



TEACHING EFFECTIVENESS OF MACROECONOMIC POLICY USING INTERACTIVE SPREADSHEETS



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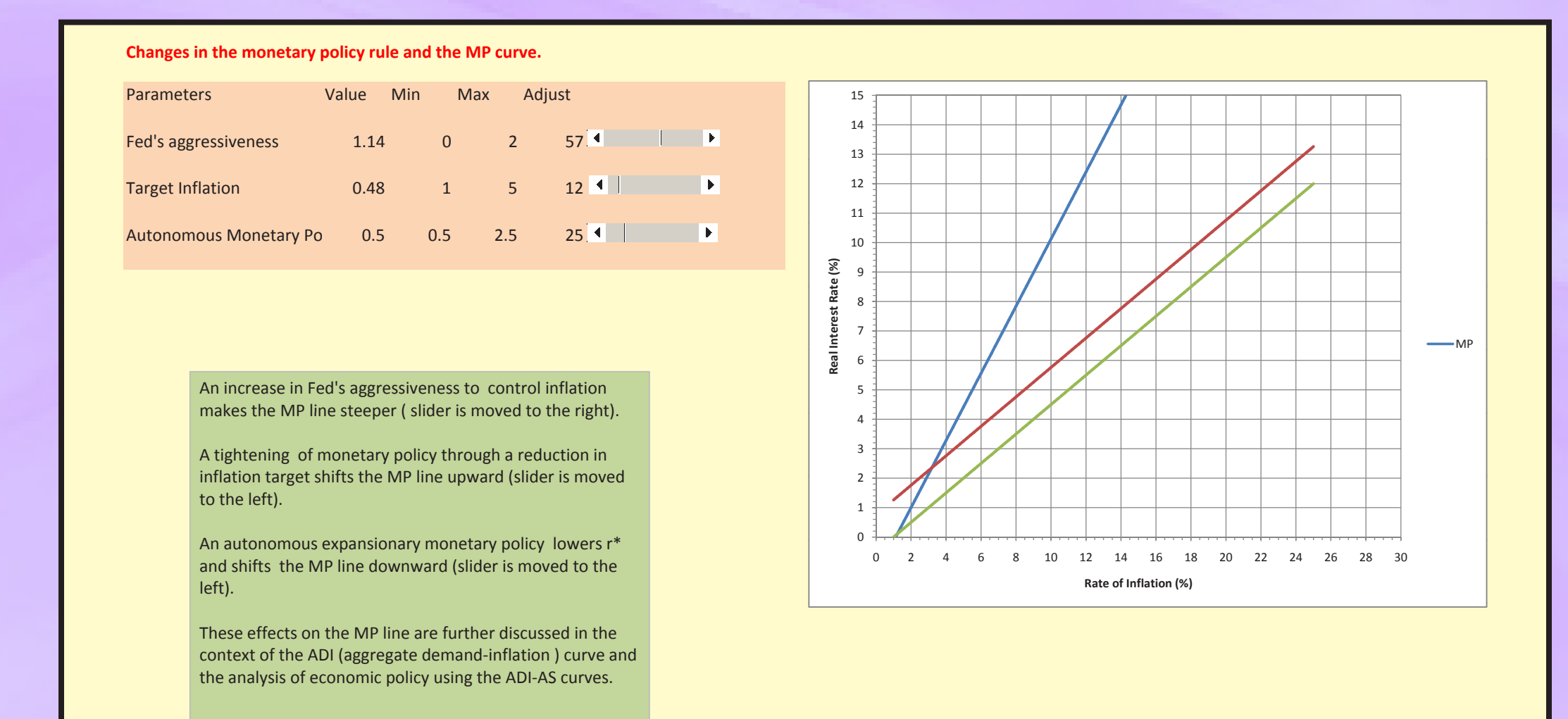
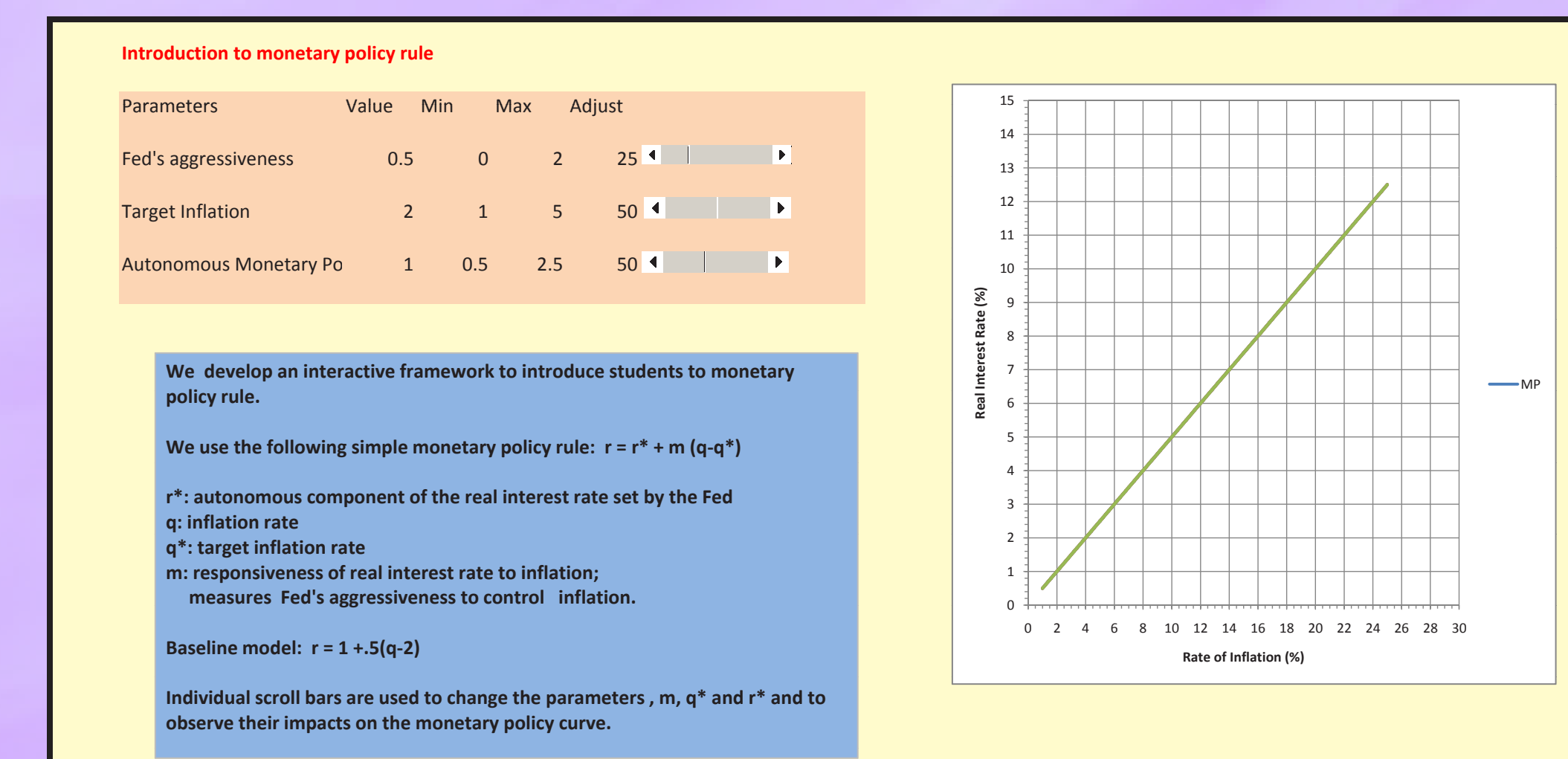
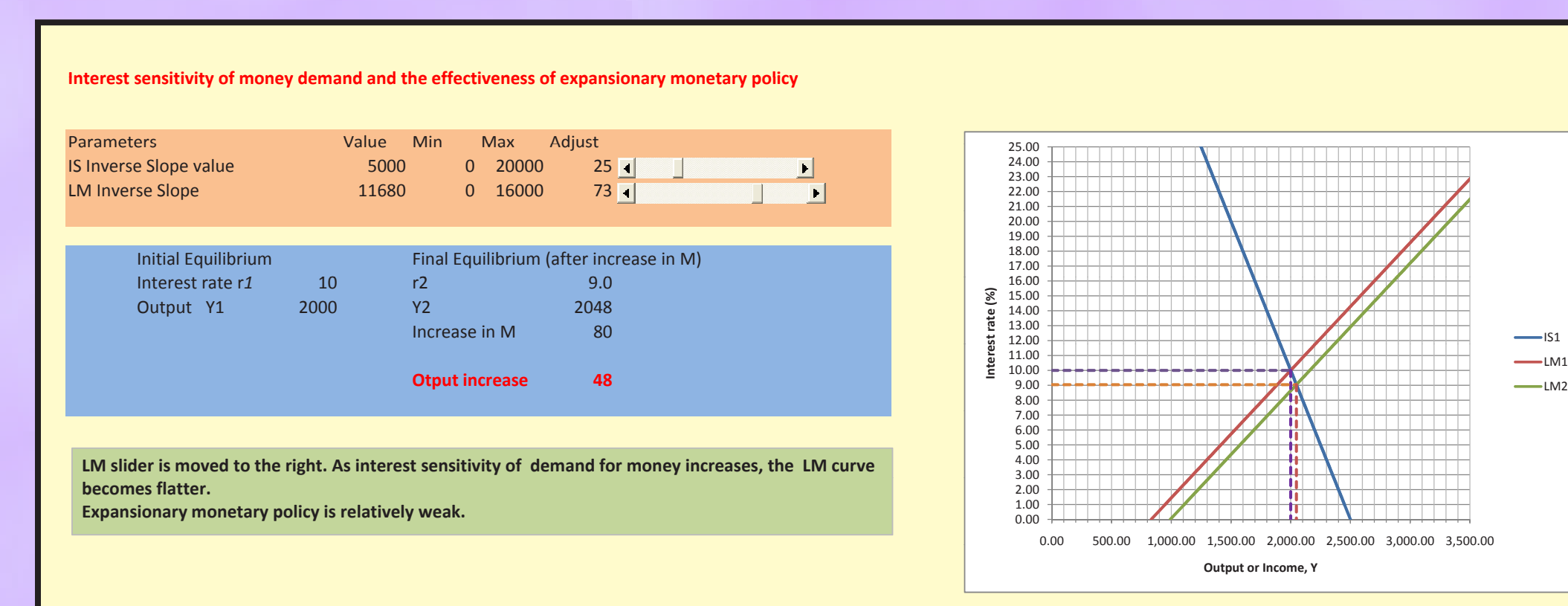
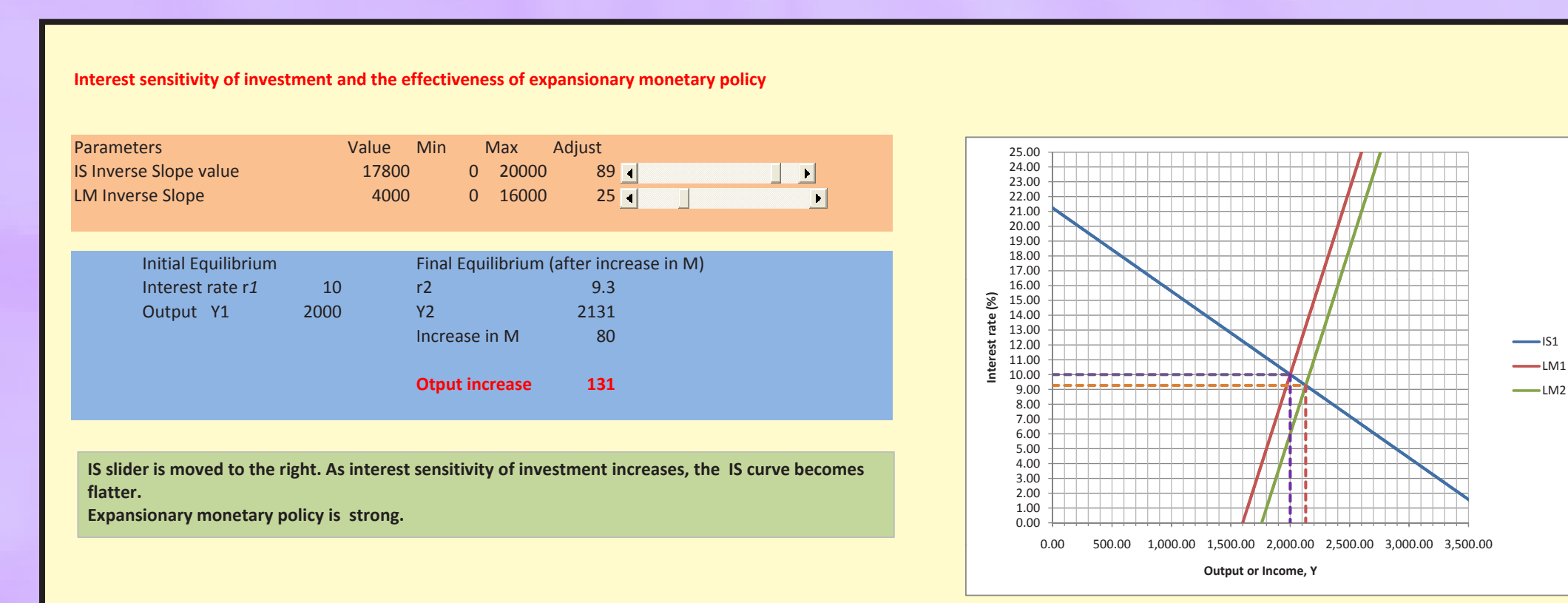
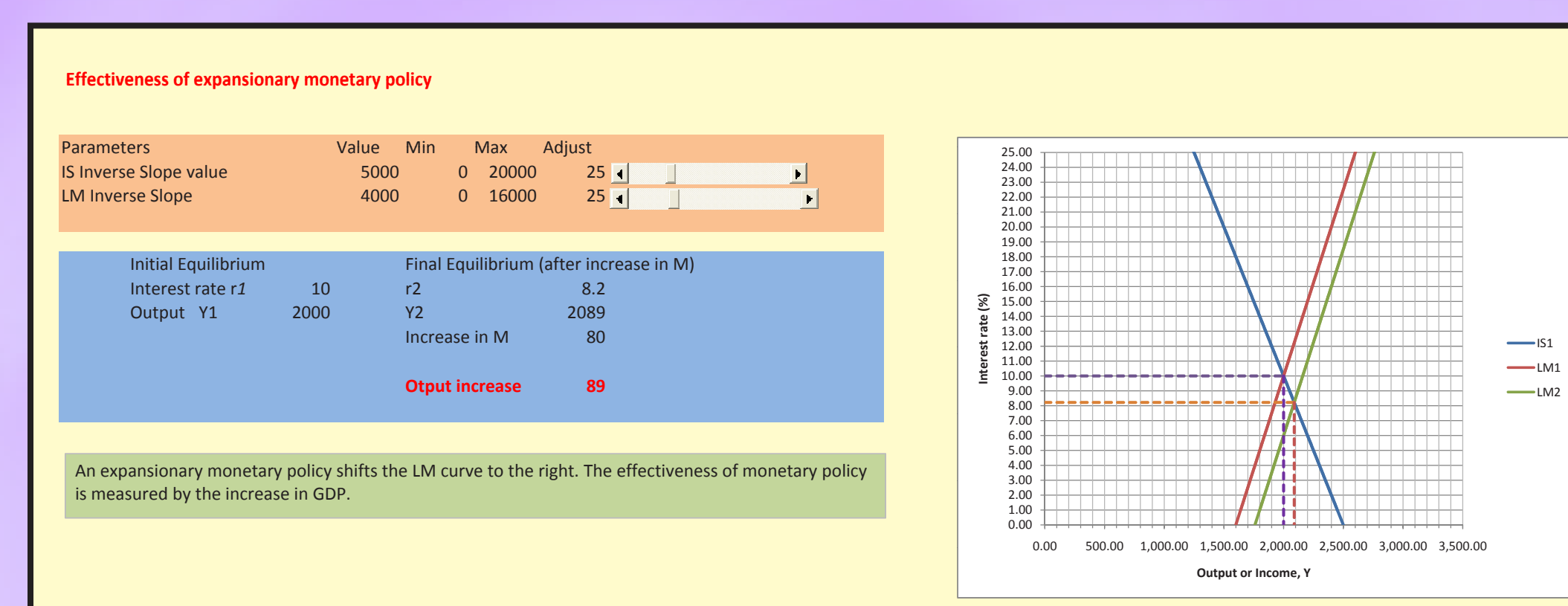
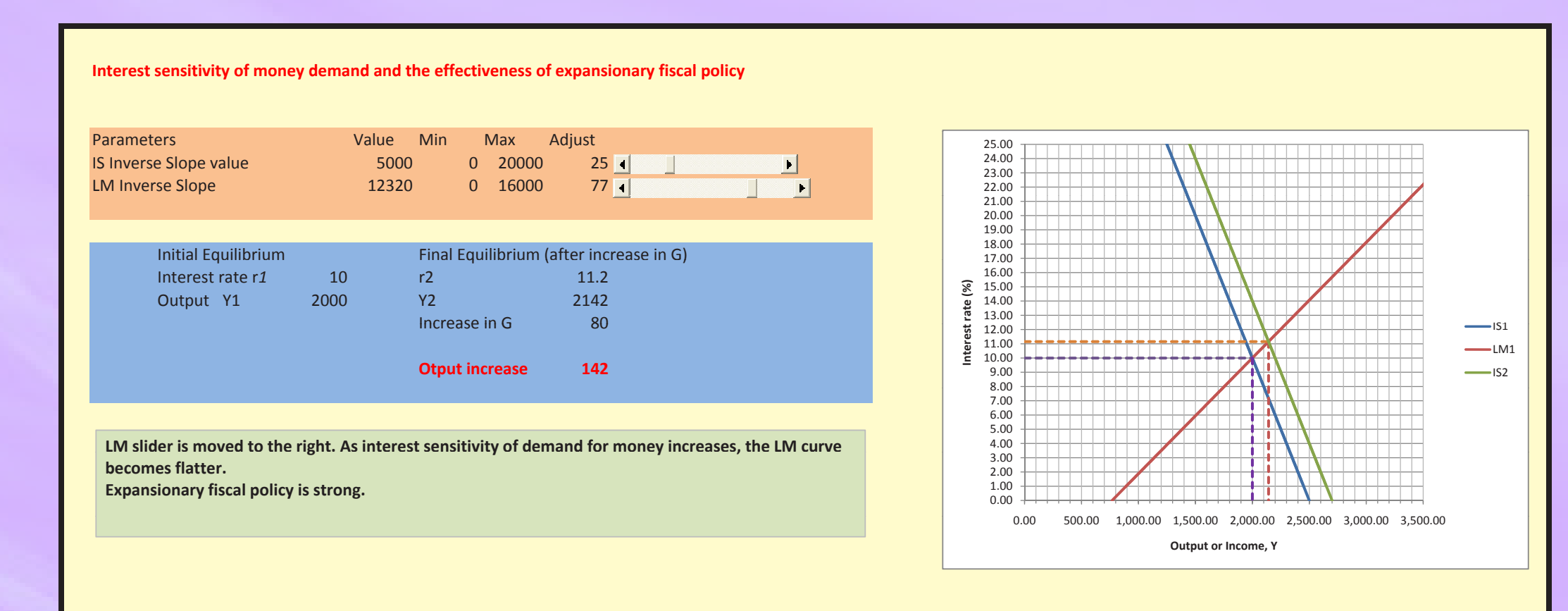
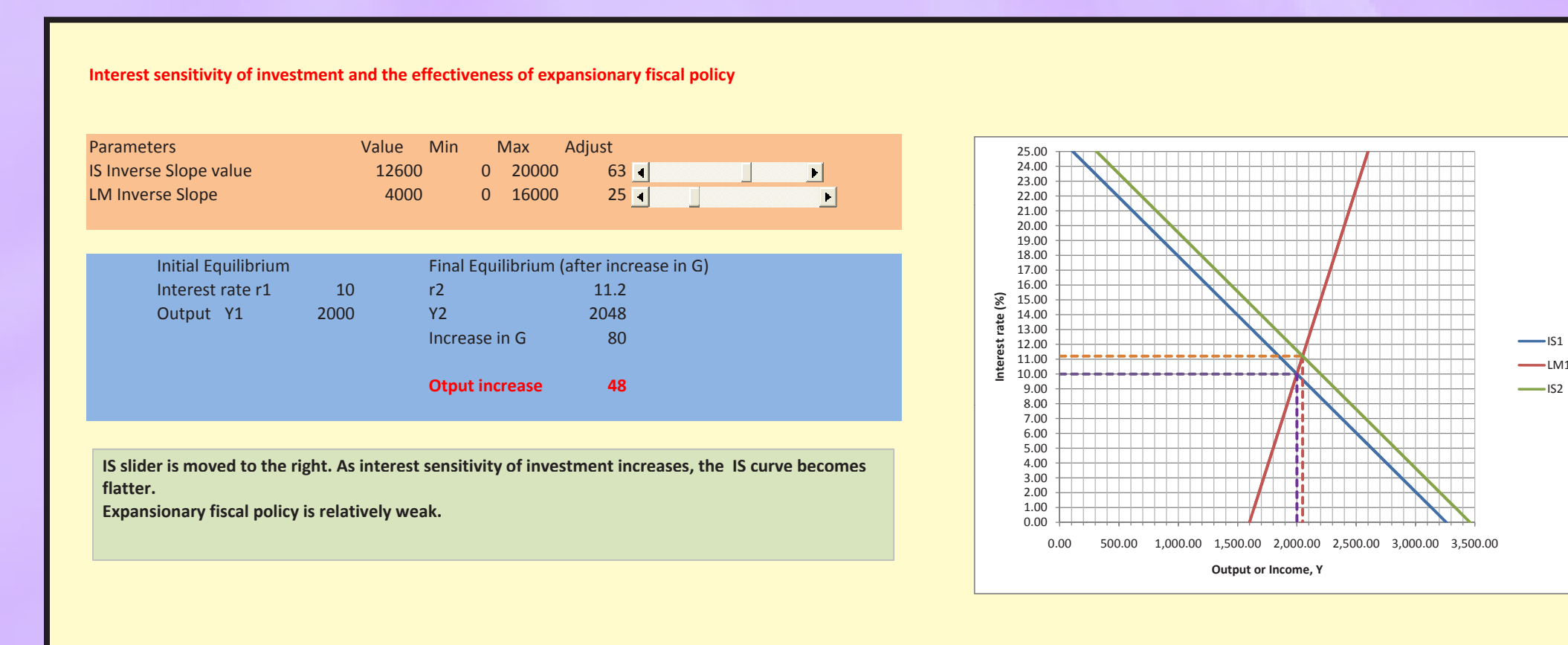
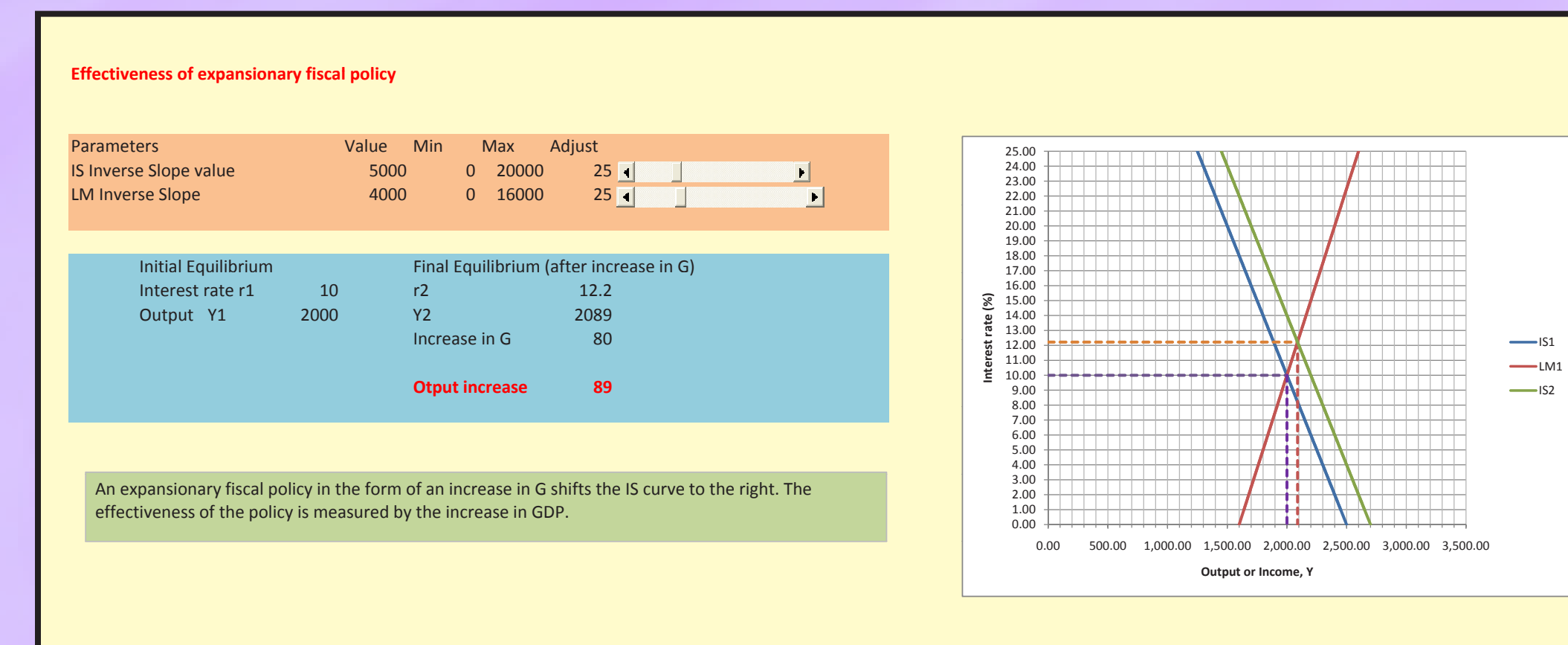
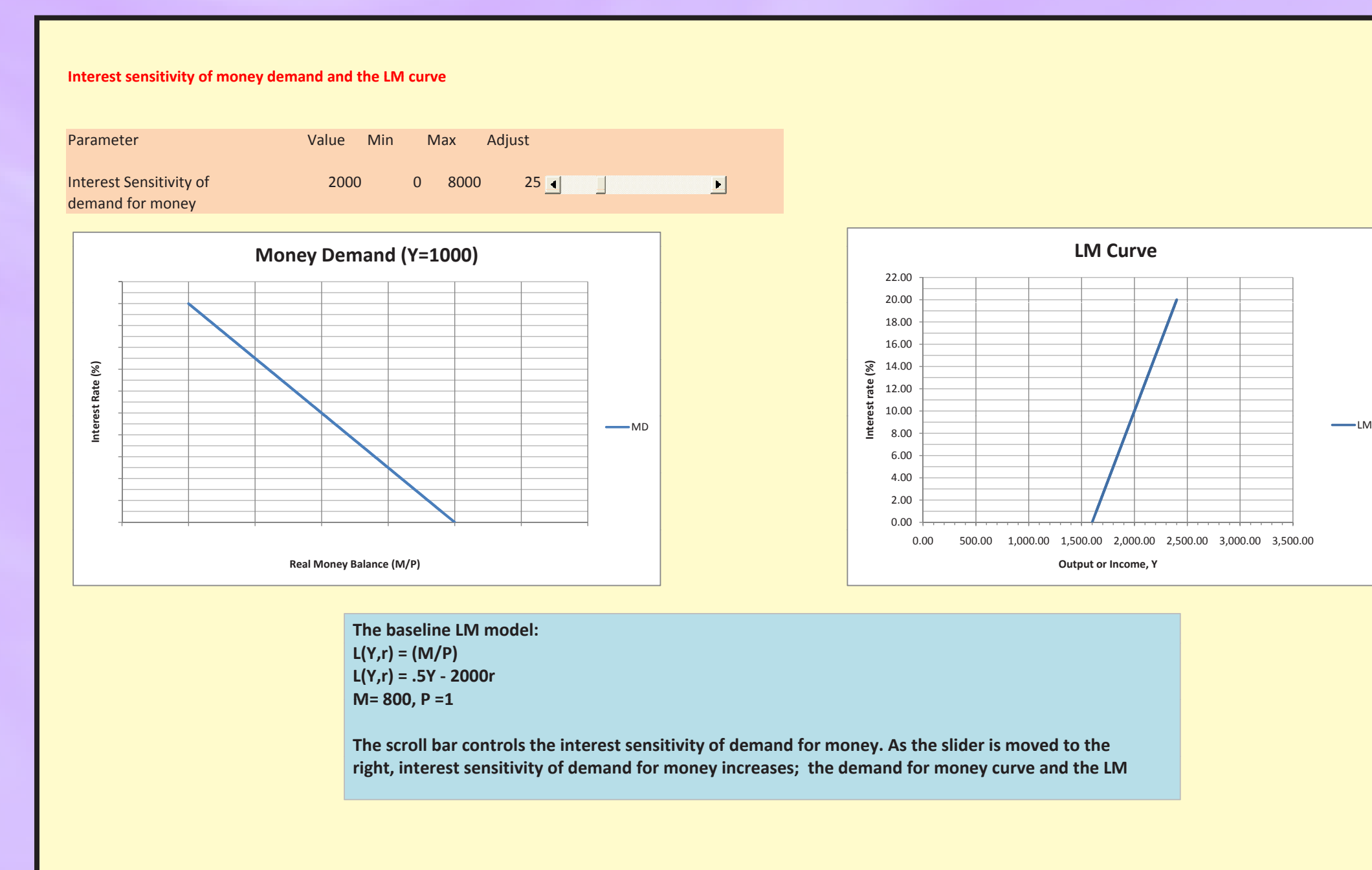
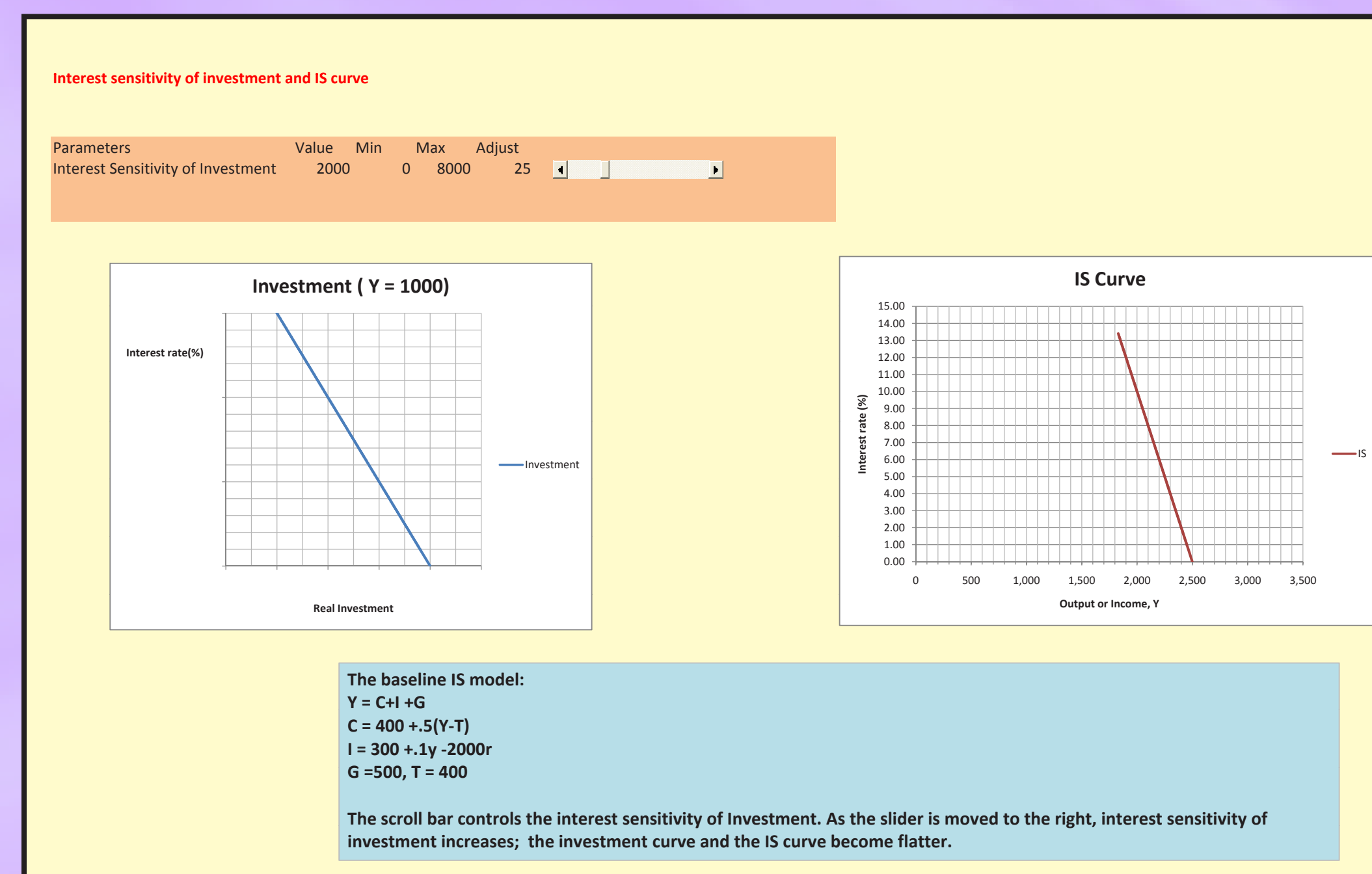
AEA/ASSA CONFERENCE, DENVER, COLORADO, JANUARY, 2011

Abstract

In an intermediate macroeconomics course students need to understand how economic policies work and how different factors, such as interest sensitivity or Fed's aggressiveness may influence the effectiveness of monetary and fiscal policies. Students often fail to understand the analysis of economic policies because they are rarely interested in graphical or algebraic analysis that are essential for a comprehensive discussion of the subject matter. To initiate student interest and to introduce them to analytical treatments of economic policies we have developed interactive graphs using a visual interface of spreadsheet applications. Students themselves control the graphs. By varying different parameters such as interest sensitivity of investment and demand for money or the target rate of inflation they generate numerous combinations of IS-LM and MP curves that help them understand the working of economic policies. They work on the graphs before the topic is formally taught. They complete a multi-part assignment designed to motivate them to analyze the working of monetary and fiscal policies.

Active learning framework with spreadsheet based interactive graphs

In our intermediate macroeconomics class we introduce the analysis of economic policy using spreadsheet based interactive graphs. Although we use Excel in our classrooms, we have developed the same framework using "Calc". For traditional analysis of economic policies we begin with a linear IS-LM model. Our goal is to focus on the interest sensitivity of investment and demand for money and examine their links to the slope of the IS and LM curve. Later we develop a similar graphical model to discuss monetary policy rules and examine the importance of Fed's aggressiveness or the target inflation rate for MP curve. To create an interactive graph that students can control we insert a "scrollbar" from Excel's toolbar (accessible from the Developer tab in 2007 Excel) on a work sheet that contains the IS-LM or MP models. We write a short macro so that the values of the parameter that we want to vary such as interest sensitivity of investment or the target inflation rate can be adjusted between a lower and an upper bound. the values In the next step we use the linked cell property of the control (the slider) of the scrollbar to link the slider to the parameter's cell on the worksheet. Students can now move the slider to the right or to the left to change the value of a parameter and examine its impact on the IS, LM or the MP curves. Finally they use the same parametric adjustments to analyze the effectiveness of monetary and fiscal policies as measured by the size of the increase in GDP. Furthermore, the entire exercise becomes totally dynamic and interactive and students maintain complete control of their learning process. They remain engaged and become better motivated and prepared for analytical discussions of monetary and fiscal policies.



Finally students complete the following multi-part assignment that is based on a different linear IS-LM model.

Assignment

- Consider the interactive IS-LM model.
(a) On the worksheet for the investment and IS curve, starting from the default position move the slider for interest sensitivity of investment to five distinct positions and observe the impact on the investment curve and the IS curve. Record the values of interest sensitivity of investment and the slope of the IS curve. Provide economic reasoning for the emerging pattern.
(b) Repeat the above steps for interest sensitivity of demand for money and the slope of the LM curve using the worksheet for the money demand and the LM curve.
(c) On the worksheet for the expansionary fiscal policy, move the slider for the IS slope and the LM slope separately to collect distinct five sets of data points for increase in GDP. Provide economic reasoning for the emerging graphical and numerical pattern linking IS-LM slopes to the effectiveness of fiscal policy.
(d) Repeat the above steps as in (c) for expansionary monetary policy using the expansionary monetary policy worksheet.

Learning Outcomes

Results of these exercises have been very encouraging. We used the assignment in an Intermediate Macroeconomics class of 45 students. 89% correctly explained the link between interest sensitivity and effectiveness of fiscal and monetary policy, before the subject was formally taught.

Student Interest

We conducted an anonymous survey to gauge student reaction to these exercises rather than traditional lectures. 30 students participated in the survey. 29 felt that the exercises helped them understand the topic better and they preferred to have more of such assignments.