many macroeconomic aggregates move together, although not necessarily by the same magnitude

3. As real GDP falls even slightly, unemployment skyrockets.

Taking the natural log of GDP and then the derivative of that gives us the % change in real GDP

Model of AD and AS

- Designed to explain short-run fluctuations in equilibrium real GDP
- Long-run real GDP determined by levels of inputs and productivity

Why does the AD curve have a negative slope (hard)

If Price increases

- Nothing happens to real GDP as it is already adjusted for inflation.
- Real wealth decreases
- Consumption spending decreases
- $GDP = C + I + G + NX$ decreases

Where did we start and end this process

- If P increases GDP decreases (vice-versa)
- There is the negative slope

This is called the wealth effect

If Price increases

- Canadian goods and services become less competitive
- Net export spending decreases
- GDP decreases

This is the real exchange rate effect

AD gives the functional relationship between P and GDP.

Any factor except price which causes an increase in expenditure (I, X,G,C) will shift AD curve to the right.

Any factor except price which causes a decrease in expenditure (I, X, G, C) will shift to the left.

Any factor except price which causes negative expenditure to decrease (a decrease in Im, T, S) will shift AD to the right (vice-versa)

Any change in P means move along the AD curve

Aggregate Supply

- 2 Types
 - Short-run
 - Long-run

The interpretation of this curve: the set of all combinations of P and GDP that firms are willing to produce.

February 27th, 2018

Why the SRAS curve has an upward slope

- Along any short run aggregate supply curve, physical productivity and input prices are held fixed.
- As P increases it's more profitable to produce so, GDP increases

Shifts in SRAS curve

- If productivity falls, nad/or input levels fall, and/or input prices rise, shift SRAS to the left.
- If productivity rises, nad/or input levels rise, and/or input prices fall, shift SRAS to the right.

Long Run Aggregate Supply

- Is vertical in P-GDP space at 'the natural rate' of output where production factors are

Equilibrium

- The intersection of Ad curve and SRAS curve, which means that the planned expenditures of consumers, investors, etc. are consistent with the production plans of firms at the equilibrium P.

March 6th, 2018

What is stabilisation policy?

- Fiscal policy is carried out by finance departments, and involves changing T and/or G.
- Deliberate, conscious effort of the government to intervene in the macroeconomy with an eye toward influencing the course of Equilibrium P or Q (real GDP)
- Monetary policy by the Bank of Canada
- Both of them operate through shifts in the AD curve.

Fiscal Policy

- To stimulate AD, the government either increases G and/or cuts taxes
 - Causes AD to shift right and P and Q to increase
- To contract AD the government either decreases G and/or raises taxes.
 - Causes AD to shift left and P and Q to decrease

Following a negative AD shock

Following a positive AD shock

- No political pressure whatsoever for intervention in the form of contractionary fiscal policy

Multiplier Effect

- The basic idea is that if the government increases spending (which it is doing now), this increase in spending has an effect on AD that causes it to expand again and again.
- Geometrically, it is the magnitude of the horizontal shift in AD
- Interpretation: the change in total spending (C + I + G + NX) which results from a 1\$ change in government spending.
- Value = $\Delta \text{ aggregate expenditure} / \Delta G$
- Formula for multiplier: $1 / (1 - \text{MPC}) > 1$ similar to $1 / x$ function
- MPC = marginal propensity to consume = fraction of each additional \$ of income that goes to consumption spending as opposed to saving
- The initial impetus ΔG triggers a ripple effect of successive rounds of changes in induced spending

- Each induced increase to spending gets smaller and smaller

Why is it that with a high MPC we definitely get a low savings , why does that make fiscal policy powerful? (possible midterm question)

- The higher the value of the multiplier, as less income leaks out of the circular flow in the form of savings.
- The higher the impact of a change in G on aggregate expenditure

March 8th, 2018

Fiscal years start April 1st and end the next year March 31st

The taxation multiplier (worry less about this one)

- Totally analogous to the government spending multiplier
- A multiplier process is triggered by a change in taxes rather than a change in government spending
- The process of magnification is quite similar

Error in textbook

In the context of the multiplier, everywhere you read “decrease or increase GDP” replace GDP with aggregate expenditure.

The No camp

- Argue that the lags are long (the time between the occurrence of the negative shock and the intervention)
 - Information lag
 - Formulation lag
 - Implementation lag
- By that time the intervention might no longer be appropriate
- Stress “Ricardian equivalence”

Automatic Stabilizer

- Is fiscal policy that is built into the government’s tax and expenditure apparatus that self-activates
- When in a recession, UI (unemployment insurance) payments increase and total tax revenue decreases
- This causes AD to shift to the right but not sufficient to bring about an end to the recession
- When beyond potential GDP, UI payments decrease and total tax revenue increases

- This causes AD to shift left

Fiscal Deficit = $T - G < 0$

Fiscal Surplus = $T - G > 0$

Both quantities typically expressed as a share of GDP, as GDP (=aggregate income) is the means to repay it.

Deficits are financed by issuing government bonds

Debt is a stock quantity referring to total amount owed,

No time frame

Sum of all deficits and surpluses

Deficit is a flow quantity referring to a shortfall per time period

Benefit of debt-financed deficits

- Address negative AD and/or SRAS shocks
- Can finance investments in infrastructure that increase AS in both the short-run and the long-run. (If its productive public investment)

Costs of debt financing

- Payment of interest
- Re-payment of principal (future generations only)
- Crowding-out of private investment spending

While the goods and services market and the input market consist of real (concrete) economic activity, money markets do not

Money serves as an accessory to concrete, real economic activity, meaning that exchanging money is not an end in of itself

Chapter 13

Events in money markets influence real economic activity through three channels, and vice versa

Three primary functions of banks

- Financial intermediation
- Provide liquidity

- Allow for diversification of risk

The structure of

Financial intermediary is any person, entity that comes between savers and borrowers.

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The largest component of the money supply is comprised of credit, not cash.

The structure of the financial system:

- Savers supply loanable funds
- Borrowers(investors) demand loanable funds
- Financial intermediaries who broker deals between these two sets of actors

The price of loanable funds is the interest rate

The ultimate destination of much of the loanable funds is for investment spending, which in turn is directed toward capital spending, which hopefully maintains and augments the productive capacity of the macroeconomy.

Financial Institutions in the Canadian economy

- Many different instruments as saving and lending can be very specialised
- Canadian financial markets are among the deepest or most developed in the world

The law of demand applies to the D for loanable funds, As interest rate increases quantity demanded decreases (vice versa)

Similarly the law of supply applies to the S for loanable funds, As the interest rate increases the quantity supplied decreases

Determinants of Saving

- Culture
- Presence of social safety net
- Wealth
- Current macroeconomic conditions

What policies can be implemented to encourage saving?

Lower taxes on the returns to saving and instead shift incidence of taxation to consumption

- Idea behind GST, HST

Increase tax shelters for retirement saving

- RRSP

What policies can be implemented to encourage investment?

Running a deficit results in the 'crowding out' effect

It is the increase in borrowing that 'crowds out' would-be private investment spending.

- Not thought to be relevant in today's low interest rate environment

Function of intermediation

- Many different types of financial intermediaries
- These entities are often very specialized
- Their activities are often very complicated

Function of Liquidity

- Critical for encouraging saving and maintaining confidence in the financial system
 - Savers and investors must have faith that they can unlock the value of their assets

March 15th, 2018

Function of Risk Diversification

- If a portfolio is diversified, a loss in the value of one asset is offset by a gain in the values of another
- Also critical for saving and maintaining confidence in the financial system
- The opposite of diversified risk is systemic risk (like a house of cards)

Major types of financial assets

- Equity

- Pay dividends
- Pay capital gains (or losses)
- Risky for purchaser, as both payments can be extremely variable
- Debt
 - Bonds (fixed-income securities)
 - Are extremely tradeable before the maturation date
 - Pay interest
 - Pay capital gains (or losses)

Derivatives

- Any financial asset whose value is derived from (or based on) the value of some other assets
- Futures contract is one example
- The design can be extremely complicated, which makes them difficult to value (opaqueness)
- Rife with fraud

Learn Major Players section on my own time

Valuing Assets

- Basic Principle of finance is the tradeoff between risk and return
 - Assume the higher the return, the better
 - Assume the lower the risk, the better

Efficient market hypothesis

- Prices of assets and financial instruments in financial markets reflect ALL available information regarding their underlying value
- Premised on full and honest disclosure of information
- An implication is that no portfolio can beat the market average for long
- Failed to hold with catastrophic consequences in 2008

Saving and Investment in the National Income Accounts

*Back to framework of Ch.7

We do use equation $Y = C + I + G + NX$

Assume a closed economy and no government, so $NX = G = 0$

So now we have $Y = C + I$ or $Y - C = I$

Define savings as $S = Y - C$

So $S = I$

Now bring on government spending and taxation, so $Y = C + I + G$

- Or $Y - C - G = I$

Define national savings as $S = Y - C - G$

So $S = I$

National savings = investment spending

Then $S = (Y - T - C) + (T - G)$ *Added and subtracted T from the right side

Total S is thus decomposed into private saving(left) and public saving(right)

$(Y - T)$ is called disposable income, and whatever remains after consumption spending

$(- C)$ is private savings

For the aggregate economy, $S = I$ (always)

- Only applies in the aggregate

March 22nd, 2018

Chapter 14

Three distinct functions of money

- Medium of exchange
- Unit of account
 - Common denominator for the value/relative value of G&S or credits/debts
- Store of value
 - Brings in dimension of time
 - It has to hold its value over time

*The confusion of the last two functions of money could be an exam question

History of Money

- Challenge has always been to give money a stable value over time.
- Commodity or Metallic Money
 - Gold and silver, or base commodities which have intrinsic value in addition to the exchange value,
 - One could redeem paper currency for gold
- Nowadays almost all money is called Fiat money
 - Intrinsically

What gives Fiat money value? People's faith

Confidence in the value of the currency is crucial

Fractional reserves system

- To meet the liquidity needs of depositors, banks hold reserves in the form of cash
- In the past, there were regulations for required reserves. Now there are only targets(recommendations) for reserves.
 - Ant reserve in excess of these targets are called excess reserves
 - Excess reserves lead to creating money by expanding credit

Watched Video: Leverage spiraling backwards

March 27th, 2018

Money Creation

- In order for the supply of money to expand(contract), there must be a net injection(withdrawal) of funds from outside(inside) the financial system.
- If you deposit/inject \$100,000 into a bank they will take 25% to put in reserves and then loan out the other 75%
 - Then the \$75,000 loan can be deposited again, of which 25% will be put in reserves and 75% will be loan out.....etc.
- When the cumulative amount in reserves increase to the same amount injected this multiplier process stops
- Multiplier = cumulative deposits/ original deposits
- Value of multiplier = $1 / \text{desired reserve ratio}$

Money is destroyed by going in the opposite direction

- A withdrawal from the reserves will cause the process to go in reverse
- Banks would call back loan to do this....but legally they can't call back loans so instead they would just stop issuing more loans to people

Essence of this process: Excess reserves are loaned out

- The more excess reserves, the more credit that can be generated and vice-versa

Money aggregates

- There are several definitions of the money supply. In decreasing order of liquidity
- M1 = currency + DD (demand deposits)
- M2 =

Banking system structure 2 major types of actors

- Bank of Canada (central bank)
- Depository institution: any organization that serves as a liason between savers and borrowers
 - Chartered banks

Functions of the central bank

- Issue currency
- Act as the bankers bank
- Act as banker for the federal government
- Regulated the supply of money through monetary policy
- Current objective is to preserve the value of money, to achieve “price stability”, including ‘asset price stability’

April 5th, 2018

Chapter 17

Critical accounting identity

$NCO = NX$ by necessity

- Every international transaction is an exchange
- NX = net value of financial assets acquired

If $NX > 0$, $NCO > 0$ (capital is flowing out)

- Sometimes happens in Canada

We are buying up foreign securities and sending out liquid assets in return, as we have to dispose of the proceeds of our trade surplus somehow

If $NX < 0$, $NCO < 0$ (capital is flowing in)

- Always happens in USA

They are selling their securities and receiving liquid assets in return which in turn finances their trade deficit

$$S = I + NX = I + NCO$$

Total savings equals domestic investment spending and net capital outflow, so national savings can be allocated to either domestic investment or buying/selling financial capital with foreign partners. (Main point is that there is another outlet for national savings)

If $NX > 0$, then $S > I$, and thus these excess savings have to go outside of the Canadian macroeconomy

If $NX < 0$, $S < I$, and thus the shortage of savings has to come from outside of the Canadian macroeconomy

Exchange rates (don't worry about fixed exchange rates)