

**Rethinking the International Monetary Economics Course
for the College of Business**

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Abstract

This paper proposes a restructuring of the open economy macroeconomics course around the concept of the policy “trilemma” – that is, the realization that an economy cannot simultaneously control its domestic price level and its exchange rate while still allowing free movement of capital in and out of the country. This approach to the course is independent of textbook choice and allows discussion of many interesting case studies under one organizing idea. Added value is derived from readings and assignments that can be connected to this central idea. One of these assignments is a classroom debate that encourages students to apply knowledge learned elsewhere in the curriculum to a policy question related to the trilemma.

1. Introduction

International economics traditionally has two components. The first part of nearly every textbook on international economics is trade theory. The rest of the book goes under many different headings. Some of the most common names for the second part of the texts are international finance and open economy macroeconomics. Differences across textbooks do not stop at the section titles either. The variation in material covered in the open economy macro portion of the text is considerably greater across textbooks than the variation in trade theory. After all, trade theory generally begins with the Ricardian model and proceeds to the Heckscher-Ohlin model, factor price equalization, trade policy (tariffs and quotas), and trade in factors of production. The order may differ slightly, and topics such as offer curves may be in the main text in some books and in the appendices in others, but there is a fairly standard set of topics with a fairly standard ordering. Differences are found in the depth of coverage of certain topics and specific items reflecting the research interests of the authors [e.g. imperfect competition in Krugman and Obstfeld (2000)]

The open economy macro treatment is much more idiosyncratic. Typically, the texts begin with the balance of payments and exchange rate determination. After that, the text could proceed in a number of directions such as the price adjustment mechanism [Salvatore (2001)], the international currency system [Kreinin (1998)], a review of monetary economics [Krugman and Obstfeld (2000)], or purchasing power parity [Husted and Melvin (2004)]. Most present some sort of open economy macro model. Some put it earlier giving it somewhat more prominence [e.g. Caves, Frankel, and Jones (2002)], some put it at the very end [e.g. Husted and Melvin (2004)]. The texts

mentioned here are simply representative examples of the variation in some of the long standing popular texts.¹ That so many texts with such variation continue to exist and thrive in the market bears witness to the fact that there is no established canon for what is to be included in the open economy macro course. Certainly each instructor has a different set of preferences influencing their textbook selection, and the present set of texts offers something to accommodate most tastes. While a number of popular texts will be referenced in this paper, I purposefully do not advocate one over the other. The approach I present can be supplemented by these and other texts.

This paper reexamines the open economy macro or international monetary economics course as it might be taught in a college of business setting. It is assumed for the purposes of this discussion that the curriculum includes both a semester long international trade course (fairly standard) and a semester long open economy macro course (that could include many possible topics). Students can take one or the other or both courses. Either can be a popular elective. Students in economics or international business may be encouraged to take both. Neither is a prerequisite for the other.

The approach to the course in the college of business may differ slightly from that in a liberal arts setting. For example, a liberal arts approach may place less emphasis on the international finance component. However, the basic ideas presented in this paper could be adapted to the liberal arts setting without much difficulty. Furthermore, in an institution with only a one semester course in international economics that covers trade and open economy macro, these ideas could be condensed into a two or three week unit rather than used as an organizing idea for the entire course. For a classroom containing mostly business majors and with an entire semester to cover open economy macro, the

¹ Each of the texts referenced in this paragraph is in at least its 5th edition.

overall approach should recognize the skills that students bring from their experience elsewhere in the business curriculum. The end result is more comprehensive coverage of material they can use in other courses and better understanding of key principles of open economy macroeconomics.

To develop this framework, I will first discuss the general nature of the course and the students who typically enroll. I then present the main idea, the “trilemma” of international macroeconomic policy. Finally, I offer suggestions for assignments and readings to increase the potential impact of the course.

2. International Monetary Economics

2.1. The course

At Bradley University, the title of the course that is the subject of this paper is “International Monetary Economics.” It is cross listed in the international business department and can be credited toward the required hours in either international business or economics. International business majors must take either this course or “International Trade.” For economics majors, it is a departmental elective. Other business majors are required to take a three hour elective course in economics, and many business students take the course to satisfy that requirement. Prerequisites for the course are either a liberal arts general economics course or principles of macroeconomics (not principles of microeconomics) and junior/senior standing.

In discussing what this course is, it is perhaps also important to say what this course is not. Although it is cross-listed under international business and complements the IB curriculum, it is not primarily a course in international business *per se*. Despite the fact that it utilizes many concepts introduced in the international finance course, it is

not a course in international finance. Although a little bit of international trade theory would be useful to the student, this is not a course in international trade theory. Neither is it a course in international studies. Furthermore, none of the above courses are prerequisites for this course in international monetary economics. However, most students in the course will have taken at least one course from the above list – although few, if any, will have taken a course in all of those areas.

The fact that most students will have taken at least one course in those areas can be used to the instructor's advantage, since much of the material in international monetary economics is directly related to those areas. Thus, it is sensible to draw on the experience and knowledge of students who in many cases are mere weeks away from graduation with a major in one of those disciplines.

Sometimes this requires preparation before class. For example, before discussing currency options and swaps, it is beneficial to consult with a member of the finance faculty so that our treatments of the topic can be complimentary rather than the equally undesirable extremes of being either redundant or totally disconnected. In many situations, class discussion can complement what they have done in other classes. An example of this would be asking international studies majors to share what they have heard in other courses in their major regarding the IMF.

While this course complements courses in other majors, it is distinct. At its core, this is a course in open economy macroeconomics. Because of the way the principles of macroeconomics course is typically taught, most students do not have an extensive background in open economy macroeconomics. Although this is slowly changing, most principles courses tend towards closed economy macro. Students are familiar with the

equation $Y=C+I+G+NX$, but their principles course probably did not do much with the NX . Therefore the first lesson in the course consists of a review of some basic macro topics including the supply and demand for loanable funds in an open economy.

2.2. The audience: the business student

In the four years that I have taught the course at Bradley University, the vast majority of students enrolled in international monetary economics have declared majors in the Foster College of Business Administration. Around 50% of these students are either finance or international business majors. Around 20% are economics majors. Around 30% have other majors (risk management, accounting, marketing, international studies usually appear in this mix). Economics majors in the class are likely to double major in political science or international studies.

Many students in the class have either traveled internationally already, or are planning to do so before graduation. While not everyone has international travel experience, the proportion of those who have been abroad is too large to ignore. This has an interesting implication for an international monetary economics course. Most of them, even those who have not traveled abroad, are very familiar with the practical aspects of exchanging currencies. However, the experience in changing pounds to dollars does not necessarily lead to an understanding of the determination of exchange rates. Even among students who have traveled abroad, there is a lack of international perspective and awareness. A short pretest (not graded) can be a useful discussion starter and reminds students that knowledge of real world people, places, and events is important to economic study – especially as it relates to policy. Policy implications figure heavily in this course, as we will see in the next section.

The essential questions are clear. How do we teach a course in which students bring different knowledge and skills to the table, all of which are potentially useful for the topics at hand? How do we get them to share what they know, realize that they do not know everything, and synthesize knowledge received elsewhere? Of course, at some level these questions apply to any course and any subject. However, the tendency of business students to want to apply their knowledge and skills coupled with the large degree of overlap with other majors and the cross-curricular focus on globalization brings these questions to the surface. Since many of the students are seniors and most will not go on to advanced work in economics, there is a sense in which this course must be truly integrative and practical or students will quickly lose interest.

3. The focal point: Government policy in the global economy

The role for government in the global economy is the subject of intense debate, and the state of that debate is constantly changing. Nearly every textbook includes a chapter on the international financial system, many towards the end of the book. This can often be moved to an earlier part of the course. Most textbooks approach this material from a historical and descriptive angle rather than a theoretical one. If this chapter does not utilize theory derived in earlier chapters, it can be moved without much trouble. As mentioned in the introduction, Kreinin (1998) places this material earlier than usual in the text. Giving the students a historical perspective is important for the study of international macroeconomics. As long as explorers and soldiers have gone to great lengths to acquire territory so that they could bring back shiny yellow metal to the king, governments have been interested in promoting the economic growth of the country. As development continued, governments began taking notice of fluctuations in economic

activity. 19th century economic panics led to changes in policy and politics that have had long lasting effects. All of this is important in understanding how we got to where we are today, and where the world economy may be heading.

Ideally, this historical perspective would be integrated throughout the course, but this is a daunting task. One way to achieve this is to give students a handout containing a timeline of important economic and political events – with special emphasis on events that had a major impact on the international financial system. The handout I use is in the Appendix. I tell students to put that handout in the front of their notebook and keep it handy when they read and study. I do not have any hard evidence that it contributes a large amount to their perspective and understanding. However, I have become more willing to make historical references throughout the course since I can always tell students to refer to the handout to see where the event is on the timeline.

However, the world economic history handout only goes so far. True integration of policy issues throughout the course requires more. In short, it requires a “hook.”

3.1. The hook: The “trilemma”

Stated simply, the “trilemma” is simply the recognition that an economy can achieve only two of the following three generally desirable policy outcomes.

- Independent monetary policy (the ability to control domestic inflation and deflation)
- Stable (or fixed) exchange rates
- Free movement of capital

John Maynard Keynes noted: “If the external price level is unstable, we cannot keep both our own price level and our exchanges stable. And we are compelled to choose.” This statement was quoted by Milton Friedman in the *Wall Street Journal* (13 October 1998).² Of course, this is essentially the purchasing power parity (PPP) notion which is an equilibrium relationship between foreign and domestic prices and the exchange rate. Stated this way, it also poses a policy dilemma (“di” since we’ve narrowed it to two policy choices). Friedman points out that at the time of his writing, Keynes would have assumed the free movement of capital (as well as traded goods) in the pre-WWI gold standard era. After all, world trade was on the rise until the outbreak of war.³ Yet, in recent years the picture has become quite complicated. There is a remarkable degree of capital mobility. However, the increased volatility of capital flows has sparked episodes of crisis, causing countries to reconsider capital controls in the hopes of stabilizing their currency without compromising domestic monetary policy goals. Van den Berg (2004, p. 476) cites Alan Taylor as the one who coined the term “trilemma,” however Friedman (1984) notes the idea very clearly and prominently (without calling it the “trilemma”) in a discussion of McCloskey and Zecher’s paper on PPP. There is a substantial intellectual history of the concept.

The purpose of using the trilemma as an organizing idea is that it crystallizes the policy problem into a form that can be expressed in half a page, but can be applied to so many different situations. For example, consider a “typical” financial crisis of the type

² Students who are familiar with the monetarist-Keynesian debates may find it ironic to see Friedman quoting Keynes. Of course monetarists and Keynesians may disagree on the theories that follow from this notion, but the statement itself transcends monetarist or Keynesian labels. The statement is reprinted at the Hoover Institution web site (<http://www.imfsite.org/recentfin/rescue.html>).

³ Pre-WWI globalization is well documented. Van den Berg (2004, p. 598-599) gives a good description of it for students.

that has been too often repeated in countries around the world. Foreign investment finances a period of economic growth. When growth slows or some of the investments begin to go bad for any one of a number of reasons, the flow of funds into the country slows to a trickle and more investors start to pull out. The reversal puts downward pressure on the exchange rate. If that rate was fixed, the country is now in a very difficult position. Defending the exchange rate peg requires reserves (e.g. U.S. dollars). If the central bank does not have those reserves, or if a speculative attack overwhelms the ability of the central bank to maintain the peg, devaluation becomes inevitable.

Up to this point, the central bank has likely been pursuing expansionary monetary policies to counteract the reversal of investment flows and prevent a full-blown recession. It is evident that the economy has reached a breaking point. One of three goals cannot be achieved. One option is to impose capital controls to stop the outflow.⁴ This option is undesirable because it sends a negative message to the investors and may ruin the country's reputation in the world market. Another option is to contract the domestic money supply. This was the route taken by Argentina in the run-up to the 1994 crisis that hit Mexico even harder. Barro (1996, p. 45-52) explains the situation quite clearly, showing the decline in reserves in both countries. At the same time, Mexico's money supply kept growing at the same rate while Argentina's money supply actually fell. The result was unpleasant for Argentina, but it allowed them to defend the exchange rate. Mexico took the other road – devaluation.

⁴ Capital controls may also be contemplated at an earlier stage to prevent the sort of destabilizing foreign investment that can spawn this process.

The 1994 crisis is only one example. The interaction between the country's exchange rate and its internal price level is at the heart of any modern financial crisis. However, there is more to the trilemma than just crises.

The trilemma also applies to a discussion of China's economic policy. China's currency has limited convertibility. This is a type of capital control. As a result, China can simultaneously fix the external price while controlling the domestic supply of money. It is an unusual situation that may be untenable in the long run, but for now is giving China a level of stability that has allowed it to sustain a remarkable rate of growth while its Asian neighbors have faced difficulties.

The U.S. and Europe are not immune to the constraints of the trilemma. If the ECB was concerned about too rapid an appreciation of the euro during 2002 and 2003, that would be consistent with the ECB's cutting their key interest rate by 125 basis points during that time compared to the Fed cutting the fed funds target by only 75 basis points. It is also consistent with the periodic slowing of the appreciation of the euro against a strong trend over the last two years. Once again, policy makers do not have complete freedom to set interest rates as they please. The U.S. and Europe must recognize that a change in one of their key interest rates is likely to either encourage the other central bank to change its key rate or the exchange rate will see the adjustment. The trilemma makes its presence known once again.⁵

The trilemma is not prominent in most international economics textbooks. Van den Berg (2004) is a notable exception. He applies the trilemma concept to periods in history from the gold standard to the present. As research on recent financial crises and

⁵ The number and magnitude of interest rate changes can be found at <http://www.ecb.int> and <http://www.federalreserve.gov>.

the ascendance of China as a major player in the world economy filters into the textbooks, it is likely that the trilemma will become an organizing idea in more textbooks.

3.2. Implementation

Since the trilemma is not a major concept in most texts, additional readings may be necessary. One excellent choice in the last few years has been Krugman's *The Return of Depression Economics* (2000). The book is well organized for use as a supplementary text in an international macro or monetary economics course. He begins with the return of Hong Kong to China and the start of the Asian crisis. He presents a model of recession induced by lack of demand and explains how liquidity traps (of the sort that Japan has been experiencing with interest rates near zero) can form. Later in the book, he takes up Latin American financial crises and the importance of confidence and expectations. Most relevant to the discussion in this paper, he makes the trilemma a prominent part of his explanation. An instructor wishing to implement the concept of the trilemma into a course like this would do well to read Krugman (2000) and perhaps assign it as a supplemental reading.

The advantage to assigning Krugman (2000) when it first hit the shelves was that it discussed issues that had not yet made it into the mainstream textbooks. Ironically, one potential drawback to Krugman (2000) today is that it is becoming dated. However, despite its focus on events of the 1990s, it is pedagogically useful. The events in Asia, Russia, and Latin America were a wake-up call to the world that financial crises can develop quickly and spread like wildfire. Even an economic power such as Japan can suffer long term economic difficulties. These events will remain important cases for study for years to come.

The instructor must decide when to begin introducing the idea of the trilemma. There are many ways to go about this. The first time I discussed the trilemma in class, I brought it in towards the end of the semester. This was fine, because the latter part of the semester was more policy oriented. However, I have now begun to work the idea into the course from the beginning as a central organizing theme.

There are benefits and costs to introducing the trilemma early in the course. The main advantage is that you can tie nearly every idea, every tool, and every case to the trilemma in some way. As mentioned above, interest parity is an occasion to mention the trilemma. Krugman (2000 p. 106-117) relates the trilemma to a number of interesting episodes. I provide the following list of possible cases for a class to consider. It would be hard to do justice to all of these in a semester and still cover some of the basic tools that must be presented. I pick topics from this list to reflect current events, readings, and assignments.

- Japan's economic stagnation
- The debate over dollarization in Latin America
- George Soros and the British pound
- The collapse of Bretton Woods
- The classical gold standard
- The Asian crisis
- The Russian crisis
- China's foreign exchange policy
- Optimal currency areas

These topics are found in the current or past editions of most textbooks.⁶ The innovation is that when organized around the “hook” of the trilemma, they do not stand alone. There is an order that develops that the students can see. Each of these cases involves a policy choice about which of the three goals the economy will not reach. The students may learn more because they perceive the material to be organized around a central theme. Anecdotally, the level and quality of discussions in the class have improved. I hypothesize that this is due at least in part to students being more able to compare and contrast the different situations. Once they learn the trilemma (which they only have to do once), the cases just become applications of the same idea.

One possible risk associated with introducing the trilemma early in the semester is that students may feel that they do not have the tools to understand it yet. I am sensitive to this, and take care to reassure students that this is such an important idea that it is helpful to see where we are going before we get there. If the major elements of the course, including the introduction of the basic tools like exchange rate determination and PPP are somehow connected to the trilemma as we go along, then there is a better likelihood of success. Overall, the benefits of an early introduction of the trilemma in the course appear to outweigh the risks.

4. Supporting material and assignments

The only supplemental text that I have assigned to support the teaching of the trilemma is Krugman (2000). It’s a nice companion to whatever main textbook that is used. I have also assigned Federal Reserve publications on dollarization in the semesters

⁶ The Asian and Russian crises have now pretty well made their way into the texts. Of course, space constraints imply that this pushes some past episodes out of the spotlight. One may have to look back at some old editions or consult other readings to get enough to make a good presentation of the case.

where I spent some time on the topic. Dollarization is a topic that fades in and out of current events, so I do not cover it every year.

While I do not assign the following books, I have found them useful for my own preparation of material. Thomas Friedman's *The Lexus and the Olive Tree* (2000) is a very readable pre-9/11 look at the globalization of economy and culture. It was released the same year as Krugman's book I cited above, and it covers many of the same events from a foreign affairs writer's perspective rather than an economist's perspective. An instructor would do well to read them back to back in preparation for teaching the trilemma. DeSoto (2000) is a very insightful discussion of capitalism in the developing world. Finally, Stiglitz (2002) and the spirited exchange in *The Economist* that followed its release gives some additional background on people, places, and events worth discussing in a course like this. This list is far from exhaustive. It is, however, a good starting point for an instructor wanting to integrate policy in general and the trilemma specifically into this course.

My assignments fall into two categories. Individual homework projects that involve a computational and written component and group projects that take the form of two debates held during class sessions.

The individual homework assignments are oriented toward looking at real world data. Business students should have computer skills sufficient to download data from the Internet and analyze it using a spreadsheet. Most students, including non-business majors, have taken a computer proficiency course or exam by the time they take this class, so computer skills are generally not a constraint for the kinds of things we do.

The first assignment is usually more straightforward to build student confidence, something like calculating a trade weighted exchange rate. The second and final assignment is more challenging. Two that fit well with the organization of the course around the trilemma are assignments on PPP and on international business cycle statistics.

The group project is a series of two debates on an international economic topic. The last time the course was offered, I had 24 students, so I split the class up into 4 groups of 6. Each debate features two of the groups taking the pro or con on an issue while the rest of the class observes. Each student participates once and observes once. The groups debating are given about a month to research their topic. I meet with them as necessary to gauge their progress. On the scheduled day of the debate, the two groups squaring off line up at the front of the room. Each group makes their opening case (about 10 minutes each). Then they have the opportunity to ask questions of the other group. Finally, the floor is opened to the observers, including myself. I make a point to only ask questions if there is a pedagogical need to clarify something or if the rest of the class is not asking questions. Usually, the observers (not to mention the debaters) do quite well at asking questions of each other.

After each debate, they are all (both debaters and observers) required to write a one page reaction paper. Grading is as follows. Everyone in the group receives the same grade for the debate portion, up to 8 points per person.⁷ Reaction papers are worth 6 points each (and there are two of them). Thus, the debates account for 20 points out of a total of 200 for the course. It is not a major component of their grade. I have

⁷ In practice this means they get a 6, 7, or 8. I have never had a problem with poor performance. Students rise to the occasion. They really like this project.

reservations about weighing a group project heavily. However, assigning marginal value to the reaction papers does accomplish a very important goal. They cannot write a legitimate reaction paper if they do not attend. The 6 point paper (3% of their final grade) is enough to get them in class on those days and actively participating. It seems to offer the right amount of incentive.

Some of the subjects of past debates are:

- Should the world financial community institute a Tobin tax?
- Should the U.K. adopt the euro?
- Should Argentina dollarize?
- Should Eastern European countries adopt the euro?
- Is a worldwide depression on the horizon?⁸

Most of these topics I have used only once, but some are reused. The U.K./euro question is a favorite of mine because I can point the students to a wealth of writing on the subject. It is important to choose topics for which there is accessible, non-technical literature. All of the above questions fit the bill. These questions are also of the sort that students in general, and international business majors especially, have likely discussed in other courses. This is the place to encourage them to use what they already know. For students about to graduate and take jobs in the business world, these are the kinds of questions for which it is useful for them to have a framework to formulate an informed opinion. Many, if not most, students do recognize this, and because of this the project is well received.

⁸ This was a topic in the fall of 2001. In the wake of Sept. 11, general world financial uncertainty, and open talk of recession in the U.S., it stimulated some very interesting discussion.

5. Conclusion

The approach to the international monetary economics course that I have presented in this paper has evolved over four years of teaching the course – a trek that began just after the Asian and Russian crises while their memory was still fresh and the explanations had yet to be fully articulated. Given the resources now becoming available as economists debate the limitations of and the appropriate role for government in the modern financial system, it is increasingly feasible to incorporate these resources into the presentation of the course. This approach is appropriate for the type of students who enroll in this course. Most of them are finance or international business majors. They have probably already heard presentations on PPP or interest parity. Many have first hand experience with foreign exchange and should from other courses have rudimentary knowledge of exchange rate determination. The challenge is to present the material in a way that they have not seen – a way that further illuminates and educates. Presenting material on financial crises and on the evolution of the world financial system from a policy perspective is new for most of them. Using the trilemma as an organizing idea makes it manageable for the student.

Figure 1 is a way of visualizing the plan of attack for the course as I have outlined it here. Tools, assignments, readings, and case studies all interpreted through the lens of the trilemma lead to a better understanding of the role of (and the limitations of) the policymaker in the modern financial system. This structure also represents a step towards presenting a unified curriculum in an area where there is little uniformity of the order or content of material in the mainstream international economics texts.

Appendix

Dates of International Economic Significance

Use this as a reference and for historical perspective. International economic events are greatly influenced by world history.

Adam Smith writes "Wealth of Nations"	1776
Hong Kong ceded to Great Britain in the Treaty of Nanking	1842
Karl Marx writes the first volume of "Capital"	1867
Bimetallism debate; Bryan's "Cross of Gold" speech	1896
Spanish-American War	1898
Theodore Roosevelt leads "Rough Riders"	
U.S. gains Philippines, Guam and Puerto Rico	
Cuba gains independence	
U.S. Federal Reserve System created by act of Congress	December 23, 1913
Archduke Franz Ferdinand Assassinated	June 28, 1914
Austria-Hungary declares war on Serbia (WWI begins)	July 28, 1914
Lenin leads Bolshevik revolution in Russia	1917
U.S. enters WWI	June 1917
Armistice ends WWI	November 11, 1918
Treaty of Versailles; Keynes writes "Economic Consequences of the Peace"	1919
Worst month of the German hyperinflation (20% per day on avg.)	October 1923
Hitler attempts to seize power in the "Beer Hall Putsch"	November 8-9, 1923
U.S. stock market crash	October 29, 1929
Franklin Roosevelt takes office, declares bank holiday	March 1933
Hitler becomes chancellor of Germany	1933
Worst year of Great Depression in U.S.; unemployment at 25%	1933
Keynes publishes "General Theory"	1936
Kristallnacht (night of broken glass) – A night of Nazi led violence against Jews	November 9, 1938
Germany invades Poland; WWII begins	September 1, 1939
U.S. enters WWII with attack on Pearl Harbor	December 7, 1941
Bretton Woods conference	July 1-22, 1944
WWII ends	
V-E day	May 8, 1945
V-J day	August 14, 1945
Potsdam Conference	July 17-Aug. 2, 1945
(Germany divided among the allies)	
East and West Germany formally separated	1949
American involvement in Korean War begins	1950
Cessation of hostilities in the Korean War	1953
Treaty of Rome begins movement toward European union	1957
China begins "Great Leap Forward"	1958
China begins "Cultural Revolution"	1966
Nixon "closes the gold window" ending Bretton Woods era	1971
Nixon visits China	1972

Nixon resigns	August 9, 1974
Fall of Saigon	April 30, 1975
In a speech at the Berlin Wall, Reagan tells Gorbachev to "tear down this wall"	June 12, 1987
Berlin Wall falls	November 1989
German reunification	1990
Persian Gulf War	1991
Soviet Union officially dissolved	December 1991
Treaty on European Union establishes EMU and lays groundwork for the euro	1992
Hong Kong returned to China	July 1, 1997
Thailand devalues the baht; Asian financial crisis begins	July 2, 1997
Russian ruble collapses; Long Term Capital Management is bailed out	July-September 1998
Exchange rates of countries adopting the euro are permanently fixed	January 1, 1999
Euro notes and coins launched	January 1, 2002

Source: All of these dates are commonly found in many sources.

<http://www.historychannel.com> is a great source for more information on many of these events.

Countries using the euro (as of January 2003):

Belgium
Germany
Greece*
Spain
France
Ireland
Italy
Luxembourg
The Netherlands
Austria
Portugal
Finland

Denmark, Sweden, and the U.K. are members of the European Union, but do not use the euro. The Danish krone is linked to the euro through the Exchange Rate Mechanism II, but the exchange rate is not fixed.

* Greece joined on January 1, 2001.

Source: <http://www.euro.ecb.int/en.html>.

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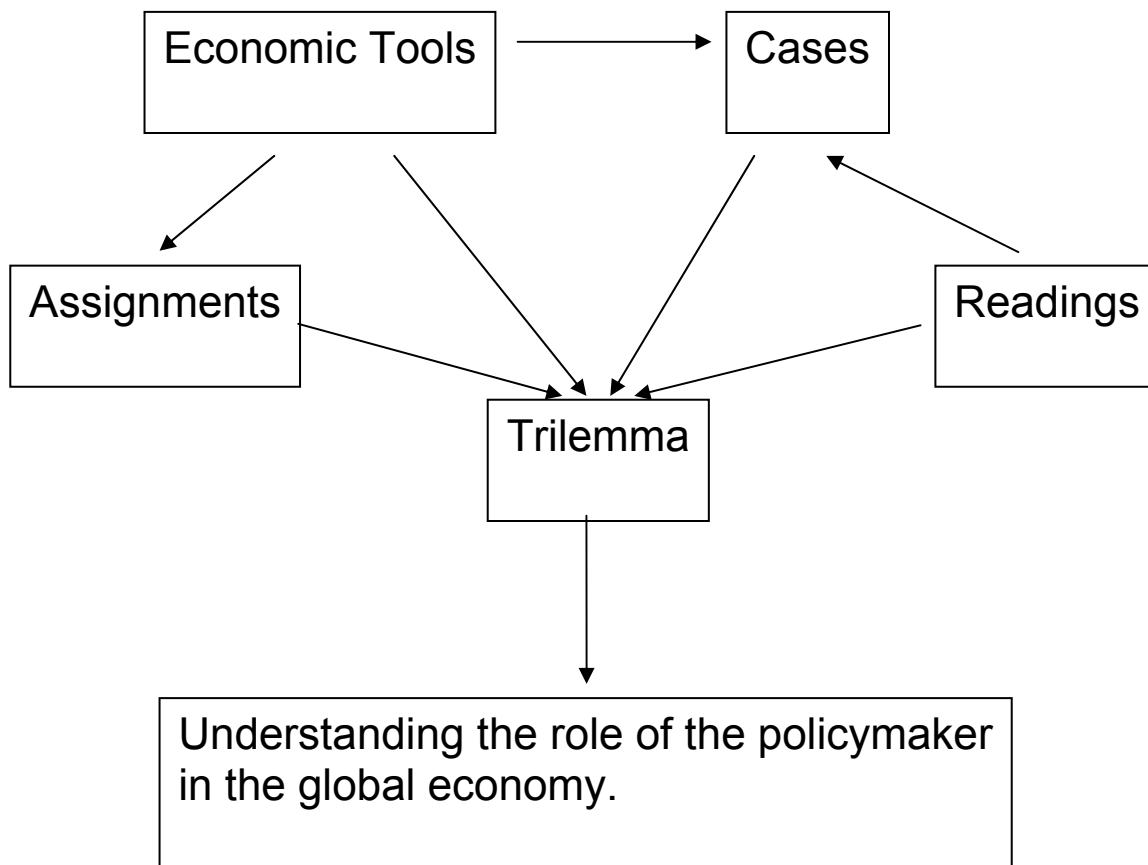


Figure 1