



## Teaching Note

*For use by instructors only*



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## 1. Introduction

Econland is a learning platform and simulation game designed to teach students about Macroeconomics in an engaging way. When playing Econland, students learn about how the economy works by understanding the economic environment, making economic policy decisions and analyzing the results of economic policy decisions. In addition to the simulation game, the Econland platform contains a range of resources that provide support for learners.

This Teaching Notes contains the key information for required by instructors to use the Econland simulation game and accompanying learning platform.

## 2. Target Audience and Learning Objectives

The target audience of Econland includes anyone with an interest or need to learn Macroeconomics. Users of Econland include College or University students taking an Introduction to Economics or Economics Principles course, High School students preparing for AP tests, A-Levels, International Baccalaureate or other exams, or professionals needing to learn key economic concepts and the consequences of economic policy decisions. The use of Econland can be adapted by the instructor to fit the level of each group of learners.

Econland is designed to support the most commonly used Introductory Macroeconomics course curricula throughout the world. Macroeconomics courses typically cover economic concepts such as Gross Domestic Product, Unemployment, Inflation, Budget Deficits, Productivity, Aggregate Demand & Aggregate Supply (ADAS) and Monetary & Fiscal Policy. When students reach the topics of Aggregate Demand & Aggregate Supply and Monetary & Fiscal Policy, it is often a challenge for instructors to deliver this theory in an engaging way.

The simulation game brings economic policymaking to life for students by letting them understand the economic environment of their country, make monetary and fiscal policy decisions, and analyze the consequences of their decision making. At the same time, using Econland consolidates student understanding of underlying economic concepts taught at earlier stages of an Economics course (including GDP, Unemployment, Inflation, Budget Deficit). Please refer to the Glossary for a full list of the concepts covered in the game.

At a deeper level, Econland develops critical thinking and problems solving skills. It offers the opportunity to learn about modeling and system dynamics.



### 3. How to Play

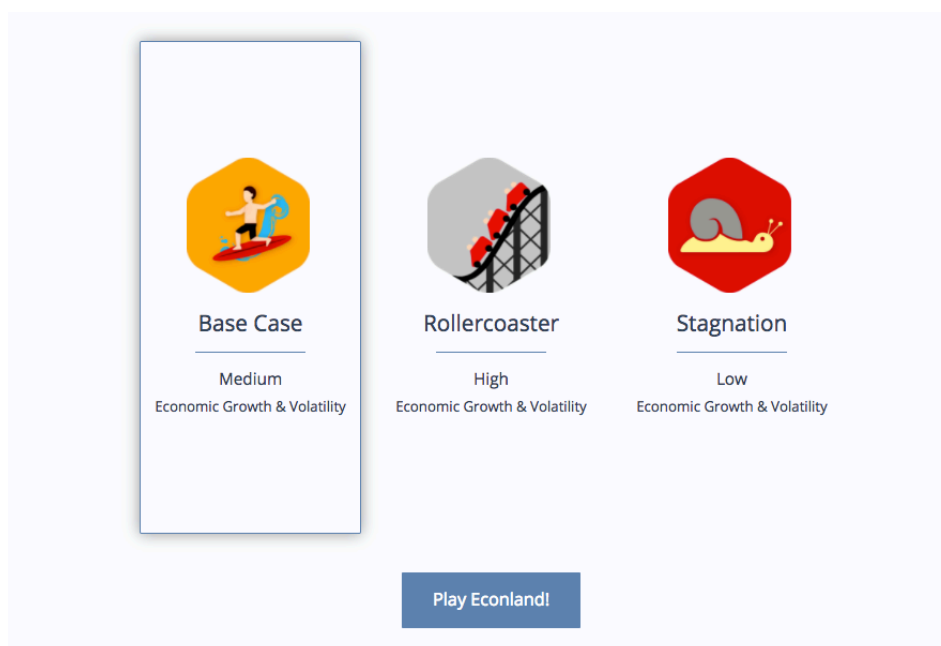
In EconLand, students manage the economy of a medium sized country. For a period of seven rounds (= years), players make economic policy decisions (Monetary and Fiscal Policy) for their country in order to make the population happy about the economy. The four decisions that students make during each round of the simulation game are:

- Interest Rate
- Income Tax Rate
- Corporate Tax Rate
- Government Spending

The population of Econland cares about their incomes, employment prospects and cost of living. In addition, the government must keep its budget deficit under control. These factors are measured by the following four results areas:

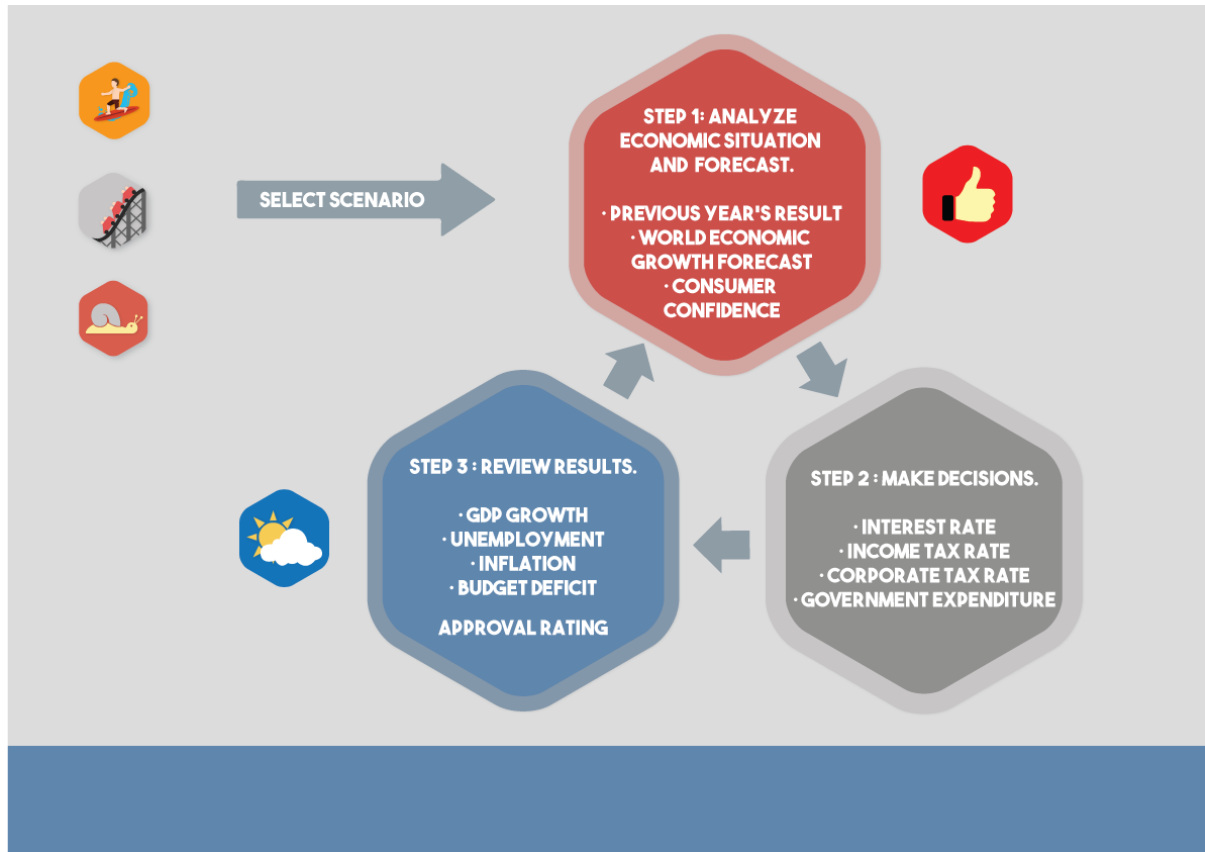
- GDP growth
- The Unemployment Rate
- The Inflation Rate
- Budget Surplus (or Deficit)

At the start of the game, players choose one of the three scenarios for the volatility of the external economic environment: Base case (average volatility), Rollercoaster (high volatility) or Stagnation (low volatility). Each Scenario has a somewhat different text describing the external economic environment. Initially, students should choose the Base Case scenario. After they have played the game at least once, they can choose one of the other scenarios, which introduce variety and a greater level of challenge to the simulation.





After choosing a scenario, for each of the seven years of the game, players go through the three steps shown in the picture below.







Each year, players receive information on the economic conditions facing the country. These are summarized in the World Economic Growth Forecast and the Consumer Confidence Index. After studying the economic conditions and outlook, players make four economic policy decisions. Then players analyze their results, key economic data, followed by the World Economic Growth Forecast for the next year and the Consumer Confidence Index level, before making new policy decisions. The game lasts seven years.

The aim of the game is to obtain the approval of the citizens by maximizing Real GDP Growth, while keeping the Unemployment Rate and the Budget Deficit as low as possible. Inflation also needs to be low, but should remain positive. Negative Inflation (Deflation) is destabilizing for an economy.

Every round, 0, 10 or 25 'approval points' are given for each of the four results areas. The approval points are given according to the table below.



	 25 POINTS	 10 POINTS	 0 POINTS	 STARTING POSITION
REAL GDP GROWTH %	> 2.5%	> 1%	< 1%	US\$ 100 BILLION (GDP)
UNEMPLOYMENT RATE %	< 5%	< 8%	> 8%	5%
INFLATION RATE %	< 3%	< 5%	> 5% OR < 0%	2%
BUDGET DEFICIT (AS % OF GDP)	< 3%	< 6%	> 6%	3%

Taken together, the approval points for each Round make up the overall approval rating (0 - 100 points), which represents the proportion of the country's population that approves of the chosen economic policies. The overall objective of the game is to end up with the highest possible Average Approval Rating at the end of Year 7.

The Dashboard page provides a summary of the results obtained and gives feedback on the player's decisions and results. Players need to take these feedback comments into account before making decisions for the next Round.

The Reports page provides important insights into the functioning of the economy, including data on the components of GDP, productivity and the exchange rate. Analyzing the data in the Reports section is key to making well informed decisions in future Rounds.

When the game is finished, the View Previous Runs page shows the game result ranked against any other previous games played.



#### 4. When to use Econland

When used as part of a Macroeconomics course, Econland can be introduced to students in the latter part of the course, around the time when Aggregate Demand & Supply and Monetary & Fiscal Policy are treated. The simulation game serves to support learning of these concepts and to help students consolidate all their prior learning during the course in preparation for a comprehensive exam or project.

Similarly, Econland may be used in professional training courses after the main Macroeconomic concepts have been introduced.

Econland is not a substitute for an initial explanation of course topics but serves to reinforce learners' understanding in an engaging way.

The simulation game can be used during one or several class sessions. The minimum time required to do a full brief-play-debrief session is one hour (provided all the concepts have been covered in the course previously).

An agenda for a one hour class may look as follows:

- Introduction & brief 15 minutes
- Game play 30 minutes
- Debrief 15 minutes
- Quiz (optional) 10 minutes

After a first time of playing Econland in class, students may continue to play the game and use the learning materials outside class, or during one or several subsequent classes.

#### 5. How to Run a Class

As with all business simulations, teaching with Econland should follow a Brief – Play – Debrief cycle. Before the briefing, the instructor needs to ensure that all students have access to their username, password and link to the game. Students may self register if they have access to the class url through their instructor or they may have received their username and password directly from Econland.

Before starting, the instructor is advised to play the game several times and to make a decision about whether to change any of the fiscal multipliers in the Setup section (see Instructor Section below). First time users of Econland will usually leave these multipliers at their default values.

In the Brief phase, teachers make sure that students are familiar with the concepts that are practiced in the game and with the rules of the game. In order to check if the relevant topics



are understood, the teacher may do a demo run of the game in front of the class and show the Glossary of terms available under the Macroeconomics Resources tab.

When playing the game for the first time, players should be advised to select the base case scenario.

Once the briefing is complete, students can start analyzing and making decisions. When students have played one full game (7 years), they may try to raise their score in the same scenario or play one of the two alternative scenarios (Rollercoaster and Stagnation).

When the play phase is complete, the teacher can debrief by facilitating a discussion about the learning points of the exercise. This can take place at different levels, depending on the time available and the level of the class. At a minimum, students can share how monetary and fiscal policy decisions, in combination with the external economic variables, resulted in the outcomes they obtained. A discussion can also be had on the mechanisms by which monetary and fiscal policy lead to their impact. This includes the variables of capital stock, productivity and exchange rates that are shown in the Reports tab. A deeper discussion can be held about the model itself: Does it work in the way that participants expect? Are there important elements missing from either the decisions or the results section? All elements of the class discussion enable the instructor to link the experience of the simulation back to the curriculum of the Macroeconomics course.

Finally, the teacher can point students towards the additional learning resources. The Econland quiz can be administered before and/or after use of the simulation game in order to practice and test students' knowledge of the concepts used in the game. The news site (Econlandnews.com) can be used in class and as part of assignments or projects that students do to apply their knowledge and skills to real economic issues. The forum and video materials provide further support.

## 6. Overview of Screens

There are five main pages in Econland. Players can navigate from one page to another at any time by clicking the navigation buttons on top of the screen.

1. *Game Info*: The Game Info page explains the objectives and rules of the game.
2. *Decisions*: Players review the economic outlook for the next year. The outlook consists of a description of global economic conditions, a World Economic Growth Forecast and the Consumer Confidence Index. It is summarized in a 'weather forecast' picture which ranges from sunny, partly cloudy, cloudy to rainy. After reviewing their previous year's results and the economic conditions and outlook, students make four Monetary and Fiscal Policy decisions (Interest Rate, Income Tax Rate, Corporate Tax Rate, Government Expenditure).





### Year 1 Economic Forecast

Last year Econland's GDP was US\$ 100 billion, making the economy roughly the size of Puerto Rico or Hungary. Econland is affected by global economic conditions but it is too small to impact the global economy in return.

Last year, the world economy did well and Econland experienced solid economic growth (2.4%). Unemployment is low (5%) and inflation (at 2%) and the budget deficit (2.8% of GDP) are under control.

The outlook for next year is moderately positive, with the International Monetary Fund (IMF) predicting world economic growth of 2.4%. The Consumer Confidence Index is at its long term average of 100

**Forecast World Economic Growth %**

2.4

**Econland Consumer Confidence Index**

100



**Interest Rate: 3%**

0%  7%  
Last year's interest rate: 3%

**Income Tax Rate: 24%**

0%  50%  
Last year's income tax rate: 24%

**Corporate Tax Rate: 32%**

0%  50%  
Last year's corporate tax rate: 32%

**Government Expenditure:**

Last year's government expenditure: \$30 billion

Students can see how each of their decisions affects different variables in the simulation model by reading the tooltips that are visible when hovering the cursor over a decision area, as shown below.

failed to  
ave been  
f both businesses

**The Interest rate impacts Consumption, Investment and the Exchange Rate (which in turn affects Imports and Exports)**

**Interest Rate: 3%**

0%  7%  
Last year's interest rate: 3%

he  
low  
) be 2.5%.

**The Income Tax rate impacts Consumption and Government Revenues.**

**Income Tax Rate: 24%**

0%  50%  
Last year's income tax rate: 24%

h %

**The Corporate Tax Rate impacts Government Revenues and the level of Investment (which in turn affects the Capital Stock and Productivity Growth).**

**Corporate Tax Rate: 32%**

0%  50%  
Last year's corporate tax rate: 32%



dex

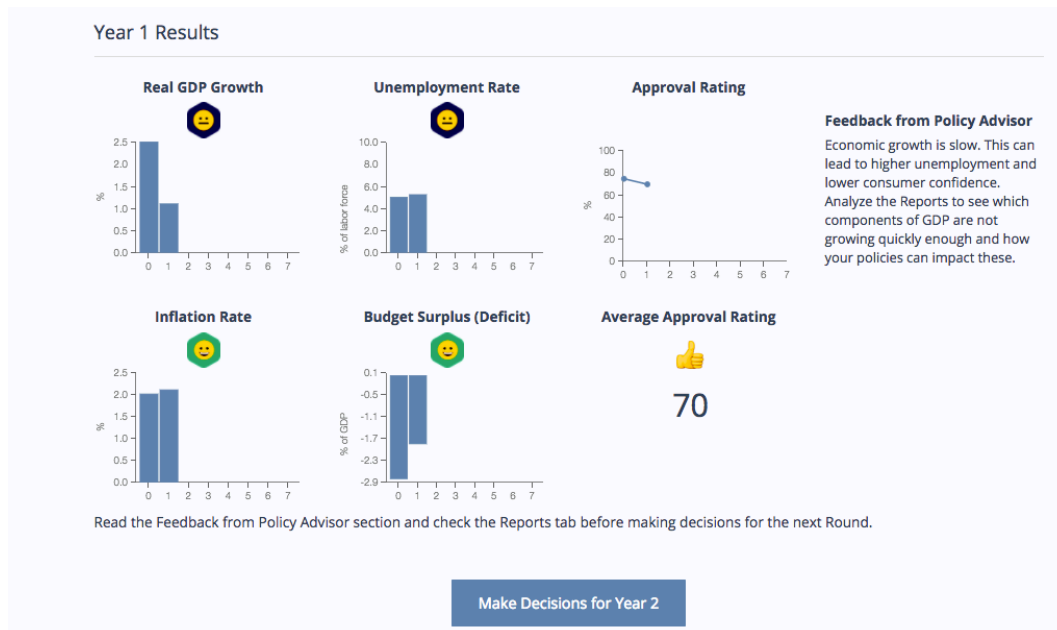
Government Expenditure impacts the level of GDP and the Budget Deficit.

Government Expenditure:

\$30 billion

Last year's government expenditure: \$30 billion

3. *Dashboard*: Shows results along the four results areas (GDP Growth, Unemployment, Inflation, Budget Deficit) as well as written feedback provided by the Policy Advisor based on the player's decisions and results. The smileys for each results area show whether the player obtained 0, 10 or 25 points for the year. The graph shows the approval rating for each year of the game and the average approval rating for the duration of the game is shown as a number.



4. *Reports*: The Reports section includes three tables:

- *Table 1: Real GDP and its components*. A breakdown of GDP into its components (Consumption, Government Expenditure, Investment, Imports and Exports). The total level of GDP is provided in both Nominal and Real terms.
- *Table 2: Other Macroeconomic data*. Contains data on intermediary variables that help students understand the results they obtain. (see Model section for further explanation).
- *Table 3: Economic environment, Decisions and Results*. Includes data on the world economic growth forecast, decisions taken by the player and results obtained for all the round played.



Year 3 Results

**Table 1: Real GDP and its Components**

	Year 0	Year 1	Year 2	Year 3
Consumption	60.0	64.0	68.9	73.0
Government Expenditure	30.0	30.0	34.0	35.0
Investment	10.0	10.0	11.4	12.1
Exports	25.0	25.6	26.3	26.9
Imports	25.0	26.7	28.7	30.4
Nominal GDP	100.0	102.9	111.9	116.6
Real GDP	100.0	100.3	107.1	107.6

**Table 2: Other Macroeconomic Data**

	Year 0	Year 1	Year 2	Year 3
Capital Stock US\$ Bn	100.0	100.0	101.4	103.3
Productivity growth %	0.0	0.0	1.3	2.0
Consumer Price Index	100.0	102.7	104.5	108.4
Exchange Rate Index	100.0	100.0	100.0	100.0
Trade Balance US\$ bn	0.0	-1.1	-2.4	-3.5
Income Tax Revenue US\$ Bn	24.0	24.7	26.8	28.0
Corporate Tax Revenue US\$ Bn	3.2	3.3	3.2	2.9
Government Budget Surplus (Deficit) US\$ Bn	-2.8	-2.0	-3.9	-4.1
Government Debt US\$ Bn	60.0	62.0	65.9	70.0
Government Debt as % of GDP	60.0	60.2	58.9	60.0

**Table 3: Economic environment, Decisions and Results**

	Year 0	Year 1	Year 2	Year 3
Global Economic Growth Forecast	2.4	2.4	2.8	2.2
Consumer Confidence Index	100.0	103.5	100.3	106.3
Interest Rate %	3.0	3.0	3.0	3.0
Income Tax Rate %	24.0	24.0	24.0	24.0
Corporate Tax Rate %	32.0	32.0	29.0	25.0
Government Expenditure US\$ Bn	30.0	30.0	34.0	35.0
Real GDP Growth %	2.5	0.3	6.8	0.5
Unemployment Rate %	5.0	5.6	3.5	3.4
Inflation Rate %	2.0	2.7	1.8	3.7
Budget Surplus (Deficit) as % of GDP	-2.8	-2.0	-3.9	-4.1

Make Decisions for Year 4



5. *Macroeconomics*: The Macroeconomics tab contains access to a range of learning materials and tools. These are described in Section 7 below.

## 7. Macroeconomics Learning Section

The Macroeconomics section contains several educational resources that support students in learning about the Macroeconomic concepts practiced in the simulation game and beyond. The Macroeconomics section is divided into three sections.

### 1. *Overview*

The Overview page contains a brief description of the Macroeconomic theory practiced in the simulation game. It contains an outline of Monetary and Fiscal Policy, the Aggregate Demand and Aggregate Supply model, as well as the objectives of economic policy in the game (GDP growth, Unemployment, Inflation, Budget Deficit).

### 2. *Glossary*

The Glossary page includes an explanation of all the economic terms and concepts used in Econland. The terms are explained in such a way that they are relevant for both the purpose of playing the Econland simulation game and for a Macroeconomics course. The Glossary section in Econland is provided in the Appendix.

### 3. *Resources*

The Resources section consists of four types of resources that support students in the learning of Macroeconomics:



1. *Videos*: Contains direct links to instructional videos about the Macroeconomics topics covered in Econland.



2. *Econland News*: A newsletter that brings the real world into the study of Economics with the week's most interesting Economics news stories. Each article illustrates current applications of topics covered in Economics courses of all levels. Econland News appears every Friday and is sent to subscribers automatically and free of charge.



3. Forum: A moderated discussion forum where students can ask questions and find answers on everything related to the study of Economics.



4. Quiz: A test bank of Multiple Choice Questions on Macroeconomics that practice the concepts used in Econland. Questions are at a level typically found in Introductory Macroeconomics courses at College/University level. Each time the student takes the test, ten questions are taken at random from the test bank. After completing the test, students get their score and a brief explanation of the answer to each question.

## 8. The Instructor Section

Registered instructors have access to three screens to support their role:

1. The Teaching Note page contains summary information on how to use Econland.
2. The Set Up page enables instructors to impact the model of Econland by changing the values of the Tax multipliers and Government Spending multipliers, at different levels of overcapacity in the economy (as measured by the unemployment rate). This section also contains a link to a study by the IMF that summarizes research on multipliers.

Discussing the appropriate values for multipliers can be a useful exercise in class. Students and instructors may have different opinions regarding the relative effects of tax reductions or increases in government spending to stimulate the economy.

3. The Class Summary provides details of all games played by students in the group of the instructor. The information includes the name of the player, date and time of the game played, the scenario chosen, number of years played and the final score (Average Approval Rating) obtained. Instructors may view details of the final year results of the game and delete any game record if they wish.

## 9. Technical Requirements

Econland functions on personal computers (Windows and Mac OS) as well as tablets and smartphones. Econland works on all common browsers.



Beginning players are advised to start on a computer or tablet in order to have full view of the functionalities on offer. People with some experience of Econland will be able to use the Econland on smartphones.

## 10. The Econland Model

Instructors may receive questions from students who are trying to explain their results. For this purpose, it is useful for instructors to have knowledge of the underlying model of Econland. However, it is *not* advised to share the model with students since it would reduce the opportunity to consolidate their economics knowledge and critical thinking skills.

In the Econland model, two environmental conditions (World Economic Growth Forecast and the Consumer Confidence Index) and the four economic policy decisions, have an impact on the four results areas, either directly or indirectly through intermediate variables. The relationships in the model are summarized in the table below.

Input / Decision	Intermediary Variable	Result area(s)	Description of impact
Forecast World Economic Growth		Consumer Confidence Index	Positive (i.e. higher Forecast Economic Growth increases Consumer Confidence)
Forecast World Economic Growth	Exports	GDP Growth	Positive (i.e. higher Forecast Economic Growth increases Exports and GDP growth)
Consumer Confidence Index	Consumption	GDP Growth	Positive (i.e. higher Consumer Confidence increases Consumption and GDP growth)
Consumer Confidence Index	Investment	GDP Growth	Positive (i.e. higher Consumer Confidence increases Investment and GDP growth)
Real Interest rate	Consumption	GDP Growth	Negative (i.e. higher Real Interest Rate lowers Consumption and GDP Growth)
Real Interest Rate	Investment	GDP Growth	Negative (i.e. higher Real Interest Rate lowers Investment and GDP Growth)
Interest Rate	Consumer Price Index	Inflation	Negative (i.e. higher Interest Rate lowers Inflationary pressure)
Interest rate	Exchange Rate Index	Exports, Imports and GDP Growth	Higher Interest Rate increases the Exchange Rate Index, leading to lower Exports and higher Imports, which reduces GDP Growth
Income Tax Rate	Consumption	GDP Growth	Negative (i.e. higher Income Tax Rate lowers Consumption and GDP Growth). Size of effect depends on value of Multiplier.
Income Tax Rate x GDP	Income Tax Revenue	Budget Surplus (Deficit)	Positive (i.e. higher Income Tax Rate increases Income Tax Revenue and Budget Surplus)



Corporate Tax Rate	Investment	GDP Growth	Negative (i.e. higher Corporate Tax rate reduces Investment and GDP Growth)
Corporate Tax Rate x Corporate profits as % of GDP x GDP	Corporate Tax Revenue	Budget Surplus (Deficit)	Positive (i.e. higher Corporate Tax Rate increases Income Tax Revenue and Budget Surplus)
Government Expenditure		GDP Growth	Positive (i.e. higher Government Expenditure increases GDP Growth). Size of effect depends on value of Multiplier
Government Expenditure		Budget Surplus (Deficit)	Negative (i.e. higher Government Expenditure reduces Budget Surplus)
Investment	Capital Stock	Productivity Growth, Consumption and GDP Growth	Positive (i.e. higher Investment increases Capital Stock, Productivity Growth and Consumption and GDP Growth)
GDP Growth		Unemployment	Negative (i.e. higher GDP Growth reduces Unemployment)
GDP Growth	Consumer Confidence (next year)		Positive (i.e. higher GDP Growth increases Consumer Confidence for the next year)
Productivity Growth	Consumer Price Index	Inflation	Negative (i.e. higher Productivity Growth decreases Inflationary pressure)
Unemployment	Consumer Price Index	Inflation	Negative (i.e. a higher Unemployment rate decreases inflationary pressure)



## APPENDIX: Glossary

The Glossary (available in Econland under the Macroeconomics tab) explains the key concepts used in the simulation game in a way that is relevant to both the game and a standard Macroeconomics course.

**Budget Surplus (Deficit):** The difference between government revenues (as collected through income taxes and corporate taxes) and government expenditure. The Budget Surplus or Deficit is usually expressed as a percentage of GDP.

**Consumer Confidence Index:** A measure of how optimistic consumers feel about the state of the economy. An index score of 100 indicates consumers are feeling neutral about the economy. The higher the score, the more optimistic they are.

**Consumer Price Index:** A measure of the cost of a typical basket of goods bought by a consumer. The index is set at a value of 100 in the base year and is recalculated each year based on the existing prices for the same basket of goods.

**Corporate Tax Rate:** The percentage of profits that firms need to pay as tax to the government.

**Deflation:** Deflation occurs when the inflation rate is negative and the average price level in an economy is falling. Deflation can encourage consumers to postpone their consumption in anticipation of lower prices and can lead to a severe recession.

**Exchange Rate Index:** The value of the country's currency against a basket of other currencies, with the Index set at a value of 100 in the base year. If the value of this Index increases, the value of the country's currency has gone up (appreciated). Conversely, if the value of the index decreases, the value of the country's currency has decreased (depreciated).

**Fiscal Policy:** Fiscal Policy includes the government's decisions with respect to Government Expenditure and Taxation. In Econland, the government decides on the total level of Government Expenditure, the Income Tax Rate and the Corporate Tax Rate.

**Government Spending Multiplier:** When the government increases its expenditure, the people or businesses who receive the additional expenditure will spend a part of this additional income which in turn increases the income of other actors in the economy, and so on. Therefore, GDP increases by more than the original increase in expenditure. This is referred to as the multiplier effect. How big the multiplier is remains open to debate. Generally, economists agree that the multiplier effect is larger when there is excess capacity in an economy (e.g. unemployment). Without excess capacity, increased government expenditure may just be 'crowding out' private investment.

**Gross Domestic Product (GDP):** The market value of all goods and services produced within a country in a given period of time. The components of GDP are Consumption + Investment + Government Expenditure + Net Exports. Net Exports consists of Exports – Imports.

**Income Tax Multiplier:** The Income tax multiplier works in a similar way as the government spending multiplier, except that it results from changes in the level of income tax rather than in government expenditure. Reductions in income tax can lead to increases in consumer expenditure that are





greater than just the additional disposable income as a result of the tax cut. This is because consumers will spend most of the additional income on goods and services. The recipients of this expenditure will in turn spend most of it, leading to a multiplier effect that is similar to the government expenditure multiplier.

**Income Tax Rate:** The percentage of their earned income that citizens of a country need to pay as tax to the government. Income Tax is separate from Sales Tax (also called Value Added Tax), which is a tax on consumption. Sales Tax is not included as an element in the Econland game.

**Inflation:** The percentage change in price level from one year to the next, as measured by the change in the Consumer Price Index

**Interest Rate:** In the Econland simulation game, the interest rate refers to the discount rate set by the Central Bank. It is the only instrument of Monetary Policy available in the game. Low interest rates stimulate investment, consumption and exports (through a depreciation of the exchange rate), but they can lead to inflation if the economy is close to operating at full employment.

**International Monetary Fund (IMF):** The IMF is a multilateral organization with its stated objectives being "to foster global monetary cooperation, secure financial stability, facilitate international trade, promote high employment and sustainable economic growth, and reduce poverty around the world." The IMF's activities include providing economic policy advice to governments and producing economic analyses and forecasts for every member country.

**Monetary Policy:** Monetary Policy refers to the actions taken to manage the Money Supply. Monetary Policy is the responsibility of a country's Central Bank (called the Federal Reserve in the United States). In the real world, Monetary Policy decisions can include setting the Interest Rate (Discount Rate), buying or selling Government Bonds by conducting Open Market Operations and setting the Reserve Ratio requirement for commercial banks. For simplicity, in Econland the only Monetary Policy decision to make is the level of the Interest Rate.

**Productivity:** The quantity of goods and services produced for each unit of labor input. Productivity is the main determinant of standards of living in a country. In the game, productivity can be increased through investment in the country's capital stock, which in turn is promoted through low interest rates and low corporate tax rates.

**Real GDP:** The GDP of a country after taking into account the effects of Inflation. Real GDP is usually measured as the GDP at constant prices, where the price level is fixed at the level of a certain base year.

**Unemployment rate:** The percentage of the labor force that is not employed and is actively looking for work. The labor force consists of all people who are either working or who are actively looking for work.