# An introduction to the class

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Every day you read and hear about stuff like recessions, monetary policy, international trade, financial crises, exchange rates etc etc. These economic news are not about a firm or a person in particular but they are affecting us all. Understanding the causes and the effects of these global events is interesting per se (at least I think) but it is also important to make everyday, business and political decisions. Unfortunately the dynamics and the causes of these events are very complicated. Macroeconomists and International Economists are people that spend most of their time thinking about these issues. Even though unfortunately even for them not everything is clear, they have developed analytical frameworks that can help organize all these facts, establish some causal relations and make some predictions. In this class you will learn some of these frameworks and they will be useful to you throughout your life/career.

## What is macroeconomics?

A literal translation of the world from its Greek origin would be "Management of the large household". This is not that far from the actual meaning. What is a large household? A key feature is that large should not be interpreted in terms of size but rather in term of number of different economic subjects. For example the annual gross domestic revenues of Ford are larger than the annual gross product of Portugal but studying and understanding the behavior of Ford is in the realm of microeconomics while understanding the perspectives of growth of Portugal is one of the objectives of macroeconomics.

You can think of the large agent as a country, that is a place in which many different economic agents, such as households, firms, government all interact together.

Households are the private decision units of the economy. These are the units that decide where and how much to work, how much to spend and save, how to save, whether to go school or not, whether to have children or not.

The firms are the production units of the economy. They are the units that decide to hire or fire a worker, to increase or reduce production, to build a new plant.

The government represents the set of rules, institutions and policies that affect economic activity. Monetary policy and fiscal policy are two examples of such policies that have a strong impact on both the real and financial sector. A lot of these rules change over time and across countries. For example the level of development of the welfare system is a policy choice that is very different in the US now, in the US 30 years ago and in Europe now. One question that is very interesting to economist is to understand the consequences of these policy changes to possibly design policies that are "optimal" under certain criteria.

Finally as the world is getting more integrated the three domestic blocs interact along many dimensions (trade in goods and services, trade in financial assets, government policy coordination) with the rest of the world.

### Why do we care about a international/macro perspective?

When making business decisions both the micro and the macro perspective are important in giving you a competitive advantage. Assume for example you are a manager contemplating the construction of a new plant for the production of a new car. There are of course a lot of strategic (micro) issues you have to worry about, like how stiff is the competition in that particular car segment, how can you get financed and so on. Macro/international issues are important as well: for example you want to know how strong general consumer demand will be (you don't want to launch a new car in the midst of a recession) or how tight the credit markets are going to be (are you taking a fixed or variable rate loan?) or how the exchange rate is going to move as this will affect both your costs and your profits.

Also if you are an investment banker advising clients on what to buy of course you have to know the fundamental of the stocks you are selling, but you also have to know how the macro-markets are evolving. For example if you want to advise someone buying Volkswagen stocks you have to know how good the company (a micro issue) is but also what is going to happen to the Euro (a macro issue). For big and multinational firms understanding aggregate conditions is crucial (this is why many of them have their own research department), but also for small firms aggregate conditions make up for 10% of the risk faced by the company. Most importantly understanding macroeconomic risks and conditions is a skill that is highly portable and that depreciates slowly.

### Some issues in macro/international

**Growth and development** In class we will show a picture real per capita GDP (income) in various countries. Income here is PPP adjusted that is the relative income

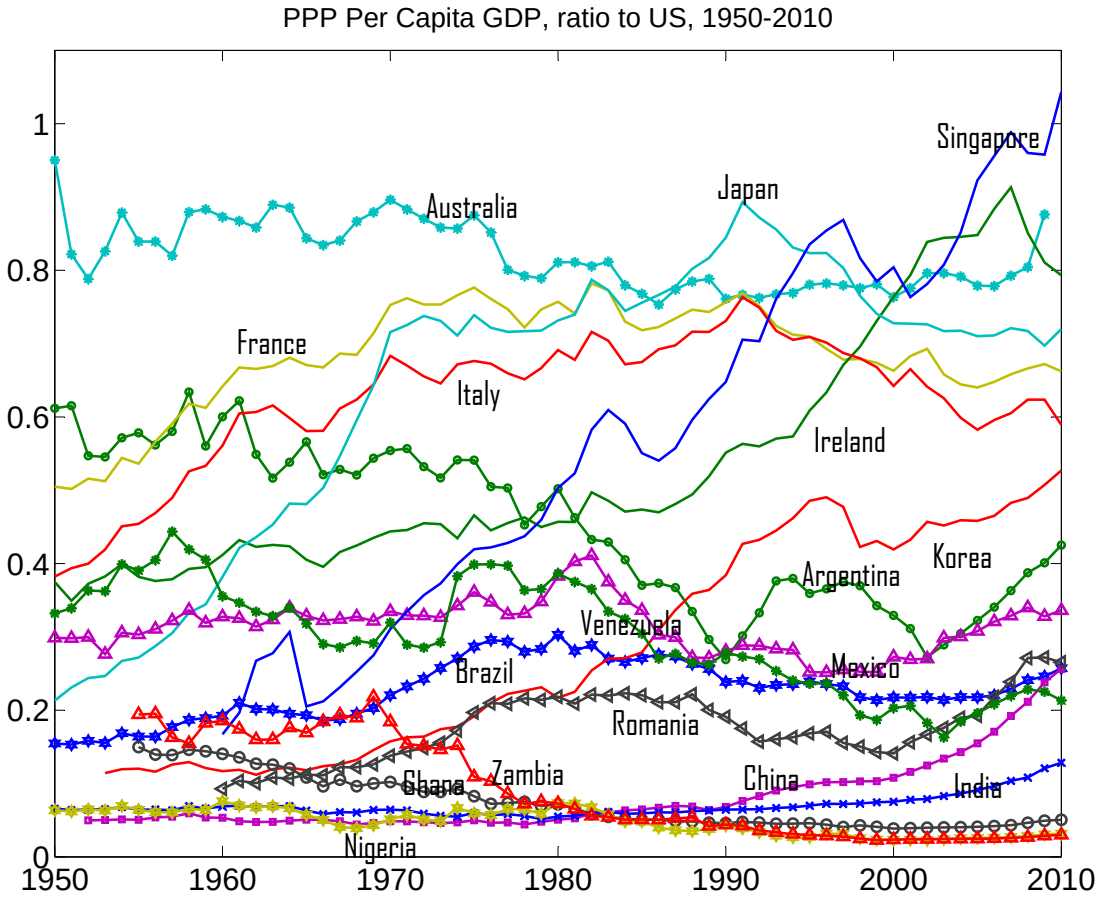


Figure 1: Paths of development

differences take into account the difference in purchasing power in different countries, so that income is a pretty good measure of the standards of living. As you will see countries have experienced dramatically different fortunes. You'll see for example that Argentina that had a per capita income that was more than 60% of US income in 1950 has collapsed to around 30% in 2004. That is like having a great depression that last for 50 years. Singapore on the other hand has displayed a miraculous growth going from being 20% of US to having actually higher income per capita than the US, while Mexico, starting at about the same level has had a much less impressive performance. Ireland and Venezuela looked pretty similar in the early 60s but have experienced very different paths since then; similarly South Korea, Zambia and Romania or China, India and Nigeria had similar starts but very different long-run performances

The consequences of such different levels and performances are so staggering that the question that comes immediately to mind is why? Understanding why it is important from three point of views.

1) People living in those countries (quite obviously)

2) People living in other countries (if they are considering investing or doing business with that country)

3)The policy maker (if you are someone involved with economic policy in that country)

At the end of these class you should have an idea of what are the main determinants of these large differences in the level of income and in growth performances. Is it because of luck (i.e. geography), policies or both? For now if you are interested in looking the macroeconomic history of other countries check the Penn World tables or the World bank WDI on the information sources listed in the class page.

**Business cycles** Macroeconomists also worry a lot about short run (business cycle) fluctuations. Figure 2 shows the path for aggregate per capita real income in the United States in the last 130 years. The figure reveals two things: the first is that there is a clear long run trend at which the US has been growing (on average about 2% per year) . The second that there are some deviations around this trend: these deviations are the so called business cycles. Obviously the biggest one these cycles is the great depression, but other episodes such as the so called Great Recession of 2008 are clearly discernible. The Minneapolis FED provide a simple web tool to analyze all the post-war business cycle in the US, including the current one. You can find it at

Here

and we'll play with it in class.

The first question we ask what are business cycles? what is a recession and what happens during it? and then we'll try to think what drives them? and why some of them (like at the great depression) are larger than others? And can and should we doing something about it? Is monetary policy an effective tool to fight recessions? Answering these questions can help us understanding the nature of the current business cycle and forecasting future cycles. And if you think that long recessions in developed countries are just a memory of the past and that now monetary and fiscal policy are always effective tools that get countries out of recessions just consider the experience of Japan or Switzerland in the 1990s in figure 3 or, even more sobering the evolution of Italian over the last 12 years in figure 4.

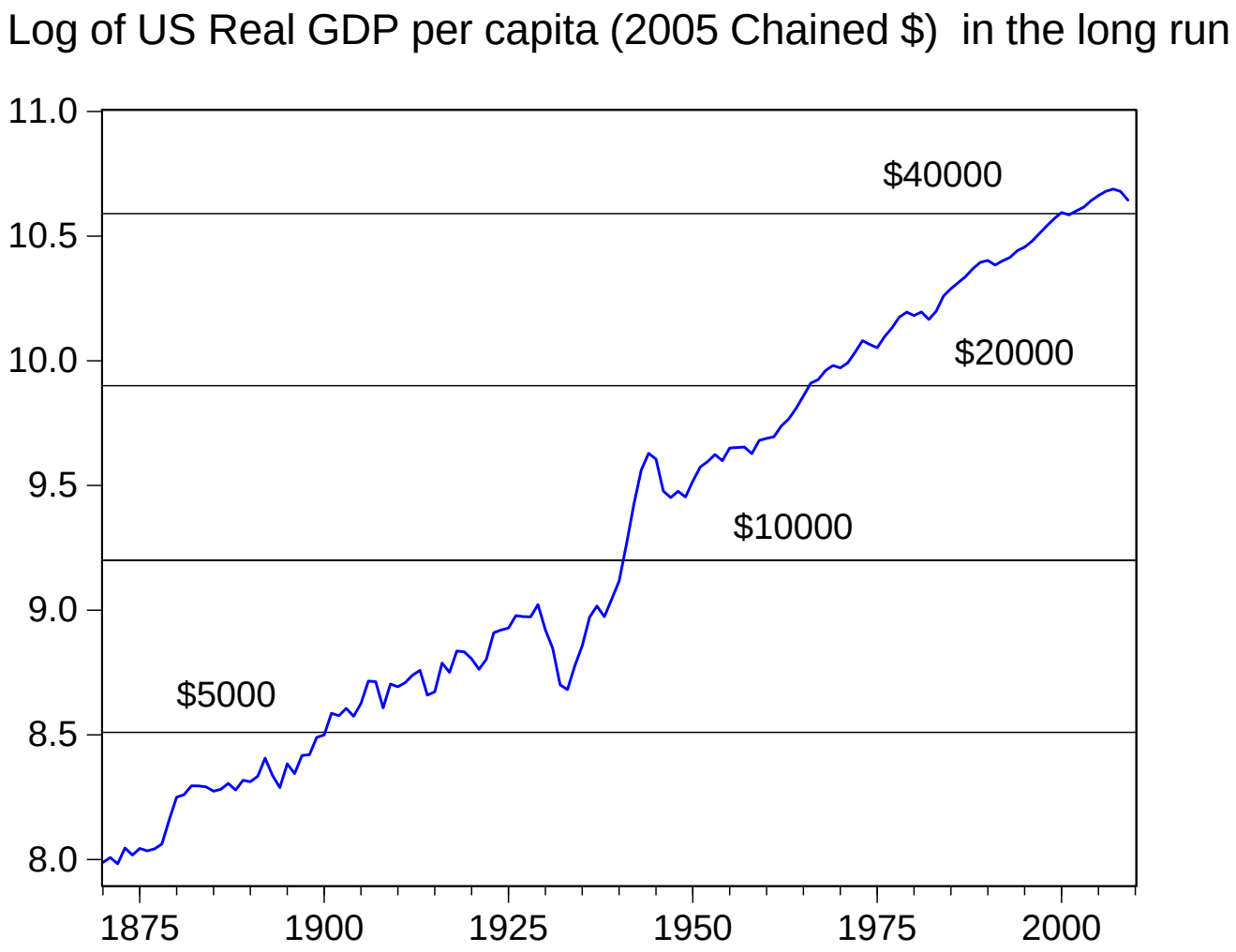


Figure 2: US IN THE LONG RUN

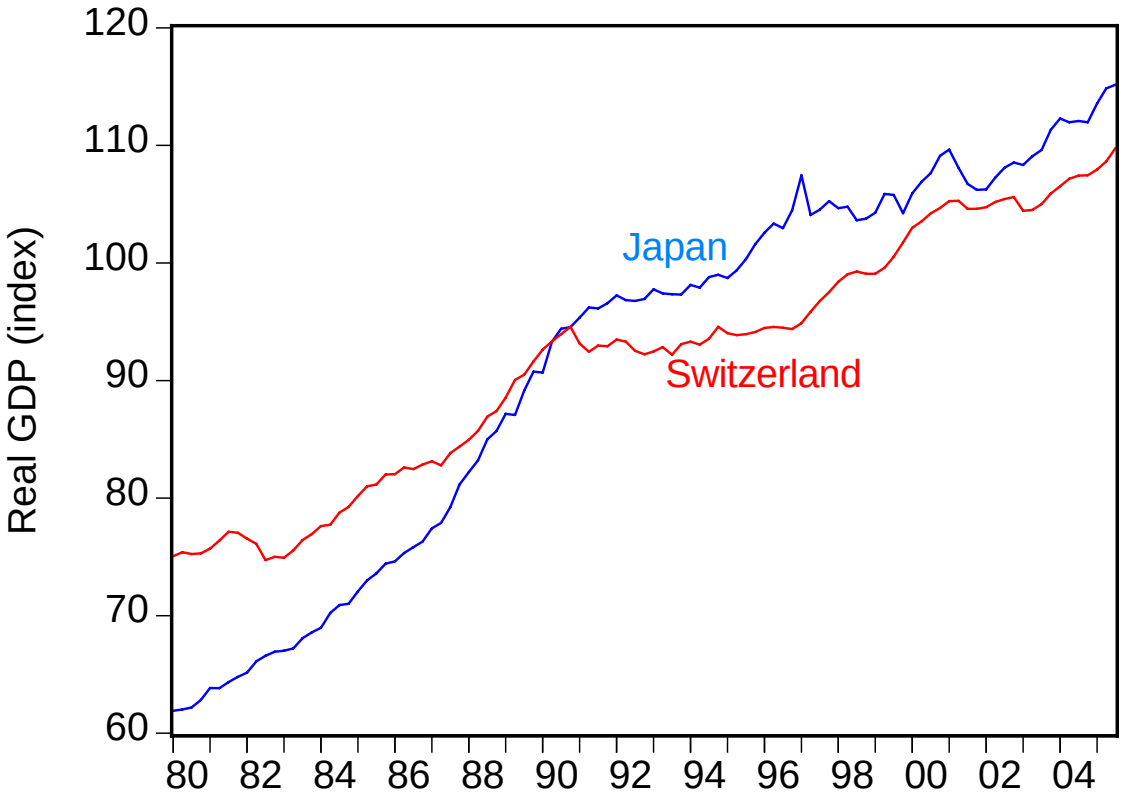


Figure 3: Japan and Switzerland in the 1990s

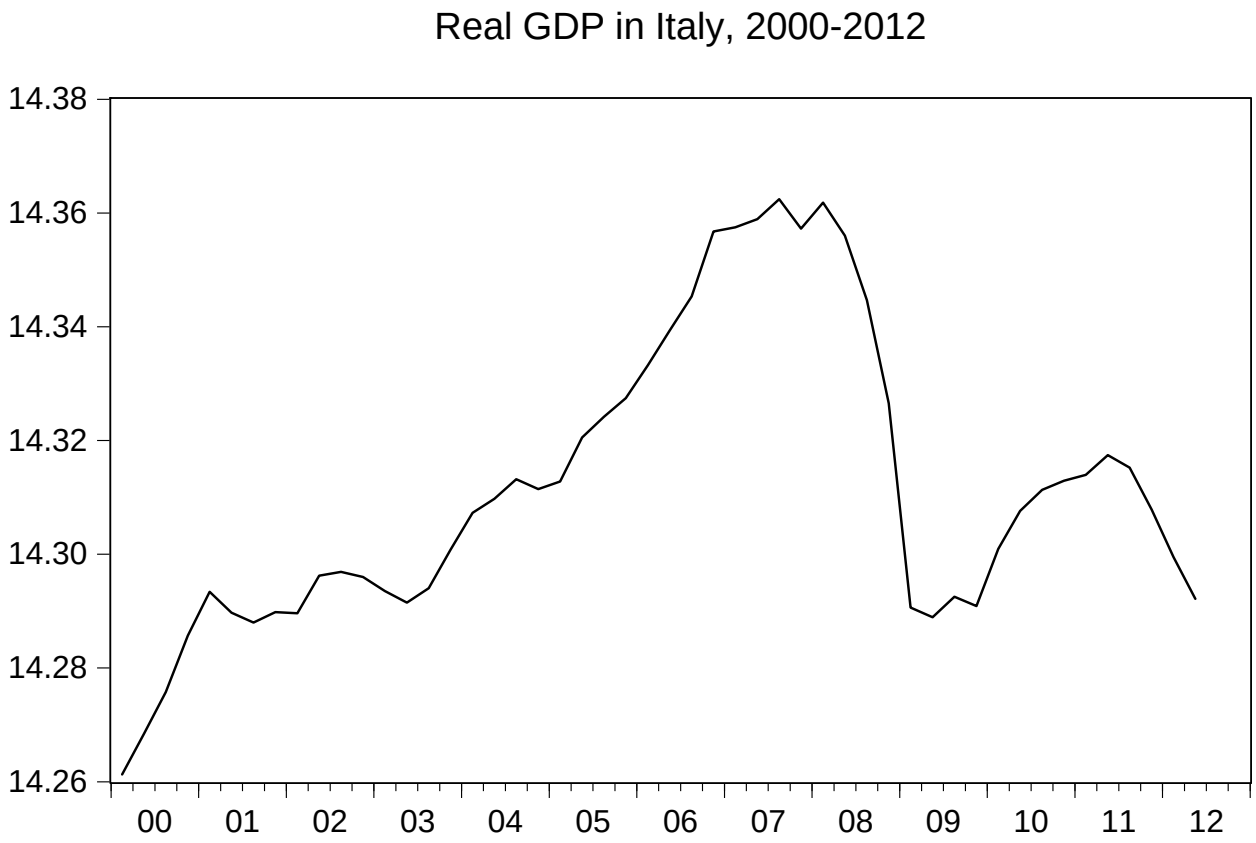


Figure 4: Italy in the 2000s

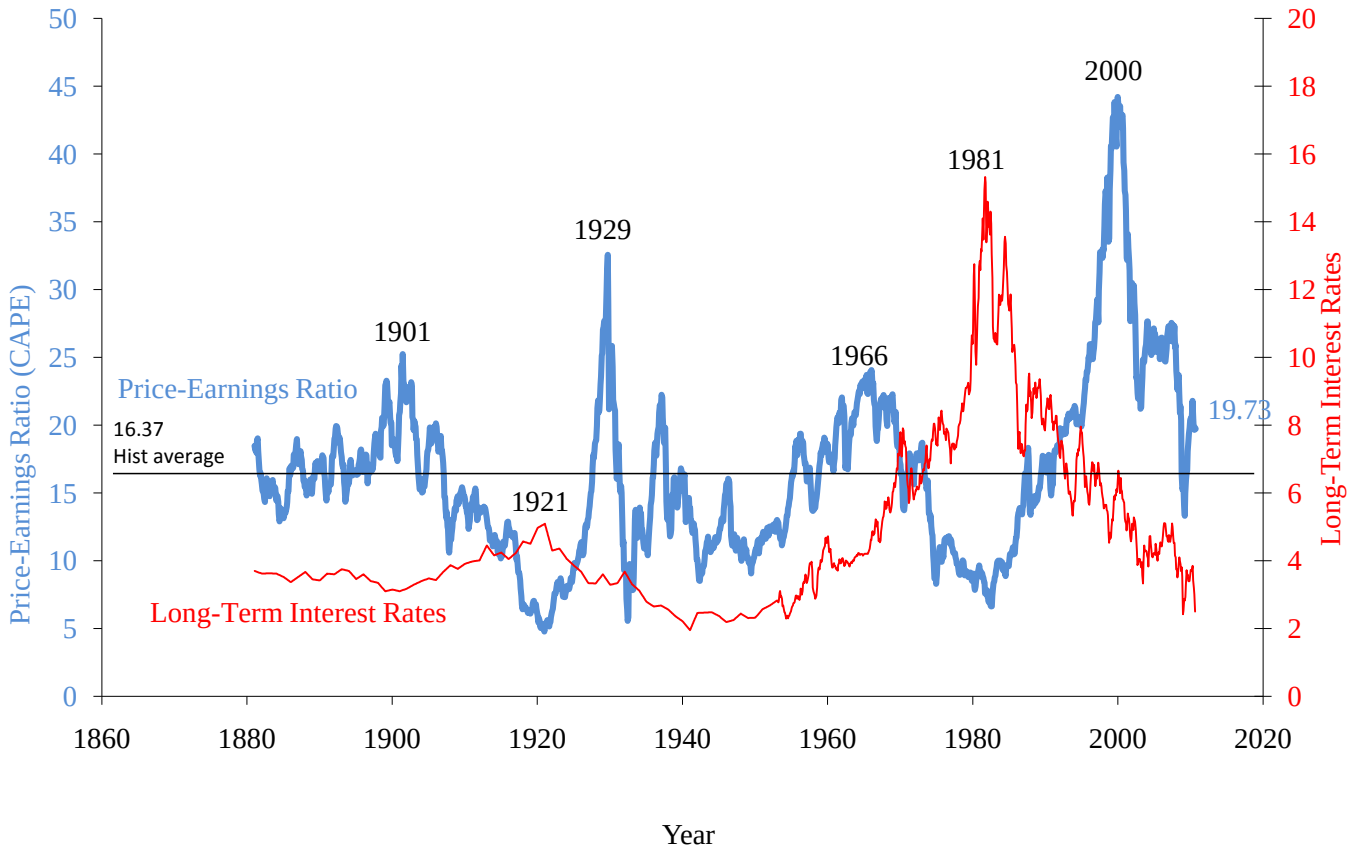


Figure 5: The stock market in the very long run

**The stock and housing markets** Macroeconomics is not about picking one particular stock or a particular house but it can help you understand the behavior of the stock market or the housing market as a whole and, for example, decide whether you want to put your retirement money into a stock or bond index fund or if you'd like to buy or rent. Figure 5 and 6 shows the time series of US stock prices and US housing prices the very long run. They show, for example, that the stock market performance of has been very strong in the period 1980-2000 but has been not very strong in the 2000s. What are the fundamental forces driving the level of the stock and housing markets? are they related to fundamentals or are they pure speculative bubbles (for example can you think of an explanation for the large increase and subsequent collapse of housing prices in the late 90s and early 2000s)? also how is the stock market affecting the economy?

**Exchange Rates and Financial crises** In the second part of the course we are going to focus more on financial and macroeconomic interactions between countries.

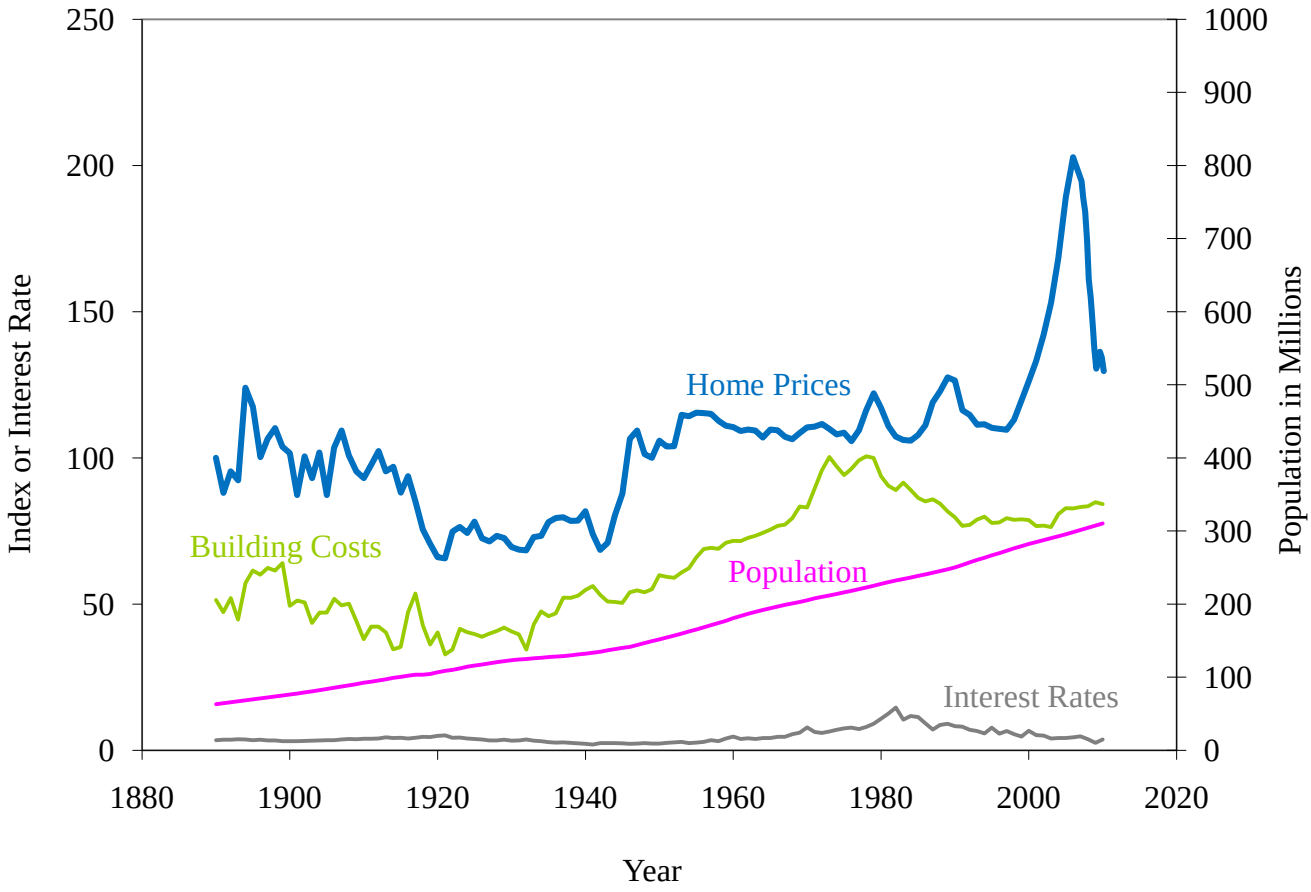


Figure 6: Housing markets in the very long run

As the world is getting more integrated, so a lot of macroeconomic issues are of international nature in the sense that we not only need to understand what is going on within a country but also the relationships between countries. Take for example the Euro. Figure 7 shows the Euro dollar exchange rate together with US and European short interest rates. Can we make sense of this pattern? and can we connect the behavior of exchange rates to international trade and to international borrowing and lending?

We will also talk about about financial crises, that have been a recurring event in emerging economies in 1990s and more recently have plagued more developed economies such as the US and Greece. Figures 8 and 9 show some macroeconomic time series in two very different episodes of currency crisis in the 1990s, the UK in 1992 and Korea in 1997. Although both crises are characterized by a sharp real depreciation of the local currency, that is local goods become cheaper relative to foreign goods, the macroeconomic effects of the crisis is very different as UK booms while Korea collapses. In class we will try to understand why the crisis had such a different impact in the two countries. Also we will discuss the causes of a currency crisis, whether is it possible to predict a currency crisis, the effect of the currency crisis on the country in crisis and on other countries (is there a contagion effect)?

### The method of macroeconomics

Macroeconomics is a social science, meaning that the object of study has to do with human behavior. This causes problems because of the lack of experiments, because of the interactions between the student and the object of study and because of the ever changing environment. Macroeconomics is even harder because of its complexity. One of the key insights of modern macroeconomics[1] is that there is a fundamental double interaction between individual and aggregate variables (between macroeconomics and microeconomics). Aggregate variables are the result of many individual actions (for example the rate of inflation is the average rate of change of prices in the whole economy) and thus to understand them we need to understand individual behavior. On the other hand aggregate variables feed back on individual decisions (if inflation is high the purchasing power of my individual wage is affected) that feed back into aggregate variable (if I feel that the purchasing power of my wage is eroded I will demand higher wages, this will push up the costs of my employer that will raise prices and this will affect inflation).

One of the goal of macroeconomics is to clearly spell the nature of these effects. Notice that all this is very difficult (much more difficult that, say, the study of elementary

[1] Over the last 25 years research macroeconomics has undergone a fundamental methodological transformation. This transformation is just now starting to change the way business people and policy makers understand the macroeconomic environment

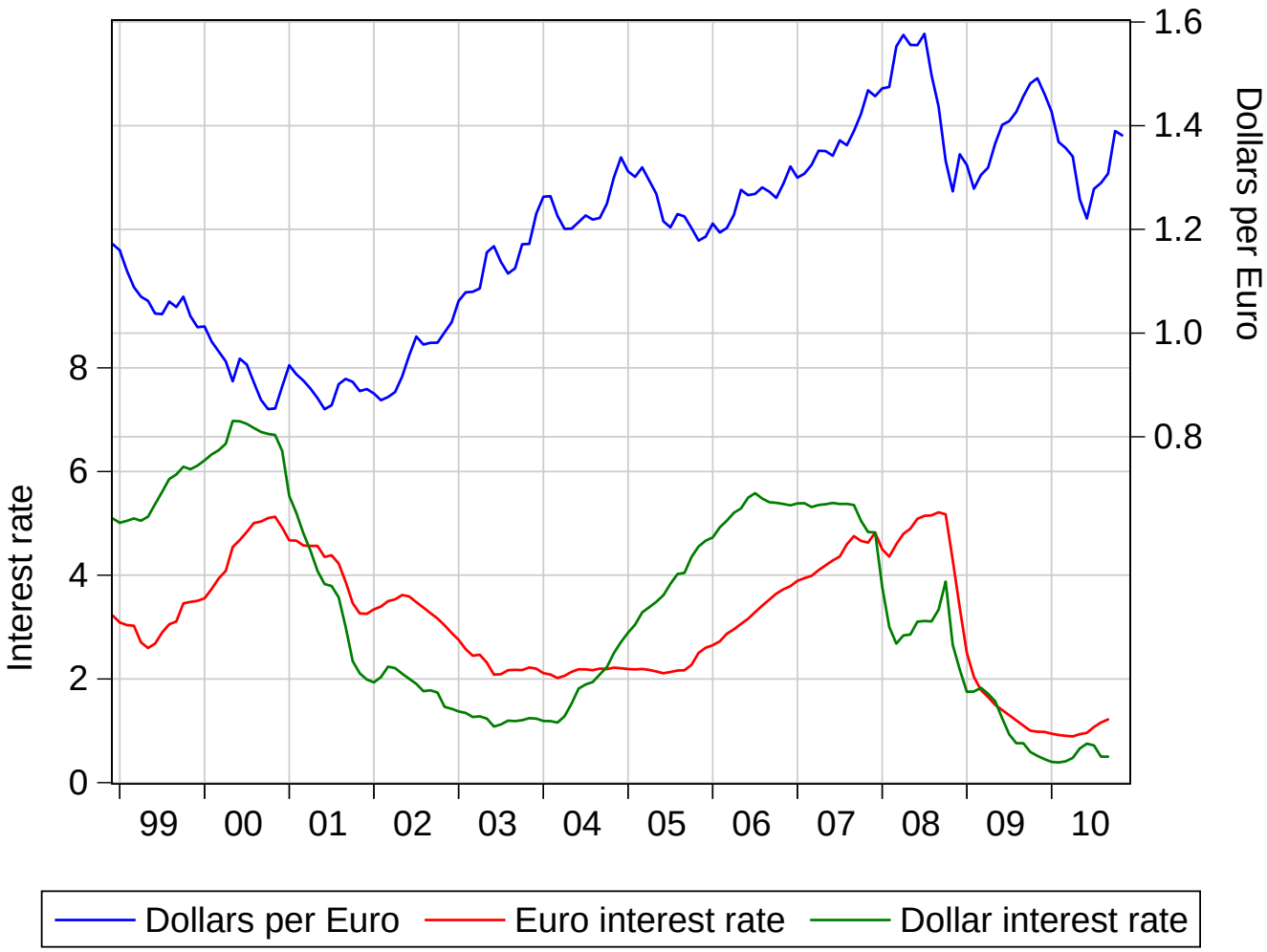


Figure 7: The Euro and the Dollar

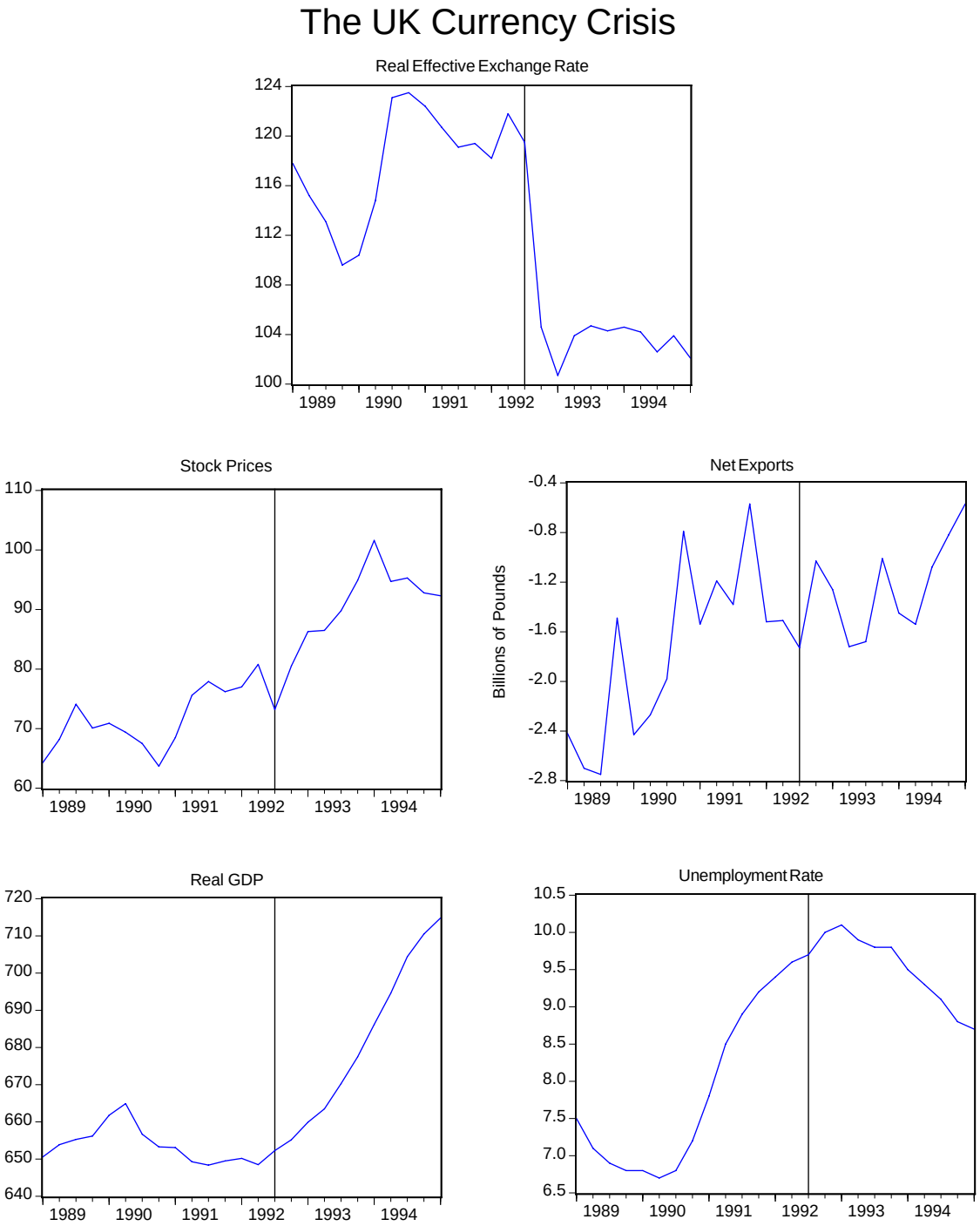


Figure 8: A GOOD CURRENCY CRISIS..

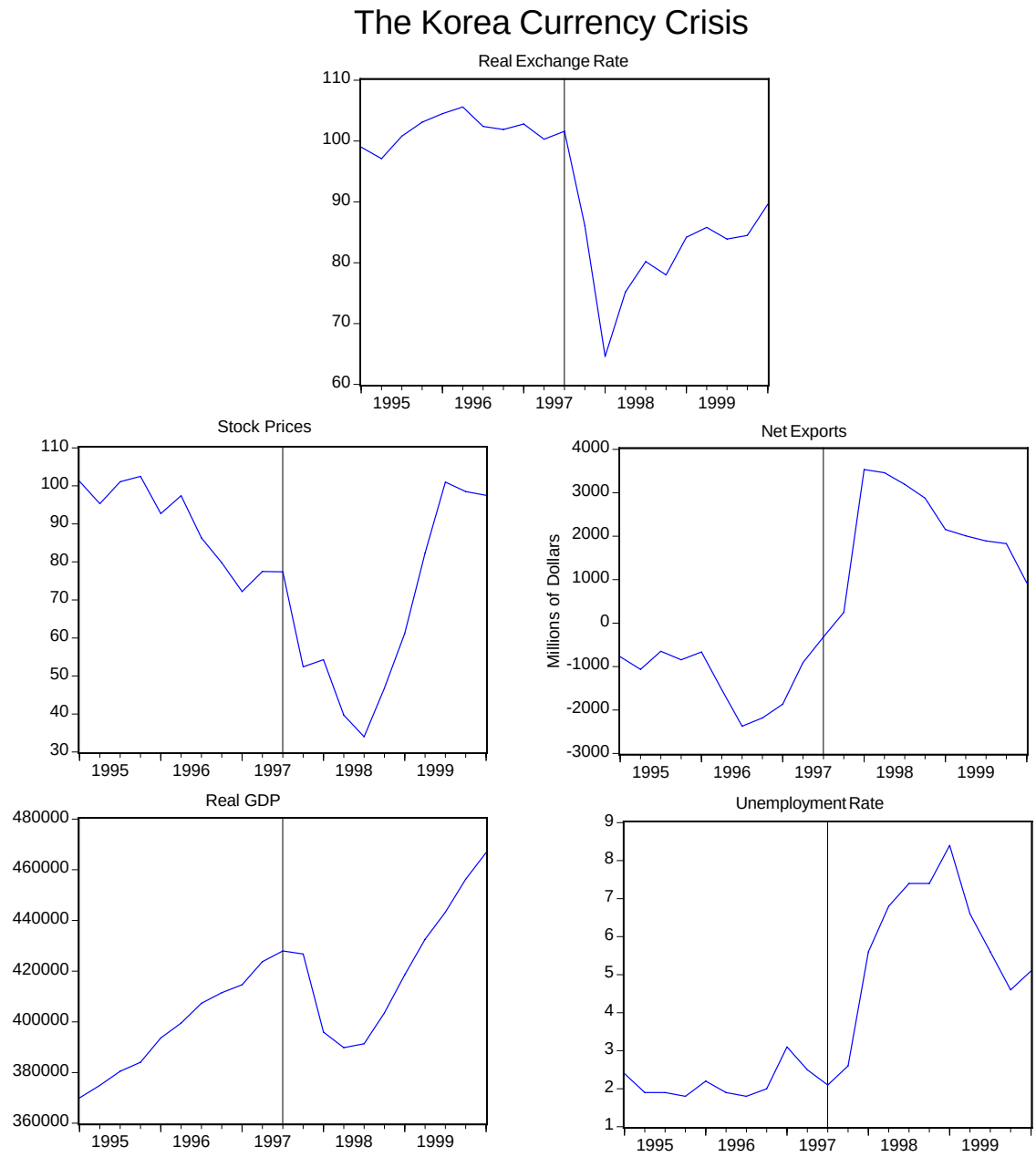


Figure 9: .. AND A BAD ONE

particles or than sending a spacecraft on Pluto) and clear and powerful results are hard to find. This is why economics is often called the dismal science. Nonetheless since the stakes are very high (prosperity, welfare, social justice, efficiency) it is worth at least to try to develop theories that can help us understand these interactions in a rigorous and scientific fashion. Obviously in developing these theories we will be making some simplifying assumptions. For example there are two possible ways of trying to predict the FOMC (Federal open market committee, it is the committee of people which set the federal funds interest rate, one of the basic instruments of monetary policy) decisions about monetary policy. One is to collect information about the mood, habits political views etc. etc. of the member of the FOMC, to try to understand their relative importance, their access to information, to study their bargaining procedures to finally predict the aggregate choice. Another one is to treat them as an individual agent, assume that they focus on a small set of aggregate variables about the state of the economy (i.e. inflation, unemployment and the stock market) and come up with a simple rule of action. Even though the first method is more "realistic" due to our limited abilities of collecting and processing information has very little chance of ever being useful. The second method, on the other hand, has more chances of being useful in predicting and understanding monetary policy. As this example shows the main ingredients of the macroeconomic method are theories or models. Models are intellectual constructs that abstract from many features of the real world but nevertheless are useful to understand the way the world works. My favorite example of a model is a map. Take a map of Manhattan and Manhattan itself. Clearly they are two very different objects but the former is a very useful tool to get around in the latter. How can I tell a good theory from a bad one? There are three requirements that a good theory should to pass and the first two are crucial.

1) **Logical consistency** A theory has to be internally consistent. Suppose I want to understand the aggregate demand for housing and I formulate the following theory. People invest in housing a constant fraction of their income and rich people invest in housing a higher fraction of income than poor people do. Although these two statements seem apparently consistent there is an important inconsistency here. Can you find it?

2) **Falsifiability**[2] A theory has to say something that can be judged true or false to be useful. Suppose again I am trying to understand the demand for stocks and consider the following two theories.

a) People invest in housing a constant fraction of their annual income

b) People invest in housing whatever they feel like investing.

The first theory can be tested on the data. I can follow an set of individuals, measure their income, their housing purchases and reject (or accept) the theory. The second theory can never be rejected and it does not help us understand demand for housing.

[2]This concept is due to Austrian philosopher Karl Popper

Why is falsifiability important? because it allows us to make predictions. Suppose I strongly suspect that average income next year is going to raise. If I believe theory a) then I know that the housing demand is going to increase, I can predict housing prices are going to increase and capitalize on that. If I believe theory b) there is nothing I can say.

Once requirements 1 and 2 are satisfied one can proceed to the third step that is the empirical/predictive test of the theory. If the theory passes the empirical test (i.e. it is consistent with the data we see) or it helps us predict future events then we can use it until a new and better theory comes along or until a new test is devised that falsify our theory.

One of the oldest and more accepted theory in macroeconomics is the quantity theory of money that basically states that if at any point in time you double the quantity of money in the economy the price level will double. This theory has been, and still is, the main guideline for conducting monetary policy so if you want understand and predict what the Federal Reserve is doing you need to understand the quantity theory. In later classes we will discuss and analyze this theory in detail. One more recent theory is the so called Taylor Rule of monetary policy. It states that the authority in charge of setting the interest rate follows a rule in which the interest rate depends positively on the inflation rate of the economy and positively on the current state of the business cycle.