SYLLABUS E202, Introduction to Macroeconomics

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COURSE POLICIES

- 1. In all respects, the policies of the School, Department, IPFW and the University shall be applied in this course.
- 2. Office hours will be posted on the professor's door, appointments may also be arranged. The Professor's office is Neff 340D.
- 3. The following grade scale will be applied in this course for determination of final grades:
 - А В
 - С D

All insigrade calcul Pars stall be rounded up. In other words, 69.01 and 69.99 percent are both considered 70 percent and will earn the student a grade of C.

- 4. The majority of undergraduate economics courses this professor has taught have had average final grades that fall within the range centered on 2.0 on a 4.0 scale.
- 5. Course requirements:
 - A. The MIDTERM examination is worth 40% of the final grade. The FINAL examination is worth 50% of the final grade. The QUIZZES are worth 10% of the final grade, and only the best two guiz scores will be used in this calculation. If a student improves their performance on the final examination by 10 full points above what they earned on the midterm, I will change the weights to midterm 30% and final exam 60%.
 - B. Examinations will consist of objective items. Examinations will be worth 100 points, and will consist of twenty multiple choice questions (worth four points each), and twenty true-false questions worth one point each) for a total of 100 points.

3. Unemployment and Inflation

Lecture Notes

- 1. Business Cycle is the recurrent ups and downs in economic activity observed in market economies.
 - a. Troughs are where employment and output bottom-out during a recession (downturn)
 - b. Peaks are where employment and output top-out during a recovery (upturn)
 - c. Seasonal trends are variations in data that are associated with a particular season in the year.
 - d. Secular trends are long-run trend (generally 25 embre years in macroeconomic data.



- 2. Unemployment there are various causes of unemployment, including:
 - a. Frictional consists of *search* and *wait* unemployment which is caused by people searching for employment or waiting to take a job in the near future.

- b. Structural is caused by a change in composition of output, change in technology, or a change in the structure of demand.
- c. Cyclical due to recessions, (business cycle).
- 3. Full employment is not zero unemployment, full employment unemployment rate is the same as the natural rate.
 - a. Natural rate is thought to be about 4% and is structural + frictional unemployment.
 - 1. Potential output is the output of the economy at full employment.
- 4. Unemployment rate is the percentage of the workforce that is unemployed.
 - a. Labor force those employed or unemployed who are villing, able and searching for work; the labor force is about 50.55 the total population.
 - b. Part-time employment those vice do not have 20 hours of work (or equivalent) available to them, at 6 millior U.S. workers were involuntarily part-time and about 10 million vere voluntarily part-time employees in 1992
 - c. Discouraged workers those persons who dropped out of labor force because they could not find an acceptable job.
 - d. False search those individuals who claim to be searching for employment, but really were not, some because of unemployment compensation benefits.
- 5. Okun's law
 - a. Okun's Law states that for each 1% unemployment exceeds the natural rate there will be a gap of 2.5% between actual GDP and potential GDP.
- 6. Burden of unemployment differs by several factors, these are:
 - a. Occupation mostly due to structural changes.
 - b. Age young people tend to experience more frictional unemployment.

- 2. Determinants of aggregate demand factors that shift the aggregate demand curve.
 - a. Expectations concerning real income or inflation (including profits from investments in business sector).
 - b. Consumer indebtedness,
 - c. Personal taxes,
 - d. Interest rates,
 - e. Changes in technology,
 - f. Amount of current excess capacity in industry,
 - g. Government spending,
 - h. Net exports,
 - National income abroad, and i.
 - Exchange rates. i.
- Notesale.co.uk 3. Aggregate Supply sho amount of appressio output available at each price level. the ranges, the Keynesian range (horizontal), The accred supply curve d), and the classical range (vertical). e intermediate rand



a. Keynesian range - is the result of downward rigidity in prices and wages.



- b. Determinants of investment demand are:
 - 1. Acquisition, maintenance & operating costs,
 - 2. Business taxes,
 - Technology, 3.
 - tesale.co.uk Stock of capi 4. and and

profits in future. ations conc nin/

c. Autonomous (determined outside of system) v. induced investment (function of GDP):



1. Instability in investment has marked U.S. economic history.

- 6. Full Employment level of GDP may not be where the aggregate expenditures line intersects the 45 degree line. There are two possibilities, (1) a recessionary gap or (2) an inflationary gap, both are illustrated below.
 - a. Recessionary gap



The distance between the C + I line and the 45 degree line along the dashed indicator line is the inflationary gap. The dotted indicator line shows the current macroeconomic equilibrium.

- b. Other forms of near money:
 - 2. Precious metals store of value, but not easily exchanged
 - 3. Stocks and Bonds earnings instruments, but can be used as store of value.
- c. Implications for near money stability, spending habits & policy
- 4. What gives money value
 - a. No more gold standard
 - 1. Nixon eliminated gold standard
 - b. The Value of money depends upon:

2. because the government claims it is legate for, and
3. its relative scarcity.
A D = 1/P = 42 01 213 5. Valu

- 6. Demand for Money three components of money demand:
 - a. Transactions demand
 - b. Asset demand
 - c. Total demand



This long-run view of the Phillips Curve is also called the Natural Rate Hypothesis. It is based on the idea that people constantly adapt to current economic conditions and that their expectations are subject to "adaptive" revisions almost constantly. If this is the case, then business and consumers cannot be fooled into thinking that there is a reason for unemployment to cure inflation or vice versa.

c. Possible positive sloping has hypothesized by foron Friedman. Friedman was of the opinion that the may best carectional Phillips curve while people adapt both their explorations and institutions to new economic realities. The positively sloped Phillips curve is snow in the following picture:
 Inflation

Positively sloped Transitional Phillips Curve

Unemployment

The positively sloped transitional Phillips Curve is consistent with the observations of the early 1980s when both high rates of unemployment existed together with high rates of inflation -- a condition called stagflation.

Underlying all of economics is the base assumption that people act in their own best interest (at least most of the time and in the aggregate). Without the assumption of rational behavior, economics would be incapable of explaining the preponderance of observed economic activity. Consistent responses to stimuli are necessary for a model of behavior to predict future behavior. If we assume people will always act in their best economic interests, then we can model their behavior so that the model will predict (with some accuracy) future economic behavior. As limiting as this assumption may seem, it appears to be an accurate description of reality. Experimental economics, using rats in mazes, suggests that rats will act in their own best interest; therefore, it appears to be a reasonable assumption that humans are no less rational.

Most academic disciplines have evolved over the years to become collections of closely associated scholarly endeavors of a specialized nature. Economics is no exception. An examination of one of the scholarly journals published by the American Economics Association, The *Journal of Economic Literature* reveals a classification scheme for the professional literature in economics. Several dozen specialties are identified in that classification scheme, everything from national income accounting, to labor economics, to international economics. In other words, the realm of economics has expanded to such an extent over the centuries that it is nearly impossible for anyone to be an expert in all aspects of the discipline, so each economist generally specializes in some narrow portion of the discipline. The perfector of the generalist is a function of the explosion of knowledge in most disciplines, and is not limited to economists.

Economics can be classified into two ceneral categories; these are (1) microeconomics and (2) macroeconomics. Microeconomics is concerned with decision-making by indianal consumers. In other words, microeconomics is concerned with the behavior of individuals or groups organized into firms, industries, unions, and other identifiable agents. Microeconomics is the subject matter of E201, Introduction to Microeconomics (which many of you have recently completed).

Macroeconomics is concerned with the aggregate performance of the entire economic system. Unemployment, inflation, growth, balance of trade, and business cycles are the topics that occupy most of the attention of students of macroeconomics. These matters are the topics to be examined this course (E202), Introduction to Macroeconomics.

Macroeconomics is a course that interfaces with several other academic disciplines. A significant amount of the material covered in this course involves public policy and has a significant historical foundation. The result is that much of what is currently in the news will be things that are being studied in this course as they happen. In many respects, that makes this course of current interest, if not fun.

The purpose of economic theory is to describe behavior, but behavior is described using models. Models are abstractions from reality - the best model is the one that best describes reality and is the simplest (the simplest requirement is called Occam's Razor). Economic models of human behavior are built upon assumptions; or simplifications that allow rigorous analysis of real world events, without irrelevant complications. Often (as will be pointed-out in this course) the assumptions underlying a model are not accurate descriptions of reality. When the model's assumptions are inaccurate then the model will provide results that are consistently wrong (known as bias).

One assumption frequently used in economics is **ceteris paribus** which means all other things equal (notice that economists, like lawyers and doctors will use Latin to express rather simple ideas). This assumption is used to eliminate all sources of variation in the model except for those sources under examination (not very realistic!).

Economic Goals, Policy, and Reality

co.uk Most people and organizations do, at least rudimental Glanning, the purpose of planning is the establishment of an organized effort accomplish some economic goals. Planning to finish your education is the conomic gran? Goals are, in a sense, an idea of what should be (what we voud like to accomplish). However, goals must be realistic and within our means to accomplish if they are to be effective guides to action. This brings anthe cassification science bear on economic thought. Economics can be ag a classified into post vars, normative economics.

Positive economics is concerned with what is; and normative economics is concerned with what should be. Economic goals are examples of normative economics. Evidence concerning economic performance or achievement of goals falls within the domain of positive economics.

Most nations have established broad social goals that involve economic issues. The types of goals a society adopts depends very much on the stage of economic development, system of government, and societal norms. Most societies will adopt one or more of the following goals: (1) economic efficiency, (2) economic growth, (3) economic freedom, (4) economic security, (5) an equitable distribution of income, (6) full employment, (7) price level stability, and (8) a reasonable balance of trade.

Each goal (listed above) has obvious merit. However, goals are little more than value statements in this broad context. For example, it is easy for the very wealthy to cite as their primary goal, economic freedom, but it is doubtful that anybody living in poverty is going to get very excited about economic freedom; but equitable distributions of income, full employment and economic security will probably find rather wide support among the poor. Notice, if you will, goals will also differ within a society, based on socio-political views of the individuals that comprise that society.

Economics can hardly be separated from politics because the establishment of national goals occurs through the political arena. Government policies, regulations, law, and public opinion will all effect goals, how goals are interpreted, and whether they have been achieved. A word of warning, e**CON**omics can be, and has often been used, to further particular political agendas. The assumptions underlying a model used to analyze a particular set of circumstances will often reflect a political agenda of the economist doing the analysis. For example, Ronald Reagan argued that government deficits were inexcusable, and that the way to reduce the deficit was to lower peoples' taxes -- thereby spurring economic growth, therefore more income that could be taxed at a lower rate and yet produce more revenue. Mr. Reagan is often accused, by his detractors, of having a specific political agenda that was well hidden in this analysis. His alleged goal was to cut taxes for the very wealthy and the rest was just rhetoric to make his tax cuts for the rich acceptable to most of the voters. (Who really knows?) Most political commentators, both left and right, have mastered the use of assumptions and high-sounding goals to advance a specific agenda. This adds to the lack of objectivity that seems to increasingly dominate discourse on economic protects. **CO** -

On the other hand, goals can be publicly spirited and a complish a substantial amount of good. President Lincoln was convinced that he working classes should have access to higher education. The Morrell Actives passed 1867 and created Land Grant institutions for educating the working masses (Purche, Michigan State, Iowa State, and Kansas State (the first hund grant school) are all examples of these types of schools). By educating the working class, it was believed that several economic goals could be achieved, including growth a 2 or equitable distribution of income, economic security and freedom. In other words, economic goals that are complementary are consistent and can often be accomplished together. Therefore, conflict need not be the centerpiece of establishing economic goals.

Because any society's resources are limited, there must be decisions about which goals should be most actively pursued. The process by which such decisions are made is called prioritizing. Prioritizing is the rank ordering of goals, from the most important to the least important. Prioritizing of goals also involves value judgments, concerning which goals are the most important. In the public policy arena, prioritizing of economic goals is often the subject of politics.

Herein lies one of the greatest difficulties in macroeconomics. An individual can easily prioritize goals. It is also a relatively easy task for a small organization or firm to prioritize goals. For the United States to establish national priorities is a far larger task. Adam Smith in the *Wealth of Nations* (1776) describes the basic characteristics of capitalism (this book marks the birth of capitalism). Smith suggests that there are three legitimate functions of government in a free enterprise economy. These three functions are (1) provide for the national defense, (2) provide for a system of justice, and (3)

exhibit behavior that is not common to an entire population. In other words, this fallacy is simply assuming a small, unscientifically selected sample will predict the behavior, values, or characteristics of an entire population. For example, if one individual in this class is a I.U. fan then everyone in this class must be an I.U. fan is an obvious fallacy of composition. Statistical inference can be drawn from a sample of individual observations, but only within confidence intervals that provide information concerning the likelihood of making an incorrect conclusion (E270, Introduction to Statistics, provides a more in depth discussion of confidence intervals and inference).

Post hoc, ergo prompter hoc means after this, hence because of this, and is a fallacy in reasoning. Simply because one event follows, another does not necessarily imply there is a causal relation. One event can follow another and be completely unrelated. All of us have, at one time or another experienced a simple coincidence. One event can follow another, but there may be something other than a direct causal relation that accounts for the timing of the two events.

For example, during the thirteenth century people noticed that the black plague occurred in a location when the population of cats increased. Unfortunately, some people concluded that the plague was caused by cats so they killed the catture fact, the plague was carried by fleas on rats. When the rat population incleased, cats were attracted to the area because of the food supply (the rats). The people killed the predatory cats, and therefore, rat populations increased, and so did the population of fleas that carried the disease. This increased increased, and so did the population of attract cats, but cats did not cause the plague, if left alone they may have gotten rid of the real carriers (the rate therefore the fleat). The idea that cats were observed increasing in contraction gave rise to the vinctusion that the cats brought the plague is a post hac, ergo prompter had face), but this example has an indirect relation between cats in the real cause. Often, even this indirect relation is absent.

Many superstitions are classic examples of this type of fallacy. Broken mirrors causing seven years bad luck, or walking under a ladder brining bad luck are nothing but fallacies of the post hoc, ergo prompter hoc variety. There is no causal relation between breaking glass and bad luck or walking under ladder (unless something falls off the ladder on the pedestrian). Deeper examination of the causal relations are necessary for such events if the truth of the relations is to be discovered. However, more in depth analysis is often costly, and the cost has the potential of causing decision-makers to skip the informed part and cut straight to the opinion.

Economic history has several examples of how uniformed opinion resulted in very significant difficulties for innocent third parties, in addition, to those responsible for the decisions. The following box presents a case where policy was implemented based on the failure to recognize that there is a significant amount of interdependence in the U.S. economy.

Chapter 2

National Income Accounting

The aggregate performance of a large and complex economic system requires some standards by which to measure that performance. Unfortunately, our systems of accounting are imperfect and provide only rough guidelines, rather than crisp, clear measurements of the economic performance of large systems. As imperfect as the national income accounting methods are, they are the best measures we have and they do provide substantial useful information. The purpose of this chapter is to present the measures we do have of aggregate economic performance.

Gross Domestic and Gross National Product

The most inclusive measures we have of aggregate economic activity the Gross Domestic Product and Gross National Product. These measures are used to describe total output of the economy, by source. In the case of Gross Domestic Product, we are concerned with what is produced within our domestic economy. More precisely, **Gross Domestic Product (GDP) is the total value or all goods and services produced within the borders of the Unit O States (or country under analysis).** On the other hand, Gross National Product is concerned with Omerican production (regardless of whether it was produced domestical P. More precisely, **Gross National Product (GNP) is the total value of all goods and services produced by Americans regardless of whether in the United States or overseas.**

These measures (GDP and GNP) are the two most commonly discussed in the popular press. The reason they garner such interest is that they measure all of the economy's output and are perhaps the least complicated of the national income accounts. Often these data are presented as being overall measures of our population's economic well-being. There is some truth in the assertion that GDP and GNP are social welfare measures, however, there are significant limitations in such inferences. To fully understand these limitations we must first understand how these measures are constructed.

The national income accounts are constructed in such a manner as to avoid the problem of double counting. For example, if we count a finished automobile in the national income accounts, what about the paint, steel, rubber, plastic, and other components that go into making that car? To systematically eliminate double counting, only **value-added** is counted for each firm in each industry. The value of the paint, used in producing a car, is value-added by the paint manufacturing company, the application of that paint by an automobile worker is value-added by the car company



In a practical sense, it makes little difference which approach to calculating GDP is used, the same result will be obtained either way. What is of interest is the information that each approach provides. The sub-accounts under each approach provide useful information for purposes of understanding the aggregate performance of the economy and potentially formulating economic policy. Under the expenditures approach we have information concerning the amount of foreign trade, government expenditures, personal consumption and investment.

The following accounts illustrates how GDP is broken down into another useful set of sub-accounts. Each of these additional sub-accounts provides information that helps us gain a more complete understanding of the aggregate economic system. The following illustration demonstrates how the sub-accounts are calculated:

National Income Accounts as a Measure of Social Welfare

Accounting, whether it is financial, cost, corporate, nonprofit, public sector, or even national income, provides images of transactions. The images that the accounting process provides has value judgments implicit within the practices and procedures of the accountants. National income accounting, as do other accounting practices, also has significant limitations in the availability of data and the cost of gathering data. In turn, the costs of data gathering may also substantially influence the images that the accounts portray.

GDP and GNP are nothing more than measures of total output (or income). However, the total output measured is limited to legitimate market activities. Further, national income accountants make no pretense to measure only positive contributions to total output that occur through markets. Both economic goods and economic bads are included in the accounts, which significantly limits any inference that GDP or any of its sub-accounts are accurate images of social welfare. More information is necessary before conclusions can be drawn concerning social welfare.

Nonmarket transactions such as household-provided services of barter are not included in GDP. In other words, the services of a cock proved are counted, but the services of a man or woman doing the cooking the rown household is not. This makes comparisons across time within the inited States suspect. In the earliest decades of national income accounting, many of the more job ine needs of the household were served by the household numbers own labor. As society became faster paced, and we wage earners began to become the rule for American housepolds, more laundry Dor coming, child rearing, and maintenance work necessary to maintain the household were accomplished by persons hired in the marketplace. In other words, the same level of service may have been provided, but more of it is now a market activity, hence included in GNP. This is also the case in comparing U.S. households with households in less developed countries. Certainly, less market activity is in evidence in less developed countries that could be characterized as household maintenance. Few people are hired outside of the family unit to perform domestic labor in less developed countries, and if they are, they are typically paid pennies per hour. Less developed countries' populations rely predominately on subsistence farming or fishing, and therefore even food and clothing may be rarely obtained in the marketplace.

Leisure is an economic good but time away from work is not included in GNP. The only way leisure time could be included in GNP is to impute (estimate) a value for the time and add it to GNP (the same method would be required for household services of family members). Because of the lack of consistency in the use of time for leisure activities these imputation would be a very arbitrary, at best. However, commodities used in leisure activities are included in GNP. Such things as movie tickets, skis, and Price indices are the way we attempt to measure inflation and adjust aggregate economic data to account for price level variations. There are a wide array of price indices. We measure the prices wholesalers must pay, that consumers must pay (either urban consumers (CPI(U) or that wage earners must pay (CPI(W)), we measure prices for all goods and services (GNP Deflator) and we also have indices that focus on particular regions of the country, generally large urban areas, called Standard Metropolitan Statistical Areas -- S.M.S.A.).

Price indices are far from perfect measures of variations in prices. These indices are based on surveys of prices of a specific market basket of goods, at a particular point in time. The accuracy of any inference that may be drawn from these indices depends on how well the market basket of commodities used to construct the index match our own expenditures (or the expenditures of the people upon whom the analysis focuses). Further complicating matters, is the fact that the market basket of goods changes periodically as researchers believe consumption patterns change. Every five to ten years (generally seven years) the Commerce Department (Current Population Surveys) changes the market basket of goods in an attempt to account for the current expenditure patterns of the group for which the index is constructed (total GNP, consumers, wholesalers, etc.).

For the consumer price indices, there is a standard set of assumptions used to guide the survey takers concerning what should be accorded in the market basket. The market basket for consumers assumes a same or four, with a male wage earner, an adult female not employed cutsing of the home, and two children (one male, one female). There are also assumptions correspond to one ownership, gift giving, diet, and most aspects of the typothetical family's standard of living.

The cost of living and the standard of living are mirror images of one another. If someone has a fixed income and there is a two percent inflation rate per year, then their standard of living will decrease two percent per year (assuming the index used is an accurate description of their consumption patterns). In other words, a standard of living is eroded if there is inflation and no equal increase in wages (or other income, i.e., pensions). Under the two percent annual inflation scenario, a household would need a two percent increase in income each year simply to avoid a loss in purchasing power of their income (standard of living).

During most, if not all, of your lifetime this economy has experienced inflation. Prior to World War II, however, the majority of American economic history is marked by deflation. That is, a general decrease in all prices. With a deflationary economy all one must do to have a constant increase in their standard of living is to keep their income constant while prices fall. However, deflation is a problem. Suppose you want to buy a house. Most of us have mortgages, we borrow to buy a house. If you purchase a house worth \$50,000 and borrow eighty percent of the purchase price, \$40,000 you may have a problem. If we have five percent deflation per year, it only takes five years for the market value of that house to reach \$38689. In the sixth year, you owe more on Sample Questions:

Multiple Choice:

If U.S. corporations paid out all of their undistributed corporate profits as dividends to their stockholders then which of the following national income accountants would show an increase?

- A. Gross Domestic Product
- B. Net Domestic Product
- C. Personal Income
- D. National Income

The following are costs of market baskets of goods and services for the years indicated:



If there is a very large underground economy in the United States, then which of the following statements is true?

- A. The elimination of the underground economy may actually deprive some people of their ability to earn a living
- B. Its existence means we are understating the GDP unless somehow we can measure it appropriately
- C. We have defined certain market activities as illegal and others as legal which has implications for GDP as a measure of economic well-being
- D. All of the above are true

Business Cycles

The business cycle is the recurrent ups and downs in economic activity observed in market economies. Troughs, in the business cycle, are where employment and output bottom-out during a recession (downturn) or depression (serious recession). Peaks, in the business cycle, are where employment and output top-out during a recovery or expansionary period (upturn). These ups and downs (peaks and troughs) are generally short-run variations in economic activity. It is relatively rare for a recession to last more than several months, two or three years maximum. The Great Depression of the 1920s and 1930s was a rare exception. In fact, the 1981-85 recession was unusually long.

One of the most confusing aspects of the business cycle is the difference between a recession and depression. For the most part, recessionary trends are marked by a downturn in output. This downturn in output is associated with increased levels of unemployment. Therefore, unemployment is what is typically keyed upon in following the course of a recession. In 1934, the U.S. economy experienced 24.9% unemployment, this is clearly a depression. The recession of 1958-61 reacted only 6.7% unemployment. This level of reduced economic activity is clearly only a recession. However, in the 1981 through 1986 downturn on themployment rate reached a high of 12%, and in both 1982 and 1993 is clearly average unemployment rate was 10.7%. Probably the Reagan recession was close to if not actually, a short depression, arguably a deep procession. This 1981 85 period was clearly the worst performing economy since World War II budt as was clearly nothing compared to the problems in the flace de before World War II.

The old story about the difference between a recession and depression probably is as close to describing the difference between a recession and a depression as anything an economist can offer. That is, *a recession is when your neighbor is out of work, a depression is when you are out of work!*

In general, the peaks and troughs associated with the business cycle, are shortrun variations around a long-term secular trend. Secular trends are general movements in a particular direction that are observed for decades (at least 25 years in macroeconomic analyses).

Prior to World War II the secular trend started as relatively flat and limited growth period and then it took a sharp downward direction until the beginnings of the War in Europe (a period of about twenty years). Since the end of World War II we have experienced a long period of rather impressive economic growth (a period of over fifty years).

Inflation

The news media reports inflation, generally, as increases in the CPI. This is not technically accurate. **Inflation is defined as a general increase in all prices (the price level).** The CPI does not purport to measure all prices, wholesale prices and producer prices are not included in the consumer data. The closest we have to a measure of inflation is the GNP deflator that measures prices for the broadest range of goods and services, but even this broader index is not a perfect measure, but its all we have and some information (particularly when we know the short-comings) is better than perfect ignorance.

One of the more interesting bits of trivia concerning inflation is something called the **Rule of 70.** The rule of 70 gives a short-hand method of determining how long it takes for the price level to double at current inflation rates. It states that the number of years for the price level to double is equal to seventy divided by the annual rate of increase (i.e., 70/%annual rate of increase(expressed as a whole number)). For example, with ten percent inflation, the price level will double every seven years (70/10 = 7).

There are three theories of inflation that arise from the cal conduct of the marcoeconomy. These three theories are demand out cost-push, and pure inflation. There is a fourth theory that suggests that relation has little opnothing to do with the real output of the economy, this scaled the quantity theory of money. Each of these theories will be reviewed in the remaining sections of this chapter.



Using a naive aggregate supply/aggregate demand model, we can illustrate the theory of demand-pull inflation. The following chapter will develop a more sophisticated aggregate supply/aggregate demand model, but for present purposes the naive model will suffice. The naive model has a linear supply curve and a linear demand curve, much the same as the competitive industry model developed in E201. However, the price variable here is not the price of a commodity, it is the price level (the CPI for want of a better measure) and the quantity here is the total output of the economy, not some number of widgets.

the aggregate demand curve in the Keynesian and intermediate ranges, the price level falls, and output will increase. However, in the classical range a decrease in aggregate supply changes neither the price level or total output. The following diagram portrays an increase in aggregate supply, the line labeled (AS1) and a decrease in aggregate supply, the line labeled (AS2), and the original aggregate supply curve is the solid line.



Supply and aggregate central or model call a the Rechet Effect. The Rachet Effect is where there is a low cease in aggregate demand, but producers are unwilling to accept lower prices (rigid prices are viewe). Rather than to accept the lower price levels resulting from a decrease in aggregate demand, producers will decrease aggregate supply. Therefore, there is a ratcheting of the aggregate supply curve (decrease in the intermediate and Keynesian ranges) which will keep the price level the same, but with reduced output. In other words, there can be increases in prices (forward) but no decreases in the price level (but not backward) because producer will not accept decreases (price rigidity). The same is argued to exist for wages in the labor market, in other words, unions will resist decreases in wages associated with a decrease in aggregate demand, hence they too, will place downward pressure on aggregate supply. Sample Questions:

Multiple Choice:

The aggregate demand curve is most likely to shift to the right (increase) when there is a decrease in:

- A. the overall price level
- B. the personal income tax rates
- C. the average wage received by workers
- D. consumer and business confidence in the economy

A short-run increase in interest rates on consumer loans may cause a decrease in aggregate demand. What would we expect to observe, if there is no ratchet effect?

- A. In the classical range only a reduction in prices
- B. In the Keynesian range only a reduction in output
- C. Both A and B are correct
- D. Neither A or B are correct

True - False:

Notesale.co.uk All economists are convinced than the effect exist economy. {FALSE} b in

grepate demand curve slopes downward is the real One of the ma ns that the balan

had worked out the "general" theory, he literally rushed to print before someone beat him to the punch, so to speak. The result is that *The General Theory* is not particularly well written and has been subject to criticism for the rushed writing, however, its contributions to understanding the operation of the macroeconomy are unmistakable and considerable.

The Classical Theory

The classical theory of employment (macroeconomics) rests upon two fundamental principles, these are: (1) underspending is unlikely to occur, and (2) if underspending should occur, the wage-price flexibility of free markets will prevent recession by adjusting output upwards as wages and prices declined.

What is meant by underspending is that private expenditures will be insufficient to support the current level of output. The classicists believed that spending in amounts less than sufficient to purchase the full employment level of output is not likely. They also believed that even if underspending should occur, then price/wage flexibility will prevent output declines because prices and wages would adjust to keep the economy at the full employment level of output.

The classicists based their faith in the mark exptem on a simple proposition called Say's Law. **Say's Law** in its crudes from states that "Scoply creates its own demand." In other words, everyne eloi output creates exough income to purchase exactly what was produced. However, as densible us this proposition may seem there is a serious proble of There are leakages from the system. The most glaring omission in Say of Law, is that it does not account for savings. Savings give rise to gross private domestic investment and the interest rates are what links savings and investment. However, there is no assurance that savings and investment must always be in equilibrium. In fact, people save for far different reasons that investors' purchase capital.

Further, the classicists believed that both wages and prices were flexible. In other words, as the economy entered a recession both wages and prices would decline to bring output back up to pre-recession levels. However, there is empirical evidence that demonstrates that producers will cut-back on production rather than to lower prices, and that factor prices rarely decline in the face of recession. The classicists believed that a laissez faire economy would result in macroeconomic equilibria through the unfettered operation of the market system and that only the government could cause disequilibria in the macroeconomy.

One need only look to the automobile industry of the last ten years to understand that wage - price flexibility does not exist. Automobile producers have not lowered prices in decades. When excess inventories accumulate, the car dealers will offer rebates or inexpensive financing, but they have yet to offer price reductions. There has



The consumption schedule intersects the 45 degree line at 400 in disposable income, this is also where the savings function intersects zero (in the graph below the consumption function). At this point, (400) all disposable income is consumed and nothing is saved. To the left of the intersection of the consumption function with the 45 degree line, the consumption function lies above the 45 degree line. The distance between the 45 degree line and the consumption schedule is dissavings, shown in the savings schedule graph by the savings function falling below zero. Dissavint means people are spending out their savings or are borrowing (negative ravings). To the right of the intersection of the consumption function with the 45 degree line, the consumption function function with the 45 degree line, the consumption function function with the 45 degree line and the savings or are borrowing (negative ravings). To the right of the intersection of the consumption function with the 45 degree line, the consumption schedule is below the 45 degree line. The distance function is below the 45 degree line is called savings to the function of the boron graph by the savings function rising above zero.

This apalysis shows how savings is a leakage from the system. Perhaps more importantly the analysis appendix there is a predictable relation between consumption and savings. What is not consumed is saved, and vice versa. However, there is more to this than savings plus consumption must equal income.

The Marginal Propensity to Consume (MPC) is the proportion of any increase in disposable income that is spent on consumption (if an entire increase in income is spent MPC is 1, if none is spent then MPC is zero). The Marginal Propensity to Save (MPS) is the proportion of any increase in disposable income that is saved. The relation between MPC and MPS is that MPS + MPC =1, in other words, any change in income will be either consumed or saved. This relation is demonstrated graphically in the following diagram:

Throughout American economic history the level investment has been very volatile. In fact, much of the variation in the business cycle can be attributed to the instability of investment in the United States. There are several reasons for this instability, including: (1) variations in the durability of capital, (2) irregularity of innovation, (3) variability of profits, and (4) the expectations of investors. The durability of most capital goods means that they have an expected productive life of at least several years, if not decades. Because of the durability and expense of capital goods, their purchase can be easily postponed. For example, a bank may re-decorate and patch-up an old building, rather than build a new building, depending on their business expectations and current financial position.

Perhaps the most important contributors to the instability of investment in the post- World War II period is the irregularity of innovations. With the increase in basic knowledge, comes the ability to develop new products and production processes. During World War II there was heavy public investment in basic research in medicine and the pure sciences. What was intended from these public expenditures was for military use, but many of these discoveries had important civilian implications for new products and better production methods. Again, in the late 1950s and early 1960s an explosion of basic research occur that led to commercial advantages. The Ressians launched Sputnik and gave the Western World a wake-up call that they were behind in some important technical areas, the government again sport coney on education and basic research.

For the private sector to invest there must be form, expectation of profits flowing from that investment, which of the decline in private investment during the Great Depression was because private investors did not expect to be able to make a profit in the exprome environment of Perime. In the late 1940s, automobile producers knew that profits would be nearly guaranteed because no new private passenger cars were built in the war years. There was very significant investment in plant and equipment in the auto industry in those years (mostly to convert from war to peace-time production).

The expectations of business concerning profits, prices, technology, legal environment and most everything effecting their business are simply forecasts. Because the best informed forecasts are still guess-work, there is substantial variability in business conditions expectations. Because these expectations vary substantially across businesses and over time, there should be significant variability in investment decisions.



Remember that the 45 degree line is each point where spending is exactly equal to GDP. The above figure shows a simple economy with no public or foreign sectors. We begin the analysis by adding investment to consumption, and obtaining Y = C + I. The equilibrium level of GDP is indicated above where C + I is equal to the V-degree line. Investment in this model is autonomous and the amount of investment is the vertical distance between the C and the C + I lines.

Phi same result to an 20 the expenditures - output approach above can be obtained using another method. Remember that APC + APS = 1, and MPC + MPS = 1, this suggests that leakages from the system are also predictable. The leakages - injections approach relies on the equality of investment and savings at equilibrium in a macroeconomic system (I = S).

Injection

The reason that the leakages - injection approach works is that planned investment must be equal savings. The amount of savings is what is available for gross private domestic investment. When investors use the available savings, the leakages (savings) from the system are injected back into the system through investment. However, this must be planned investment.

Unplanned investment is the cause of disequilibrium. Inventories can increase beyond that planned, and inventories are investment (stock of unsold output). When inventories accumulate there is output that is not purchased, hence reductions in spending which is recessionary; or, on the other hand, if intended inventories are depleted which this inflationary because of the excess spending in the system. Consider the following diagram, where savings is equal to 11, investment. If there is unplanned investment, the savings line is below the investment line, at the lowest level The re-spending effect and the leakage - injection approach to GDP provides for curious paradox. This paradox is called the paradox of thrift. To accumulate capital, it is often the policy of less developed countries to encourage savings, to reduce the country's dependence on international capital markets. What often happens is that as a society tries to save more it may actually save the same amount, this is called the paradox of thrift. The reason that savings may remain the same is that unless investment moves up as a result of the increased savings, all that happens is that GDP declines. The higher rate of savings with a smaller GDP results in the same amount of savings if GDP declines proportionally with the increase in savings rates. If investment is autonomous then there is no reason to believe that investment will increase simply because the savings rate increased. In fact, because of the re-spending effects of the leakages, generally savings will remain the same as before the rate went up.

Full Employment

Simply because C + I + G intersects the 45 degree line does not assure utopia. The level of GDP associated with the intersection of the C + I + G line with the 45 degree line may be a disequilibrium level of GDP, and not the full employment level of GDP. The full employment level of GDP may be to the right or to melle that the aggregate expenditures line. Where this occurs you have respectively, (1) a recessionary gap or (2) an inflationary gap. In either case, there is macroeconomic disequilibrium, that will generally require a propriate corrective action (as will be described in detail in the following on apter on fiscal colicy.

Both forms of disequilibrium can be diustrated using the expenditures - output approach. Consider the following two diagrams:

Recessionary Gap



In the above diagram the dashed line labeled Full Employment GDP. Is the level of GDP that is associated with potential GDP or full employment. The distance between the C + I line and the 45 degree line along the dashed indicator line is the recessionary gap. The dotted line shows the current macroeconomic equilibrium. Okun's Law (Chapter 3) provides some insight into what this means, remember that every 2.5% of lost potential GDP is associated with 1% unemployment above the full employment level. Therefore, this recession represents lost output and unemployment is fixed proportions of 1% to 2.5%.

Spending Spending Spending Full Emp. GDP C+I Notesale.CO.UK Notesale.CO.UK Notesale.CO.UK GDP GDP

Inflationary Gap

Again the full employment (non-inflationary) level of GDP is indicated by the dashed line labeled full employment GDP. The distance between the C + I line and the 45 degree line along the dashed indicator line is the inflationary gap. The dotted indicator line shows the current macroeconomic equilibrium. In this case, there is too much spending in the economy or some other (similar) problem that has resulted in an inflated price level. A reduction in GDP is necessary to restore price level stability, and to eliminate excess output.

These same problems can be shown, somewhat less elegantly, using the aggregate supply - aggregate demand model, but with the loss of as precise representation of the multiplier. The various C + I and 45 degree line intersections, if multiplied by the appropriate price level will yield one point on the aggregate demand curve. Shifts in aggregate demand can be shown with holding the price level constant and showing increases or decreases in C + I in the Keynesian Cross model. Both models can be used to analyze essentially the same macroeconomic events. However, from this point on will concentrate on our efforts on mastering the Keynesian Cross.

own wares. A barter economy makes exchange difficult, it may take several trades in the market before you could obtain the bread you want for the apples you have.

Money solves the barter problem. If you have apples and want bread, you simply sell the apples for money and exchange the money for bread. If barter persists it may take a dozen or more transactions to turn apples into bread. In other words, money is the grease that lubricates modern, sophisticated economic systems.

Money is also a measure of value. Without money as a standard by which to gauge worth, value would be set by actual trades. The value of a horse in eighteenth century Afghanistan could be stated in monetary units in the more modern areas of the country. However, the nomads that wandered the northern plains of that country could tell you in terms of goats, carpets, skins, and weapons what the range of values were for horses. However, there were as many prices of horses as there were combinations of goods and services that could be accepted in exchange for the animal. Money permits the value of each commodity to be stated in simple terms of a single and universally understood unit of value.

Together, these unctions vest in money a chical role in any complex modern economy. Our trace are stated in terms of money, our transactions are facilitated by money and we can store the trace we which to consume in the future by simply saving money. In fact, money may not make the world go 'round, but it certainly permits the economic world to go 'round much more smoothly.

The Supply of Money

The supply of money has a very interesting history in both U.S. economic history and world economic history. Several historians note that one of the contributing factors to the fall of the Roman Empire was that there was significant deflation in the third and fourth centuries. The reason for this was that money, in those days, was primarily coinage minted of gold, silver, and copper. As gold and silver was traded for commodities from the orient there was a flow of coinage out of the west. In addition, "barbarians" were constantly raiding Roman territory and it was the gold and silver that they carried back with them (for trade). Further, as the population grew at a faster rate than the availability of precious metals, the money supply fell relative to the need for it to make the economy function efficiently. This rapid deflation, added to a extremely maldistributed income, and loss of productive resources resulting in a rapidly declining The money supply curve is vertical because the supply of money is exogenously determined by the Federal Reserve. The Federal Reserve System regulates the money supply through monetary policy and can increase or decrease the money supply by the various actions it has available to it in regulating the banking system and in selling or buying Treasury Bonds. The money demand curve slopes downward and to the right. The intersection of the money demand and money supply curves represents equilibrium in the money market and determines the interest rate (price of money).

Bonds are financial obligations. Both private companies and governments issue bonds and receive cash. The bonds typically state that the owner of the bond will receive a specific payment in dollars periodically for holding the bond, and at the end of the bond's life it will be redeemed for its face value. This is the primary market, where bonds are sold directly by the government or company. In the case of the Treasury the bonds are generally sold at auction.

This method of paying interest creates a "secondary" market for bonds. Bonds may be resold for either a discount or a premium. As the market value of the bond increases, it drives down the rate of return on the bond, conversely, if the market value of the bond decreases the rate of return increases. For example, consider 194000 bond that the government agrees to pay \$60 per year in interest overlits life. If the bond remains at the \$1000 face value the interest rate is 6%. To varier, if bonds are viewed as a safer investment than other possible investments, or there is excess demand for bonds, the market price may increase. If the bond y5% (60/1200 = .05). On the other hand, if the bond is viewed as notice lisky, or there is a excess supply of bonds the market price may fall say to \$800, then the rate of return increases to 7.5% (60/800 = .075).

Notice how bonds become a good investment. Bonds are good investments when the interest rate is falling. As the interest rate falls, the market value of the bond increases, (remember that the payment made by the original borrower is a fixed payment each period). In other words, falling interest rates mean larger market values for the bonds, and greater profits for investors in bonds.

An Overview of the U.S. Financial System

The U.S. financial system is a complex collection of banks, thrifts, savings & loans, credit unions, bond and stock markets, and numerous markets for other financial instruments such as mutual funds, options, and commodities. The complete analysis of these markets is not a single course, its an entire curriculum called Finance. What is important for understanding the basics of the effects of money on the macroeconomy is the banking system and the closely associated regulatory agencies, such as the Federal Reserve System and Federal Deposit Insurance Corporation (F.D.I.C.).

The balance sheet method will permit us a method to track how banks create money through the multiple expansion process.

Rational for Fractional Reserve Requirements

The fractional reserve approach to monetary stability dates from the middle-ages in Europe. Goldsmiths received gold to make jewelry, religious objects, and to hold for future use. In return the goldsmiths would issue receipts for the gold they received. In essence, these goldsmith receipts were the first European paper money issued and they were backed by stocks of gold. The stocks of gold acted as a reserve to assure payment if the paper claims were presented for payment. In other words, there was a 100% reserve of gold that assured the bearer of the receipt that the paper receipt would be honored. The reserves of gold held by the goldsmiths created faith in the receipts as mediums of exchange, even though there was no governmental involvement in the issuing of this money.

However, the goldsmiths in Europe were not the first to issue taber money. Genghis Khan first issued paper money in the thirteenth cartury. Genghis did not hold reserves to back his money, it was backed by polyhopoxcept the Khan's authority (which was absolute). Therefore in the case of the Great K tan, it was the ability to punish the untrusting individuals that gave money its value. In Europe, two-hundred years later, it was trust bireserves that gave money its value.

The CS. did not take in the banking system, as we know it, from the 1840s through 1914. There were two early "national" banks whose purpose was to serve as the fiscal agent of the U.S. government and to provide limited regulation for the U.S. monetary system. Both failed and were eliminated. In the early part of this century several financial panics pointed to the need for a central banking system and for strong financial regulations.

During the first half of this country's history both states and private companies issued paper money. Mostly this paper money was similar to the gold receipts issued by the European goldsmiths, except the money was not backed by gold, typically the money was a claim against the assets of the state or company, in other words, the money issued represented debt. It is little wonder that most of this currency became worthless, except as collectors' items. Prior to 1792, Spanish silver coins were widely circulated in the U.S. because they were all that was available for use as money (for more details see the previous chapter).

The first widespread issuance of U.S. paper money was during the Civil War (The Greenback Act), which included fractional currency (paper dimes & nickels!). Earlier attempts to issue U.S. notes were less than successful, simply because people

trusted coinage because of the silver and gold therein contained, and paper money was a novelty (but not a very valuable one).

Today, the Federal Reserve requires banks to keep a portion of its deposits as reserves, to help assure the solvency of the bank in case of a financial panic, like those experienced in the first decade of this century and again in the 1930s. The fact that these reserves are kept also helps to assure the public of the continuing viability of their banking system, hence the safety of their deposits. In turn, this public faith should prevent future runs on the banking system that have historically caused so much economic grief due to bank failures.

The Required Reserve Ratio

The Required Reserve Ratio (RRR) is set by the FED's Board of Governors within limits set by statute. The minimum legally allowable RRR is three percent, where the current RRR has been set by the Board of Governors. The RRR determines by how much the banking system can expand the money supply. The RRR is the ancunt of reserves that a bank must keep, as a percentage of their total liability s (deposits).

Banks are permitted some freedom to determine how their reserves are kept. A bank can keep reserves as vault cash or removing with the regional Federal Reserve bank. Should a bank be short or the amount required to meet the reserves necessary, then a bank can borrow their reserves for som periods from either the FED or other member banks. The FED regulates the borrowing of reserves, and sets an interest rate for these their term loans of methors borrowed from the FED. The rate charged on borrowed reserves form and FED is called the discount rate. The rate of interest charged on reserves borrowed from other member banks is called the Federal Funds Rate (currently about 5.5%).

The banking system has three forms of reserves, these are actual, required, and excess reserves. Actual reserves are the amounts the banks have received in deposits that are currently held by the bank. The required reserves are the amounts the Board of Governors requires the banks to keep (as vault cash, deposits with the FED, or borrowed). The excess reserve is amount of actual reserves that exceeds the required reserves. It is the excess reserves of the banking system that may be used by the member banks to expand the checkable deposits component of the U.S. money supply.

If the Fed wishes to stimulate the economy during a recession what might we expect to observe?

- A. Lowering the Required Reserve Ratio
- B. Lowering the Discount Rate
- C. Fed Buying Bonds
- D. None of the above

True/False:

The main goal of the Federal Reserve System is to assist the economy in achieving and maintaining a full-employment, non-inflationary, stability. {TRUE}

A tight money policy assists in bringing the economy out of recession, but at the risk of possibly causing inflation. {FALSE}

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KEY CONCEPTS

Misery Index Inflation Unemployment **Phillips Curve** Short-run Trade-off Long-term, natural rate hypothesis Positively sloped **Rational Expectations** Market Policies Lorenz Curve Gini Coefficient Investment Tax Credits Toricit Mational Material Action and the sale of the s NAFTA & GATT Wage-Price Policies Laffer Curve Budget Deficit

STUDY GUIDE

Food for Thought:

Compare and contrast the various views of the Phillips Curve. Map out each and demonstrate how there may be a cruel choice in economic policy.

Develop the Laffer Curve. What does it tell us? How then can we have witnessed the large increases in the deficit during the years this model held center stage? Critically evaluate.

However, in defense of Malthus there was no way to predict the increases in farmer productivity over the last few hundred years.

Global warming, terrorism, our deteriorating relations with other countries, changes in technology, increasing life expectancies, and an increasingly global economy will have significant effects on our futures. Being informed and keeping current with the economic data will help each of us succeed in this future.

Economics Majors

Whether one becomes an economics major or not, it is clear that there should be a commitment to continued study of the subject, even informally. However, it is interesting to note that economics is one of the fastest growing majors on most university campuses. Rather than report this second hand, here is an article which can be found on the Economics Department website, and which is very informative, from the *Wall Street Journal*:



Since the mid-1990s, the number of students majoring in economics has been rising, while the number majoring in political science and government has declined and the number majoring in history and sociology has barely grown, according to the government's National Center for Education Statistics.

"There has been a clear explosion of economics as a major," says Mark Gertler, chairman of New York University's economics department.

The number of students majoring in economics has been rising even faster at top colleges. At New York University, for example, the number of econ majors has more than doubled in the past 10 years. At nearly 800, it is now the most popular major.

- 15. If the unemployment rate is 8% and the current GDP is \$100 billion, how much is the recessionary gap?
 - A. There is no recessionary gap
 - B. \$4.17 billion
 - C. \$10 billion
 - D. \$11.11 billion
- 16. The unemployment rate is 10%, the potential GDP is \$10,000 billion, the marginal propensity to save is .05, which of the following fiscal policies may be used to close this recessionary gap?
 - A. Increase government expenditures by \$75 billion
 - B. Decrease taxes by \$75 billion
 - C. Increase taxes and expenditures by \$2500 billion
 - D. None of the above will work
- 17. With a recessionary gap of \$100 billion, and a need to balance the budget what A. Increase both taxes and expenditures by \$50 Concerns of the concer policy will work best (assuming an MPS of .2)?

 - C. Decrease both taxes and expension by \$80 billion
 - D. Decrease both taxes and expenditures by \$100 billion

18. A tax struct e's ability to pay increases, so too should that requires ex rates is:

- A. Proportional
- **B.** Progressive
- C. Regressive
- D. Lump sum

19. What is the tax multiplier?

- A. Always one
- B. 1/MPC minus one
- C. 1/MPS minus one
- D. 1/1-MPC

20. Which of the following is an contractionary fiscal policy?

- A. Decrease taxes and expenditures
- B. Increase expenditures
- C. Increase taxes
- D. None of the above are contractionary