

## INTRODUCTION

### 1. *The Subject of Macroeconomics*

- Macroeconomics aims to explain the time series behavior of aggregate economic variables such as:
  - the overall gross output of marketed goods and services, measured as GDP,
  - the average level of prices of that gross output of goods and services, measured as the GDP deflator,
  - the total level of market employment, measured by the number of individuals in the work force,
  - the average return to factors of production, such as the average level of “representative” wages or “representative” interest rates
  - the aggregate level of investment in physical and human capital
  - the net fiscal deficit or surplus of the government and the manner in which it is financed
  - the balance of overseas trade, the current account balance and the balance of payments
  - the current value of the exchange rate relative to foreign currencies.
- Apart from a scientific interest in explaining how the world works, we are motivated to understand the behavior of these variables because they are thought to be of considerable practical relevance:
  - the overall level of output of goods and services relative to the population in the economy (GDP per capita) is thought to be a reasonable proxy for the average level of affluence in the community - other things equal, people would prefer to live in an economy with a higher level of GDP per capita
  - changes in the average level of prices, or inflation, is widely believed to reduce the efficiency with which a market economy operates - more particularly, high inflation appears to be associated with high variability in the inflation rate and this is thought to cause instability in the real economy
  - variations in employment opportunities can adversely affect the welfare of those unable to find

a job at a wage and under the conditions they would accept

- variations in factor returns can similarly adversely affect the welfare of particular individuals
  - the aggregate level of investment in capital affects the future output of goods and services, future factor returns, and future levels of employment
  - imbalances in government expenditure and taxation receipts must be financed either by a change in the level of government bonds outstanding or a change in the money supply - increases in the former are thought to adversely affect current consumption and/or investment; while increases in the latter are thought to increase inflation
  - imbalances in overseas trade can similarly affect future welfare by increasing or decreasing the level of net foreign indebtedness and therefore required future changes in consumption or production
  - balance of payments surpluses or deficits will affect domestic monetary conditions, which may in turn have implications for domestic inflation.
- The hope underlying macroeconomics is that if we can understand why the aggregate variables of interest behave the way they do, we might be able to implement various policies or reforms to make them behave “more satisfactorily”. (This begs the question as to which criteria one should use to evaluate macroeconomic performance.)

## **2. *The Focus of the Course***

- The focus of this course is on the various “models” that have been devised in an attempt to understand macroeconomic phenomena in a “closed economy” framework.
- We should first understand what we mean by a model. A model of the behavior of aggregate variables in the economy is necessarily incomplete, as is any other model. For example, a map is a model. The map is inaccurate or incomplete in the sense that it is not an exact replica of the physical characteristics of the region it covers. It does not include all the trees, buildings etc. of the “real world”. If it did, it would be useless. Why use a map to navigate when we could equiva-

lently look out the window? It is precisely because the map abstracts from irrelevant details that it is useful for the specific purpose of finding one's way around. Similarly, we want our economic model of the behavior of aggregate economic variables to mimic the observed behavior of those variables. We want it to do so with enough detail that we have some confidence that the model will accurately predict the consequences of various relevant events for the behavior of the aggregates. In particular, we want our model to guide us as to the likely consequences for aggregate economic variables of various government policies - particularly monetary and fiscal policy. The theoretical variables in the model should behave like their empirical counterparts in the way they react to policy changes, but the model should not attempt to mirror the economy in all its aspects.

- We shall leave to one side the open economy issues of the balances of trade and payments, and the determination of the exchange rate - they are discussed in a separate open economy macro course.
- We also shall not discuss policy design or implementation in great detail. A complete course could be taught focussing on various aspects of macroeconomic policy design and implementation, preferably in the context of a discussion of policies with a microeconomic aim, such as those to handle externalities or public goods. Much discussion of economic policy in macroeconomics is incomplete. Models with very similar descriptive properties can have very different welfare implications, making it very difficult to draw conclusions about the possibilities for policy to improve welfare. In addition, policy is often discussed with no reference to the way democratically-elected governments, with their bureaucracies and other special interest advocates, actually behave, or would be expected to behave were they to be entrusted with the task of designing and implementing macroeconomic policies. Nevertheless, we want to discuss certain issues that arise in the consideration of macroeconomic policy and are more or less unique to that class of policies, and/or that require some understanding of models of aggregate behavior. Furthermore, since an underlying motivation for studying macroeconomics is to enable us to say something about the likely effects of different policies, we need to discuss macroeconomic pol-

icies.

### 3. *Economic Models*

- What justifies us calling our model an economic one? Economics is the study of the allocation of scarce resources to competing ends. The goal of the program of research we shall discuss is to explain the behavior of the aggregates discussed above with a model that is based on theories about the way scarce resources are used to satisfy competing ends in a market-based economy. In this sense, we want our model to be compatible with microeconomic theory - particularly any components of that theory that are both relevant and have survived many attempts at refutation using micro data (i.e. data on quantities and prices in individual markets).
- We shall often use the construct of the “representative agent” (consumer, worker, firm) to derive a model that has some hope of being consistent with microeconomic theory. The basic idea is that using a “representative agent” allows us to abstract from the distributional effects while retaining the idea that demands and supplies are the result of maximizing behavior. The claim is that factors such as intersectoral productivity shifts and redistributions of income are not important for explaining aggregate economic phenomena. Although it is agreed that distributional or intersectoral shocks affect relative prices, and outputs in one sector of the economy relative to another, it is a matter of contention whether they are needed to explain aggregate phenomena.
- Strictly speaking, to be able to guarantee that our representative agent model is consistent with microeconomic theory, we would need to show that our aggregate behavioral equations can be derived from aggregating the behavioral equations of individual agents. The theory of aggregation will be discussed in your first semester microeconomics course. On several occasions in this course we shall note how disparate individual behavior can be aggregated to yield aggregate behavior that could not be adequately modelled using a representative agent model. Models with heterogeneous agents are a major area of current research in macroeconomics and will be a focus of the second semester macroeconomics course.

- Even assuming we can adequately represent aggregate behavior using representative agents, it is often very difficult, if not impossible, to solve for an equilibrium. We attempt to avoid this problem by invoking the “fundamental theorems of welfare economics”. These state that under certain restrictive conditions there is an equivalence between competitive equilibria and Pareto optima. The point of this result for us is that it is often easier to solve for Pareto optima than for the competitive equilibria.
- While it is recognized that the conditions required for the validity of the “fundamental welfare theorems” are not true in practice, for explaining aggregate economic phenomena we hope that the approximation is close enough. Nevertheless, some of the models we shall consider are based on the premise that deviations from the conditions required for the “fundamental welfare theorems” to hold are central to explaining how aggregate economic variables behave.
- Assuming “economic efficiency” is one characteristic of “good economic policy”, whether or not the observed outcomes are “tolerably close” to efficient will have implications for the desirability of interventionist macroeconomic policy. Unfortunately, this issue infects macroeconomic discussions with a “political flavor”. Often it appears that models are favored more for their implications for the desirability of interventionist policy than for the adequacy of their description of aggregate economic behavior. This course will attempt to focus on the “scientific issue” of obtaining an adequate description of aggregate economic behavior, de-emphasizing the implications of models for the desirability of interventionist macroeconomic policy. Recall, however, that the ability of the model to account for the effects of macroeconomic policies will be perhaps the most important factor in judging its adequacy.