

# Step Up Education Outreach

# Microeconomics

Program Description



STEP UP SMART TECH & EDUCATION PROGRAM



## Step Up Outreach Microeconomics

### Program Description

#### Includes

- Program Framework
- Connection to Australian Syllabus
- Assessment Information
- Assessment Guidelines

Effective August 2024

THE OUTREACH PROGRAM DESCRIPTIONS ARE UPDATED PERIODICALLY  
Please visit Playeconomics (<https://playeconomics.com/>) to determine whether a more recent program description is available.

# About the UNSW STEP UP Initiative

The STEP UP@UNSW Initiative® aims to develop and sustain an innovative interdisciplinary Education portfolio that brings together large-scale collaborative outreach activities and rich academic research projects.

Founded in 2018 by Professors Isabella Dobrescu and Alberto Motta from the School of Economics at the University of New South Wales (UNSW), the STEP UP Initiative currently hosts two programs:

- the STEP UP Outreach Education Program®, and
- the STEP UP Academic Research Program®.

The **STEP UP Outreach Education Program** has been conducted by Lionsheart Studios on behalf of the UNSW School of Economics since 2022. The program aims to provide pre-tertiary education students with advanced access to introductory university courses and materials to positively impact school achievement and aspirations. In doing so, it also aims to (1) create genuine collaborative links with high schools interested in facilitating students' successful transition to higher education, and (2) support teachers in delivering advanced content through the interactive platform called Playconomics® - a rich, immersive, and academically rigorous learning environment that has been thoroughly developed, tested, and found to significantly improve student learning outcomes.

The **STEP UP Academic Research Program** has been hosted by the UNSW Business School since 2018. The program aims to provide crucial new evidence-based knowledge to inform socioeconomic responses to the 21st-century challenges in education, with a special focus on promoting sound decisions that close the educational attainment gap of vulnerable groups. Think of it as a laboratory committed to identifying 'what works' in education and narrowing educational achievement gaps.

*Why should we care?* Because - as an enormous body of evidence shows - education drives vital life-long outcomes such as income and poverty,

health, parenting, social isolation, and intergenerational equity. Eliminating racial and socioeconomic education disparities will lead to a more just and thriving society for all.

For further information, visit the STEP UP webpage <https://www.stepup.unsw.edu.au>.

## About Lionsheart Studios

Lionsheart Studios is dedicated to connecting students to educational success and opportunities through innovative interdisciplinary learning environments that use state-of-the-art technologies to advance and enhance learning. Founded in 2014 with the vision to expand access to quality education, Lionsheart Studios collaborates with a wide range of educational institutions worldwide to promote excellence, equity, and inclusion in education.

Lionsheart's flagship educational platform, Playconomics, helps students prepare for a successful transition to higher education by supporting and strengthening their learning through interactive, immersive, and engaging experiences.

For further information, visit the Playconomics website [playeconomics.com](http://playeconomics.com).

## What is Playconomics?

Playconomics is an educational platform that hosts and delivers several undergraduate and postgraduate courses at various institutions in Australia and abroad.

The backbone of these courses is the Playconomics video game, the first Massive Multiplayer Online (MMO) game worldwide that teaches a range of subjects - such as Business, Economics, Statistics, Renewable Engineering, and Pediatric Medicine - by allowing students to explore the inner workings of these disciplines at their own pace, and learn by directly experimenting with decision-making across a wide range of topics.

Besides their direct content teaching capabilities (tested through extensive lab and field research –

see <https://www.stepup.unsw.edu.au/research>), the Playeconomics MMO game also has the potential to increase overall literacy (related to language, mathematics, financial skills), planning, analytics, optimal decision-making, governance, emotional intelligence, and peer learning.

## Equity and Access Policy

The STEP UP Outreach Education Program places the highest priority on inclusivity and diversity within educational settings. We advocate for all motivated and capable students to have the opportunity to access advanced courses and interact with cutting-edge tools like Playeconomics, regardless of their ethnic, racial, or socioeconomic background.

Our mission is to break down the barriers that traditionally limit access to tertiary education for underrepresented groups.

As a society, we should aim to mirror the diversity of our pre-tertiary student body in university educational programs and create, at every step, opportunities for those who seek to achieve it. Providing rigorous and challenging coursework to all students before they engage with the university environment is essential for their success.

By focusing on equitable access and thorough preparation, we can foster an environment of true academic excellence and fairness, ensuring that every student has the chance to thrive.

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# About the STEP UP Outreach

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## Introduction

The STEP UP Education Outreach Program offers high school students the chance to complete university-level coursework across several subjects in different fields through the Playeconomics platform. To this purpose, we provide students access to the integrated multidisciplinary video game (Playeconomics), as well as its companion digital platform (Playeconomics Academia®).

STEP UP courses help students develop critical thinking, strong argumentation skills, and the ability to view issues from multiple perspectives, all of which are invaluable for university and beyond.

Participating in STEP UP courses signals to universities that a student has pursued the most rigorous curriculum available. Each course syllabus undergoes a review and approval process by distinguished faculty from leading universities. Several universities in Australia and abroad accept STEP UP scores for credit.

The Playeconomics game (or “the game” henceforth) and Playeconomics Academia (or “Academia” henceforth) have been used extensively in many university courses around the world. By providing high school students the opportunity to participate in this innovative university-level program, our outreach aims to enhance students’ understanding of the subjects, preparing them for advanced studies via an inclusive and engaging gamified approach.

## Playeconomics Game and Academia

The video game Playeconomics, developed alongside Academia, forms more than just a standard university course with a digital textbook. Instead, students engage with an immersive learning environment where multiple subjects are covered in a singular and unique virtual universe. Created by award-winning university professors with extensive background in both education and research, the game and Academia bridge the gap between

theoretical knowledge and practical application. To do so, the platform uses simulations of real-world scenarios to help students grasp complex concepts intuitively and engagingly. This method of teaching improves understanding, retention, and knowledge satisfaction.

Overall, the Playeconomics platform transforms the traditional educational process by making it interactive, dynamic, and multidisciplinary. Students are no longer passive recipients of information; instead, they actively participate in simulations that mimic real-world scenarios and decision-making. This hands-on approach helps solidify their understanding and also enhances the retention of complex concepts.

## Benefits for High Schools

### Equitable and Easy Access to Advanced Learning

There are only a handful of outreach programs worldwide, but they are already showing remarkable promise. Research indicates that students who perform well in these programs typically experience greater academic success in university and are more likely to earn a degree than those who do not participate. As of this writing, over 3,300 institutions globally - including the majority of four-year colleges and universities in the United States and Canada, as well as over 100 other countries - recognize and accept this type of outreach programs by often granting college credit, advanced placement, or both to students who achieve successful scores.

Our initiative stands out by addressing the traditional costs and burdens imposed on schools and teachers by these outreach programs. Unlike other programs, we do not require individual teachers to design their own curriculum, select appropriate readings, create

assignments, or provide resources. There is no need for schools to send teachers to training sessions, organise large-scale exams, or set up dedicated times and classes to run the program, nor do they need to mark the students' exams.

Our goal is to provide equitable and easy access for everyone. We offer flexibility, allowing teachers and schools to be as involved as they choose to, without any administrative costs or burdens that could limit access. While we support and encourage schools to implement their own curriculum if desired, we also provide a standardised approach that enables them to test the program's effectiveness without significant upfront investments.

For students, we emphasise the gamification of our content to lower barriers related to demographics and personal preferences. This approach reduces stereotype threats associated with certain subjects, making it easier for as many students as possible to participate effortlessly. We aim for schools to become increasingly excited about planning and collaborating with us year after year. We want students to engage with the program as if it were a leisure activity, transforming it into a valuable learning opportunity.

## Preparation for Higher Education

By integrating Playeconomics into their curriculum, high schools can better prepare students for university-level courses through the interconnection of syllabus outcomes to university course outcomes. The Playeconomics platform's rigorous and comprehensive content ensures that students gain a deep and practical understanding of the subjects, which is broadly advantageous for university admissions. In addition, universities that adopt fully or partially Playeconomics-based courses (including assessments) may also count students' high school coursework towards their university accreditation completion.

## Engagement and Motivation

The interactive nature of Playeconomics activities keeps students engaged and motivated throughout the program. The use of

gamification and real-time feedback makes learning fun and rewarding, which encourages students to pursue further studies in related fields. By interacting with the Playeconomics game and Academia, students easily gain the ability to classify information, construct arguments, and demonstrate their understanding. They are highly motivated to continue their learning journey.

# Program Development and Implementation

## Alignment with Educational Standards

Playeconomics courses have been developed over many years and align with current educational standards and best practices in education. The content is continually updated to reflect the latest research and developments in the field, which ensures that students receive a relevant and high-quality education. The exceptional potential of Playeconomics is its ability to capture this quality education through a gamified channel, which students find engaging and memorable, while exposing them to multiple subjects in a truly multidisciplinary fashion. Also included in this document is Playeconomics' connections to multiple Australian course syllabuses, further emphasising its close alignment with educational standards.

## Flexible Curriculum Integration

High schools can integrate Playeconomics courses into their existing curricula with ease. The platform offers a flexible structure that allows students to engage in self-led learning, which can occur outside the classroom or within, all dependent on teacher preferences. In addition, there are strong links between Playeconomics courses and existing Australian high school syllabuses. Whether it can be used as a primary teaching tool or a supplementary

resource, it enhances educational understanding.

Playconomics is also highly multidisciplinary, and many of the lessons students will learn by playing the game will provide them with stronger problem-solving and critical thinking skills in a wide range of fields.

## Key Assessment Strategies

1. Multiple-Choice Questions (MCQs henceforth): They test students' knowledge of fundamental concepts delivered in each chapter of Academia.
2. Short Answer Questions (SAQs henceforth): These require students to provide brief, focused responses. SAQs have the potential to also be peer marked by students that provides another layer of both learning and community building, as well as further taking some of the stress of coordinators and teachers.
3. The Playconomics Game: The immersive component of Playconomics (i.e., the video game) is designed to evaluate students' ability to apply theoretical economic concepts to real-world scenarios, with feedback provided in real time. Several Playconomics Planet Trials also allow students to focus on specific concepts in a "virtual lab" type of learning environment.

These assessment strategies help students demonstrate their understanding of key concepts, analyse situations, and justify their conclusions in a way that is personal and highly relevant. By using a wide variety of assessment tools, STEP UP courses are designed to ensure

that all students have the opportunity to succeed.

## The Future of the STEP UP Outreach

### Expanding Horizons

We are continuously working to expand the reach of the STEP UP Education Outreach Program. By partnering with more schools and educational organisations, the program aims to bring the initiative to an even broader audience. Future plans include developing additional content, enhancing the platform's features, and exploring new ways to engage students in economics and business, engineering and medical education. This expansion will help more students develop critical thinking skills, and apply their knowledge in meaningful ways.

### Ongoing Innovation

Innovation is at the heart of the STEP UP Education Outreach Program. We have been and will continue to be dedicated to maintaining the Playconomics platform at the forefront of educational technology, incorporating the latest advancements to improve the learning experience. This commitment to innovation ensures that the Playconomics game and Academia will continue to be valuable educational tools for years to come. In addition, staying up to date with educational trends and technological advancements allows the program to keep students engaged, motivated, and prepared for future challenges.

# Resources and Support

## The Playeconomics Game

The Playeconomics game has a focus on presence learning, allowing students to engage in a social, open-ended, and multidisciplinary course within a shared virtual world.

The key feature of the game is precisely this virtual world through which key concepts can be explored and discovered in real-time. This promotes social interaction and collaboration, providing a community-based learning approach.

The game also integrates various disciplines, emphasising real-world applications of various theories through the Planet Trials feature, which in turn improves the problem-solving and critical thinking skills of students.

## Academia

Academia is a key part of the Playeconomics platform that provides students with a comprehensive interactive experience that reinterprets standard Multiple Choice and Short Answer assessments.

Academia also features real-time data tracking of aggregate and disaggregate student performance easily accessible to both students and teachers. This element can greatly assist in assessing students' understanding of concepts and quickly identifying areas where they need further support, ensuring a thorough comprehension of the course material.

### COURSE BLUEPRINTS

Detailed course blueprints available on the

STEP UP Education Outreach Program webpage and in this publication outline all the necessary content and skills for each course. These blueprints organise the curriculum into manageable learning blocks, suggest pacing and sequence, scaffold skill development across units, and offer tips for succeeding in the program.

### PROGRESS CHECKPOINTS

Each learning block includes formative questions that help students identify areas needing improvement. These Progress Checkpoints, accessible online, consist of multiple-choice questions (MCQs) with explanations for correct and incorrect answers, and short-answer free-response questions (SAQs) with scoring guidelines. As formative assessments, these checkpoints are designed solely for student self-improvement and not for grading or teacher evaluations unless desired otherwise.

### PROGRESS MONITORING TOOL

This tool allows teachers to track the progress of their class and individual students throughout the program. Teachers can identify trends and pinpoint where students are struggling with content and skills relevant to the program. Students can also monitor their own progress to enhance their performance.

### STEP UP EXAM QUESTION BANK

An extensive online repository of authentic exam questions - the STEP UP Exam Question Bank - allows teachers to access and create custom tests. These questions are categorised by course topics, enabling teachers to design practice tests that can be easily administered online or on paper. Students benefit from practising with real exam questions and receiving feedback on their responses.

### GAME INTEGRATION

The Playeconomics game is seamlessly integrated with Academia in the form of a progress dashboard. This dashboard allows coordinators to have a broad view of student

performance and skills and, as a result, adopt learning paths based on how students are progressing. This adaptive approach will personalise the educational journey, making learning more effective by aligning challenges and content with individual learning needs.

# Digital Activation

## Student Access

All STEP UP courses can be accessed through the Playeconomics platform. To gain access, students will need to register for an account at playeconomics.com to maintain their progress. As part of the registration process, they will be asked for an email address, which will become their username.

**PROTECTING PRIVACY:** To protect the students' identities and minimise opportunities for any third party to contact them directly, the STEP UP Outreach team will assign each participating student a random unique student ID and associated email address (e.g., z1234567 and z1234567@student.stepup.edu.au). These program-issued email addresses will be entirely non-functional except for their role in allowing students to register for and access the Playeconomics platform. Teachers will provide these details to their students, who will only need to use these program credentials throughout the program.

## Teacher Access

Teachers will undergo a similar digital activation process but will use their school-based email addresses to establish the link to their students on the Playeconomics platform. Once the digital activation process is complete, students and teachers will have access to the complete suite of STEP UP courses available for a particular term, including all

supplementary resources and support to facilitate learning. Teachers will also be able to track their students' progress online through digital reports sourced from the automatically collected data on the Playeconomics platform. This data will provide a timely and readily available snapshot of individual progress, as well as the aggregate levels of engagement for each class.

## Data Policy

We note that the data collected through the Playeconomics platform during the STEP UP program will only be used to ensure the program's successful deployment and evaluate its impact. This data will only be reviewed in an anonymized format. Specifically, (1) a broad summary of the program progress and survey information, where available, that does not identify any participating schools and students, might be shared with institutions such as the Education Unit of the Reserve Bank of Australia, the NSW Department of Education, and other educational bodies, and (2) fully anonymized data might be used for secondary research purposes to evaluate the program's effects.

## How to Sign Up

Students and teachers begin by signing up on playeconomics.com to create their personal user account on the Playeconomics platform. For students, this will be their program-issued email address. For teachers,

this will be their school-based email address. The sign-up process only needs to be completed once for students and teachers to have full access to the Playeconomics platform and courses.

Once students and teachers create their playeconomics.com account, they will immediately see the available STEP UP courses on their dashboard and, from there, will be able to access all the Playeconomics resources (game and Academia) for each course.

**ACTIVATION STEPS:** Below is an example of the steps that a student may go through to complete digital activation and access Playeconomics:

1. Register for an account at playeconomics.com.
2. Select the STEP UP course that you would like or are registered by your teacher to take.
3. From the course dashboard you will be able to access the Playeconomics game by clicking the "Download game" button; extract the game by right-clicking on the downloaded file and selecting "Extract All".
4. After extraction is complete, double click Playeconomics.exe to launch the game; log into the game with the email address and password you used to register for your Playeconomics account.
5. From the course dashboard you will also be able to access all the online course materials (including the ebook and educational videos), as well as the assessments by clicking the "Launch online course" button.

6. The course dashboard will also provide access to the pdf of the course textbook by clicking the "Access textbook" button; note that you can also download and keep the textbook pdf even after the program completion.
7. Note that students and teachers can access Playeconomics at home or alternatively schools can set up free access PCs.

While the digital activation process takes a short time for student and teachers to complete, it helps save time and provides the following benefits:

- **Access to resources and support:** Teachers have access to resources specifically designed to support instruction and provide feedback to their students as soon as activation is complete.
- **Customisation:** Program coordinators will have access to chapters, surveys and scenarios so that they can customise the learning environment for participating students.
- **Student grouping:** Students can be categorised and sorted according to a wide variety of metrics via detailed leaderboards to easily see where a class is up to in content and skills.
- **Targeted reports:** Program coordinators will be able to generate overall reports that include data on each participating class in a timely manner. Teachers will be able to do the same for their classes.

# Educational Plan

Our objective with the STEP UP Education Outreach Program is to offer a variety of viable and low-cost methods that require minimal effort from both students and teachers to access advanced material across a wide range of subjects.

## Step 1: Play

**IMMERSIVE PLAY:** One of the most engaging ways to start the STEP UP Education Outreach Program is by diving directly into the Playconomics game. Designed to be self-explanatory, the game features built-in tutorials, eliminating the need for teacher preparation or scaffolding. This approach, termed "emergent learning," allows students to explore the game freely, blending leisure with education. Whether played in the classroom or at home, this immersive experience encourages exploration and spontaneous learning, similar to how students engage with games like Minecraft.

### BUILDING A LEARNING COMMUNITY:

The multiplayer aspect of the Playconomics game is particularly powerful, fostering a sense of community and collaboration. Students join and inhabit simulated planets together, motivating them to return to the game to see how their peers are progressing or to build something collectively. This social learning environment, where students co-create a persistent virtual world, promotes engagement and a sense of ownership over their learning experience.

### A SELF DIRECTED ACHIEVEMENT SYSTEM:

Playconomics is designed with a

self-directed achievement system already incorporated to guide students through their learning journey. This system builds a scaffold of objectives that students need to achieve to progress in the game. The objectives are grouped into thematically relevant achievements, often tied to social development goals that encompass diverse subjects such as economics, business, engineering, science, and medicine. This cohesive approach helps students understand how large-scale problems can be addressed through interdisciplinary actions, reflecting the overarching goals of the STEP UP Education Outreach Program.

Guided by these achievement and objective systems (familiar to students from their experiences with other video games) students can progress through learning blocks and develop specific skills and abilities, even without direct instruction. The game's multiplayer environment provides a constantly changing landscape, offering endless scenarios and complex problems for students to solve. This naturally fosters applying concepts and skills in a way that mirrors real-world challenges.

The achievements themselves are considered valuable educational outcomes. They represent significant progress toward course completion, even before introducing more structured approaches like classroom instruction or traditional homework. This allows students to keep track of their progress in real-time and understand how their actions contribute to the learning goals.

**COMMUNITY EVENTS:** Additionally, students can participate in Planet Trials - timed events outside the persistent

universe of the game. These events, scheduled around specific calendar dates, focus on particular concepts and offer opportunities for collaboration and competition with other students. Planet Trials gently nudge students to explore multiple learning paths while providing an engaging scaffold for participation.

This system ensures that learning is both structured and enjoyable, blending educational objectives with the immersive and interactive nature of gaming, thereby enhancing students' overall learning experience.

**NATIONAL TOURNAMENTS AND AWARDS:** The game ensures complete anonymity while offering detailed aggregate (i.e., school-level) and disaggregate (i.e., individual-level) leaderboards. This setup enables us to host real-time national tournaments, highlighting top-performing individual students and showcasing teamwork at the school level. The inclusion of school-level leaderboards adds excitement, competition, and social networking to the gaming experience.

Crucially, the program prioritises minimising undue stress on students. To achieve this, both individual and school names are fully anonymized, preventing program participants from identifying specific winners or their associated institutions. Each year, we recognize and reward the highest achievers with a special UNSW ceremony held on campus to celebrate their accomplishments.

## Step 2: Teacher Planning

After the initial exploratory phase, teachers can begin instructional design planning. They can review the course blueprints to identify specific learning blocks they wish to cover. These blueprints provide a comprehensive overview of the topics, concepts, and skills required for each learning block. Teachers can use this framework to develop a structured learning plan, incorporating suggested learning approaches that include both gameplay activities and traditional exercises such as multiple-choice and short-answer tasks.

## Step 3: Active Teaching

The next step involves actively teaching the content. Teachers can use the resources available in Playeconomics Academia and the game to integrate learning blocks into classroom instruction or as homework assignments. For instance, teachers might assign planet trials - competitive and cooperative exercises with specific objectives - to help students understand different concepts by comparing the outcomes of planets with slight variations, e.g., different tax systems or energy policies.

**DISCUSSION AND ANALYSIS:** Following the planet trials, teachers can facilitate classroom discussions to analyse the outcomes. Students can compare their experiences, discuss who performed well and why, and explore the impact of different modifiers on their planets. This phase helps students deepen their understanding by linking their in-game

experiences to the concepts outlined in the course blueprints.

#### ASSIGNMENTS AND PEER LEARNING:

Finally, teachers can also assign other specific homework tasks related to the game. These might include answering MCQs, writing short essays on their gameplay experiences, or recording and analysing their play sessions. This open-ended assessment strategy encourages critical thinking and reflection. Peer learning can also be incorporated, where students review and discuss each other's work, significantly reducing the grading burden on teachers and exposing students to diverse perspectives.

By following these steps, the STEP UP Education Outreach Program creates a dynamic and engaging learning environment that blends interactive gameplay with rigorous academic content, fostering both enjoyment and educational growth.

## Step 4: Track Progress

Students can check their measure of understanding within both the Playeconomics game and Academia. Teachers also have access to Academia's admin tools to check a student's overall progress. Specifically,

- Planet leaderboards in the Playeconomics game display each student's rank alongside other players based on certain success milestones.
- Playeconomics platform converts a student's in-game progress into Play Coins, which is also displayed

on Academia for a comprehensive view on one's progress.

- High school teachers and subsequently university lecturers can access Academia (and the Playeconomics game) to check a student's progress within each course chapter and also view their Play Coins tally, their Student Metre rank, the Academia points accrued in MCQs and SAQs, as well as overall stats regarding their learning progress in the course.

## Step 5: Test

Students can test their knowledge within Academia, where further learning support, MCQs and SAQs are located. Additionally,

- Learning support is readily available in the form of chapters that contain written and video explanation of principles and concepts.
- Each chapter further contains review and revision questions for students to attempt and check their understanding and knowledge.
- All review and revision questions are accompanied by detailed solutions for students to self-check their work and fill any gaps in their understanding.
- Additional practice questions are located in every chapter to provide a supplementary level of testing; these questions can also be used in the classroom as an extra resource.

# The STEP UP Microeconomics Course

The STEP UP Microeconomics course is a university-level course that introduces students to the principles of economics that can be applied to the functions of economic decision-makers. This program also cultivates students' understanding of the operations of product and factor markets, distributions of income, market failure, and the role of government in promoting greater efficiency and equity in the economy. At the end of the course, students will be able to understand how individuals or firms make decisions about the demand or supply of a product, how we can determine the efficiency of a market, and how we evaluate the costs and benefits of government intervention in a market among other things. Students learn to read and use graphs, analyse and graph data, and describe, explain and apply economic concepts. Furthermore this program can be integrated into Commerce, Business Studies and Economic subjects to elevate the learning experience of students.

## University Course Equivalent

The STEP UP Microeconomics course is equivalent to a one semester introductory university course in microeconomics. The program is partnered with many universities such as the University of New South Wales and Monash University, where students in introductory courses use this game to learn the foundations of economics.

Students in high school undertaking this course will have completed and earned university course credits for ECON101: Microeconomics, giving a head start for students pursuing economics in tertiary education, either as a full degree or as part of a Business and/or Commerce degree or as a general education course in their non-Business degree.

## Prerequisites

There are no prerequisites for the STEP UP Microeconomics course.

Students should only be able to read a university-level textbook and possess basic mathematics and graphing skills.

High schools have full discretion on adopting further requirements if necessary.

## Our Collaborators



# **STEP UP Education Outreach Program: Microeconomics**

## **Program Framework**

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# Introduction

The STEP UP Microeconomics course integrates interactive gameplay with standard coursework to establish the essential concepts, skills, and knowledge that leading universities and higher education institutions consider when awarding credits for introductory economics courses.

This course is designed to equip students with the mindset of economists, enabling them to analyse scenarios and make decisions from the perspective of various types of economic agents. Through the immersive world of the Playeconomics game, students can observe economic principles and models in action, experiencing firsthand the complexities of different economic setups, decision-making processes, and the emerging financial and economic outcomes. The course's flexible framework provides an innovative approach to learning economic content and skills, allowing the topics to evolve dynamically in response to real-world events rather than adhering to a rigid curriculum.

While the course is designed to offer a cutting-edge learning experience, it remains closely aligned with university-level outcomes and the high school curricula for Commerce, Business Studies, and Economics. The goal is to enhance and build upon the learning already taking place in the classroom. Additional resources and support are available to students through Academia, a comprehensive Learning Management Platform that facilitates self-directed study.

High school teachers have the flexibility to decide how much class time to allocate to this course and to the program overall, allowing them to tailor the experience to fit their specific educational objectives.

The course will be a useful option for students interested in pursuing any post-HSC schooling involving economics courses with partnered universities and institutions.

# Course Blueprint:

## Learning Blocks, Playing Blocks and Competencies

Our course blueprint emphasises two crucial aspects of the program: competencies and the structure of our learning / playing blocks.

### Competencies

These refer to the abilities, skills, and capabilities essential for the study and practice of economics. These competencies are cultivated through active engagement with our educational process.

### Learning Blocks

These can be understood as the course content, which we organise in a manner consistent with the standard approach employed by top universities and colleges worldwide. We present this content in a sequence that integrates it into a flexible learning environment. This is the type of content that universities and colleges expect students to master in order to succeed in these subjects.

Our content focuses on the major problems and challenges currently faced by the world. We break down these current topics into manageable building blocks, enabling students to perform informed analyses of the world around them. These building blocks are designed based on our extensive experience with university students and our discussions on the topics that resonate

deeply with them. We strive to emphasise these topics as much as possible, as well as highlight the wide range of situations where they come into play. The ultimate goal of this program framework is to offer a comprehensive and precise outline of the requirements needed for student success.

### Playing Blocks

The learning blocks outlined in this course blueprint are seamlessly integrated into a unified virtual environment within the Playeconomics game. This allows students to visualise how these knowledge blocks interact with one another, a feature that is often lacking in standard educational designs. Typically, in conventional courses, students progress chapter by chapter, with new ideas and models replacing the old content. In contrast, the Playeconomics game presents all the content blocks and knowledge simultaneously within a cohesive simulation. This approach offers students the unique opportunity to peruse the material and immediately apply the competencies they gained by making decisions in a dynamic environment. Success in this setting requires a blend of abilities, skills, and capabilities, thereby enhancing the learning experience.

Our course blueprint allows teachers to cross-match gameplay and standard learning blocks together in order to highlight the required content learning within both approaches, enhancing and reinforcing them both.

## OUTREACH MICROECONOMICS

# Program Content and Harmonisation

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The STEP UP Education Outreach Program stands out from other similar initiatives due to its primary objective of maximising program accessibility for schools and students while minimising program participation costs.

Unlike many other outreach programs, each STEP UP course provides a comprehensive textbook available in both PDF and ebook formats. This textbook (1) is enhanced with videos that explain in great detail every graph derived in the text, and (2) also includes several hundreds of MCQs and SAQs - some directly integrated within the textbook chapters - to facilitate practice and testing for both teachers and students. Teachers have the flexibility to either customise the material or follow a well-organised course that mirrors the one currently offered at various higher education institutions. This ensures a seamless one-to-one experience comparable to university-level courses. In addition to the textbook, each STEP UP course includes the Playeconomics game integrated with the e-book, as well as other educational content through Planet Trials and the self-directed achievement system.

Despite these unique features, we aim to provide an experience that is comparable to other established outreach programs, and harmonised with high school syllabuses. We detail how this is achieved below.

### Link to the Advanced Placement (AP) Program

One of the most successful educational programs globally is the Advanced Placement (AP) Program offered by the U.S. College Board, which is employed by thousands of institutions, including nearly all colleges and universities in the US. While the AP Program does not provide any teaching content per se, it offers a framework that groups economic topics into units and outlines the skills students should develop during the AP program. To further reduce barriers to adoption and facilitate the use of the STEP UP program, in this document we show how the STEP UP Microeconomics course textbook and assessments link to the AP course framework, including AP units and skills.

Teaching university-level economics is fairly standardised worldwide, so harmonising the STEP UP courses with the AP College Board framework is straightforward. On the other hand, there are three important benefits to creating this alignment. First, the institutions familiar with the AP structure can easily cross-reference our STEP UP

course content. Additionally, our competencies and unit structure will also align with the AP framework in a recognizable way, constructively guiding the deployment of the wide range of STEP UP assessment tools. Third, the AP unit structure is commonly used by universities and colleges globally, making it familiar even to those not acquainted with the AP program but who are familiar with standard university-level economics courses.

## Link to NSW high school syllabuses

The STEP UP Microeconomics content aligns fully with the objectives and topics required for the Commerce, Business Studies, and Economics high school syllabuses. This section illustrates how the outcomes related to these subjects are connected to the relevant content developed and deployed within the STEP UP program. For Commerce, the content directly intersects with the course objectives, enhancing students' understanding of the subject matter. Similarly, while Economics is not the primary focus of Business Studies, the material from the STEP UP program still supports the key objectives and topics covered in these classes. This intersection ensures that students can see the practical application of economic principles within the broader context of Business Studies. In the case of Economics, the connection (and effective overlap) is even stronger. The content from the STEP UP program closely embodies the objectives of the Economics syllabus, providing a robust foundation for students to explore and understand the concepts.

For more detailed information on these outcomes and their connection to the high school syllabus, please refer to the NESA website, where the full syllabuses for Commerce, Business Studies, and Economics are available.

## Link to Social Development Goals (SDGs) and Macroeconomics

One of the primary goals of the STEP UP outreach program is to develop a comprehensive set of courses that span multiple subjects while being interconnected through strong thematic threads. These themes reflect and are thus closely aligned with the major challenges that society faces today.

Each year, we ask our university students to identify the broad societal issues they believe economists should address. Consistently, topics such as social justice, income inequality, climate change, and poverty are at the forefront of their concerns.

Addressing these significant societal issues necessitates an interdisciplinary approach. This realisation underscored the need to integrate various subjects in a more cohesive and authentic manner than is typically achieved in traditional university settings.

To this end, we developed all the STEP UP courses with the overarching theme of demonstrating the importance of addressing the Sustainable Development Goals (SDGs) as critical objectives for our society. Consequently, our courses incorporate a set of objectives that are intertwined within all our subjects, also illustrating how these problems extend beyond just economics. For instance, our renewable energy and energy efficiency courses highlight the relevance of engineering in tackling these issues, which have broad and deep economic implications too.

Below we present a detailed list of self-directed assessment objectives and achievements related to the STEP UP Microeconomics course. These demonstrate how various subjects are encapsulated within a singular video game environment and connected through the lens of the SDGs

# Competencies

## HARMONISED WITH AP “SKILLS”

The STEP UP Microeconomics Competencies outline what a student should be capable of achieving in this course while exploring the program concepts. By closely aligning with the economic and business learning areas and learning continuums set forth by the Australian Curriculum, Assessment and Reporting Authority (ACARA), our program has identified several such key competences that students develop through the gamified education offered in the STEP UP Education Outreach Program.

In the table below, the STEP UP Microeconomics Competencies are presented alongside the ACARA General Capabilities that correspond to these competencies. These competencies form the basis of the tasks within the Playeconomics game, and Academia's MCQs and SAQs.

The learning blocks detailed later in this document discuss the integration of these competencies throughout the STEP UP Microeconomics course, with Academia providing direct connections to the economic content. Students participating in the program can apply these competencies in their classrooms (for subjects such as economics, business studies, and commerce) and eventually in tertiary education courses.

Competence 1 Principles and Theories	Competence 2 Economic Interpretations	Competence 3 Situation Assessment	Competence 4 Modelling Visualisation
Recognize and articulate economic principles and theories	Analyse and explain observed economic outcomes	Evaluate the outcomes of various economic scenarios	Represent economic scenarios using visual aids

## — SKILLS —

<b>1.A</b> Articulate economic ideas, principles, or theories. <b>1.B</b> Identify an economic idea, principle, or theory through a practical illustration, or using numerical data or computations. <b>1.C</b> Differentiate between economic concepts, principles, or theories by discussing their similarities, differences, and constraints.	<b>2.A</b> Explain why a specific economic result occurs or determine actions needed to achieve a desired outcome, utilising economic ideas, principles, or theories. <b>2.B</b> Disentangle multiple influencing factors to argue how a particular economic outcome is achieved or determine actions needed to achieve it, by applying economic ideas, principles, and theories. <b>2.C</b> Use numerical data or statistical analysis to analyse specific economic outcomes.	<b>3.A</b> Predict the result of an economic scenario using economic ideas, principles, or theories. <b>3.B</b> Assess the impact of changes in one or more economic markets. <b>3.C</b> Measure the impact of a change in an economic scenario using quantitative methods or calculations.	<b>4.A</b> Create an accurately labelled diagram or visual to depict an economic theory or market. <b>4.B</b> Illustrate your comprehension of a particular economic scenario using a well-labelled diagram or visual. <b>4.C</b> Depict the impact of a change in an economic scenario on a labelled diagram or visual.
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# Key Concepts

## HARMONISED WITH AP “BIG IDEAS”

The foundational themes of the STEP UP Microeconomics course serve as the pillars upon which students can build and link ideas. These recurring concepts, often abstract or thematic, interlace throughout the curriculum, creating a continuous thread of understanding. By encountering these themes in diverse scenarios, students are encouraged to strengthen their comprehension and integrate the material into a more unified whole. Below are the core themes of the course, each accompanied by a brief overview:

### KEY CONCEPT 1: RESOURCE LIMITATION AND MARKET DYNAMICS (RLM)

With finite resources and infinite desires, the necessity of making choices becomes paramount. In market-driven economies, the interactions between buyers and sellers shape market prices and direct the distribution of scarce resources.

### KEY CONCEPT 2: TRADE-OFFS AND MARGINAL DECISION-MAKING (TMDM)

Every decision involves trade-offs. To make the best possible choices, it is essential to assess the additional costs and benefits of various possible actions.

### KEY CONCEPT 3: PRODUCTION STRATEGIES AND FIRM BEHAVIOUR (PSFB)

Businesses focus on reducing costs and maximising profits, which drives their production decisions in both the short and long term and benefits of various possible actions.

### KEY CONCEPT 4: MARKET FAILURES AND POLICY INTERVENTIONS (MFPI)

Markets can sometimes fail to allocate resources effectively, but thoughtfully designed public policies can help improve efficiency and promote fairness in the economy.

# Learning Blocks

## HARMONISED WITH AP “UNITS”

The program is organised into blocks that are commonly taught in Microeconomics courses. This logical sequence follows the layout of concepts within university-level units and as displayed in Playeconomics Academia.

The ten chapters within Playeconomics Academia have been adjusted into six blocks that highlight the path of learning within STEP UP Microeconomics (displayed in table below). Students will be recommended to check Academia periodically to ensure they understand the amount of concepts and content they are working through within the game and

check their understanding with review questions.

For teachers, these block overviews will highlight which high school syllabus outcomes and university outcomes students are accomplishing through their learning experience in the Playeconomics game and Academia combined. Additionally teachers can use this overview to navigate and choose which concepts can be taken into the classroom, to be used as primary or supplementary material.

Each learning block is broken down into specific chapters that are explored in the Playeconomics game and through the SAQs and MCQs in Academia. The topic pages will discuss the content, syllabus and university outcomes covered by the Playeconomics game and Academia.

Learning Blocks	Assessment Weighting
Block 1: Basic Economic Theories	12-15%
Block 2: Supply and Demand	20-25%
Block 3: Supply in a Perfectly Competitive Market	22-25%
Block 4: Imperfectly Competitive Markets	15-22%
Block 5: Factor Markets	10-13%
Block 6: Market Failure and the Role of Government	8-13%

# Following the Key Concepts

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	Block 1	Block 2	Block 3	Block 4	Block 5	Block 6
Key Concepts	<i>Basic Economic Theories</i>	<i>Supply and Demand</i>	<i>Supply in a Perfectly Competitive Markets</i>	<i>Imperfectly Competitive Markets</i>	<i>Factor Markets</i>	<i>Market Failure and the Role of Government</i>
RESOURCE LIMITATION AND MARKET DYNAMICS RLM	✓	✓				
TRADE-OFFS AND MARGINAL DECISION-MAKING TMDM	✓		✓			
PRODUCTION STRATEGIES AND FIRM BEHAVIOUR PSFB			✓	✓	✓	
MARKET FAILURES AND POLICY INTERVENTIONS MFPI		✓				✓

# Program Resources at a Glance

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In this section, we provide an overview of all program resources, including the textbook, the Playeconomics game, and the standard assessments within Academia. We connect these resources to the competencies and key concepts discussed and developed in previous sections. For ease of reference, we summarise these key concepts and competencies in these tables:

Competence 1	Competence 2	Competence 3	Competence 4
PRINCIPLES AND THEORIES	ECONOMIC INTERPRETATIONS	SITUATION ASSESSMENT	MODELLING VISUALISATION
Key Concept 1  RESOURCE LIMITATION AND MARKET DYNAMICS  RLM	Key Concept 2  TRADE-OFFS AND MARGINAL DECISION-MAKING  TMDM	Key Concept 3  PRODUCTION STRATEGIES AND FIRM BEHAVIOUR  PSFB	Key Concept 4  MARKET FAILURE AND GOVERNMENT INTERVENTION  MFPI
1 Competence 1: PRINCIPLES AND THEORIES	2 Competence 2: ECONOMIC INTERPRETATIONS	3 Competency 3: SITUATION ASSESSMENT	4 Competence 4: MODELLING VISUALISATION
RLM Key concept 1: RESOURCE LIMITATION AND MARKET DYNAMICS	TMDM Key concept 2: TRADE-OFFS AND MARGINAL DECISION-MAKING	PSFB Key concept 3: PRODUCTION STRATEGIES AND FIRM BEHAVIOUR	MFPI Key concept 4: MARKET FAILURE AND GOVERNMENT INTERVENTION

## BLOCK 1

### Basic Economic Theories: Scarcity, Cost-Benefit Principle, and Trade

~9-11

Class  
Periods

12-15%

Assess.  
Weighting

## Gameplay

Playeconomics is an educational simulation game that immerses players in the complexities of real-world economics. Players manage resources like land, labour, and capital, making decisions that reflect economic concepts such as scarcity, trade-offs, and comparative advantage. The game emphasises strategic decision-making and allows players to experience the effects of their choices on both micro and macroeconomic levels.

Through its multiplayer environment, the Playeconomics game introduces competition and cooperation, as players trade and interact in a global market. The game also features engaging visual tools to help players understand concepts like the production possibility curve and cost-benefit analysis, making it a dynamic platform for learning economic principles in an interactive and practical way.

## Textbook (Ch.1 and Ch.3)

### Ch. 1

RLM	1.1 Scarcity: A Simple Model
1	
RLM	1.2 Production Possibility Curve (PPC): One Agent Model
4	
RLM	1.3 Production Possibility Curve (PPC): Two Agent Model
4	
TMDM	1.4 Cost-Benefit Principle: Trading in a Two-Agent Economy
1	
RLM	1.5 Economy-wide PPC in a Two-Agent Economy
4	
RLM	1.6 Trading Between Economies: International Trade
4	
RLM	1.7 Economy-wide PPC in a Many-Agent Economy
4	
RLM	1.8 Classic Critiques to the Model
1	

Review Questions

Additional Questions

### Ch. 3

TMDM	3.1 Demand Curve for an Individual
2	
RLM	3.2 From a Discrete to a Continuous Model
4	
RLM	3.3 Price Elasticity of Demand
3	
RLM	3.4 Determinants of Price Elasticity of Demand

## Assessments

### Chapter 1 - Comparative Advantage and the Basis for Trade

0/11

Chapter progress

Your First Model

One Agent Economy

Two Agents Economy

Trading in a Two-Agent Economy

Economy-wide PPC in a Two-Agent Economy

Trading Between Economies: International Trade

Economy-wide PPC in a Many-Agent Economy

Classic Critiques to the Model

Capstone Activity: In the News!

Review Questions

Review Question Solutions

Additional Questions

Additional Question Solutions

### Chapter 3 - Demand in a Perfectly Competitive Market

0/11

Chapter progress

Demand Curve for an Individual

From a Discrete to a Continuous Model

Price Elasticity of Demand

Determinants of Price Elasticity of Demand

Capstone Activity: In the News!

Review Questions

Review Question Solutions

Additional Questions

Additional Question Solutions

The textbook is available in both PDF format and online ebook. In addition to the textbook questions provided in the PDF, the ebook offers additional SAQs and MCQs, strategically placed in each chapter subsection. It also includes videos for deriving each graph presented in the ebook. The picture above shows the ebook, with the yellow notification indicating the number of questions the student has to complete in each subsection.

BLOCK 2	
Supply and Demand	
~13-15	Class Periods
20-25%	Assess. Weighting

## Gameplay

In Playeconomics, demand and supply form the foundation of the game's economic system, requiring players to continuously adapt to changing market conditions by balancing these elements alongside pricing strategies. The concept of price elasticity is explored through the energy market, where energy is depicted as highly inelastic, allowing students to compare it with other markets that exhibit varying degrees of elasticity.

Players are also tasked with making strategic decisions that impact both individual agents and the broader global market. This includes outbidding or undercutting in markets, influencing global pricing dynamics, and utilising government buildings like town halls to manage immigration, policies, and taxation. These actions, in turn, have ripple effects on international markets, allowing students to see the real-world implications of economic decisions.

Textbook (Ch 2-6)	
Ch. 2	
RLM	2.1 Perfectly Competitive Markets
1	
RLM	2.2 Supply Curve for an Individual
4	
PSFB	2.3 How to Derive the Supply Curve for a Firm
4	
RLM	2.4 From a Discrete to a Continuous Model
4	
RLM	2.5 Price Elasticity of Supply
3	
RLM	2.6 Determinants of Price Elasticity of Supply
3	
	Review Questions
	Additional Questions
Ch. 3	
TMDM	3.1 Demand Curve for an Individual
2	
RLM	3.2 From a Discrete to a Continuous Model
4	
RLM	3.3 Price Elasticity of Demand
3	
RLM	3.4 Determinants of Price Elasticity of Demand
3	
	Review Questions
	Additional Questions
Ch. 4	
RLM	4.1 Demand and Supply Aggregation
4	
RLM	4.2 Market Equilibrium
4	
	Review Questions
	Additional Questions
Ch. 5	
RLM	5.1 Price Ceiling
4	
RLM	5.2 Price Floor
4	
RLM	5.3 Taxation
4	
RLM	5.4 Subsidy
4	
	Review Questions
	Additional Questions
Ch. 6	
RLM	6.1 Introduction
1	
RLM	6.2 Exporting Country
4	
PSFB	6.3 Importing Country
4	
RLM	6.4 Winners and Losers from International Trade
4	

## Review Questions

## Additional Questions

## Assessments

The screenshot shows the 'Assessments' section of the textbook. It contains three main chapters:

- Chapter 2 - Supply in a Perfectly Competitive Market**:
  - Chapter progress: 60%
  - Perfectly Competitive Markets
  - Supply Curve for an Individual
  - How to Derive the Supply Curve for a Firm
  - From a Discrete to a Continuous Model
  - Price Elasticity of Supply
  - Determinants of Price Elasticity of Supply
  - Captstone Activity: In the News!
  - Review Questions
  - Review Question Solutions
  - Additional Questions
  - Additional Question Solutions
- Chapter 3 - Demand in a Perfectly Competitive Market**:
  - Chapter progress: 60%
  - Demand Curve for an Individual
  - From a Discrete to a Continuous Model
  - Price Elasticity of Demand
  - Determinants of Price Elasticity of Demand
  - Captstone Activity: In the News!
  - Review Questions
  - Review Question Solutions
  - Additional Questions
  - Additional Question Solutions
- Chapter 4 - Demand and Supply: An Equilibrium Analysis**:
  - Chapter progress: 60%
  - Demand and Supply Aggregation
  - Market Equilibrium
  - Consumer and Producer Surplus
  - This Toy is Yours to Play With
  - Competitive Markets Are Great!
  - Pareto Efficiency (Short Run)
  - Competitive Markets Are Great! The Invisible Hand (Long Run)
  - The Long-Run Supply Curve Is a More General Model
  - Captstone Activity: In the News!
  - Review Questions
  - Review Question Solutions
  - Additional Questions
  - Additional Question Solutions

The textbook is available in both PDF format and online ebook. In addition to the textbook questions provided in the PDF, the ebook offers additional SAQs and MCQs, strategically placed in each chapter subsection. It also includes videos for deriving each graph presented in the book. The picture above shows the ebook, with the yellow notification indicating the number of questions the student has to complete in each subsection.

### BLOCK 3

## Supply in a Perfectly Competitive Market

~11-13

Class Periods

22-25%

Assess. Weighting

### Gameplay

The Playeconomics game places players at the helm of their own productive firms, allowing them to directly engage with and understand the intricacies of a firm's production function. From the outset, they learn to distinguish between short-run and long-run production costs. In managing their firms, students must procure inputs such as labour and other factors of production. Additionally, they may need to service loans taken for investments or technological upgrades, which function as fixed factors in the production process. These elements collectively influence profit maximisation and guide students' strategic decisions, such as whether to exit a market or cease production. In the short-run, some costs are fixed while others are variable, whereas in the long-run, all costs become variable. The ability to initiate loans at any time introduces another layer of complexity, affecting both costs and the player's time horizon for decision-making.

The game features numerous perfectly competitive markets where firms act as price takers. Prices in these markets are determined by the game's algorithm, which balances supply and demand. Consequently, players must adapt to given prices and cannot influence the market themselves.

### Textbook (Ch.2)

#### Ch. 2

RLM	2.1 Perfectly Competitive Markets
1	
RLM	2.2 Supply Curve for an Individual
4	
PSFB	2.3 How to Derive the Supply Curve for a Firm
4	
RLM	2.4 From a Discrete to a Continuous Model
4	
RLM	2.5 Price Elasticity of Supply
3	
RLM	2.6 Determinants of Price Elasticity of Supply
3	

Review Questions

Additional Questions

#### Ch. 4

RLM	4.1 Demand and Supply Aggregation
4	
RLM	4.2 Market Equilibrium
4	
RLM	4.3 Consumer and Producer Surplus
4	
RLM	4.4 This Toy is Yours to

#### 4 Play With

RLM	4.5 Competitive Markets Are Great! Pareto Efficiency (short-run)
1	
RLM	4.6 Competitive Markets Are Great! The Invisible Hand (long-run)
1	

Review Questions

Additional Questions

### Assessments

<a href="#">Chapter 2 - Supply in a Perfectly Competitive Market</a>	<a href="#">Chapter 4 - Demand and Supply: An Equilibrium Analysis</a>
0/11	0/11
Chapter progress	Chapter progress
Perfectly Competitive Markets	Demand and Supply Aggregation
Supply Curve for an Individual	Market Equilibrium
How to Derive the Supply Curve for a Firm	Consumer and Producer Surplus
From a Discrete to a Continuous Model	This Toy is Yours to Play With
Price Elasticity of Supply	Competitive Markets Are Great! Pareto Efficiency (Short Run)
Determinants of Price Elasticity of Supply	Competitive Markets Are Great! The Invisible Hand (Long Run)
Capstone Activity: In the News!	The Long Run Supply Curve in a More General Model
Review Questions	Capstone Activity: In the News!
Review Question Solutions	Review Questions
Additional Questions	Review Question Solutions
Additional Question Solutions	Additional Questions
	Additional Question Solutions

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## BLOCK 4

### Imperfectly Competitive Markets

~8-10 Class Periods

15-22% Assess. Weighting

### Gameplay

The Playconomics game provides players with an opportunity to experience imperfectly competitive markets. In the game, such markets can naturally arise from the simulated environment, particularly when a player gains control over scarce resources, thereby obtaining a competitive advantage over other players. Additionally, instances of imperfect competition occur when players upgrade their technology to the point where they benefit from economies of scale, or when economies of scale are inherent to a specific market due to the nature of the product. Moreover, the game also incorporates scenarios involving network economies and government-created monopolies. Network economies occur when the product itself makes a single supplier particularly advantageous for users who have already adopted that product. Government-created monopolies can emerge when the government imposes restrictions on the

number of firms allowed to produce a certain good, through mechanisms such as permits or patents.

Review Questions

Additional Questions

### Textbook (Ch.7 and 8)

#### Ch.7

MFPI	7.1 Introduction
1	
MFPI	7.2 Determinants of Market Power
1	
MFPI	7.3 Monopoly
1	
MFPI	7.4 Monopoly and the Invisible Hand
2	
MFPI	7.5 Government Regulation
2	
MFPI	7.6 First Degree Price Discrimination
3	
MFPI	7.7 Other Forms of Price Discrimination
3	
Review Questions	
Additional Questions	

#### Ch.8

PSFB	8.1 Introduction
3	
PSFB	8.2 A Simple Entry Game
3	
PSFB	8.3 Prisoner's Dilemma Game
3	
PSFB	8.4 Cartel Game
3	
PSFB	8.5 Coordination Game: The Battle of the Sexes
3	

### Assessments

▼ Chapter 7 - Market Power: Monopoly [0/15]

Chapter progress

- Introduction [0/1]
- Determinants of Market Power [0/1]
- Monopoly [0/1]
- Monopoly and the Invisible Hand [0/2]
- Government Regulation [0/1]
- First Degree Price Discrimination [0/2]
- Other Forms of Price Discrimination [0/1]

Capstone Activity: In the News! [0/1]

Review Questions

Review Question Solutions

Additional Questions

Additional Question Solutions

▼ Chapter 8 - Market Power: Oligopoly [0/15]

Chapter progress

- Introduction [0/1]
- A Simple Entry Game [0/2]
- Prisoner's Dilemma Game [0/1]
- Cartel Game [0/1]
- Coordination Game: The Battle of the Sexes [0/5]
- Capstone Activity: In the News! [0/1]

Review Questions

Review Question Solutions

Additional Questions

Additional Question Solutions

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## BLOCK 5

### Factor Markets

~6-8 Class Periods

10-13% Assess. Weighting

### Gameplay

The Playconomics game offers a comprehensive simulation of an economic system, seamlessly integrating factor markets into its gameplay. Players must engage in the labour market to hire workers, and they can utilise constellation graphs to meticulously track every transaction. This includes activities in both the product and factor markets. The game allows players to observe and analyse the interplay between the demand and supply for outputs such as goods and services, and inputs such as labour. Additionally, the game incorporates various factors like raw resources, exemplified by coal for energy firms, and it naturally introduces scenarios where market power can lead to monopolistic markets. As players progress, they can experience how market power is accumulated and its effects on the overall economic environment. The game effectively illustrates the necessity for firms to secure capital through financial markets and acquire land. This need extends beyond their own countries;

when firms operate in other students' countries, they must pay rent to utilise the land owned by those players.

The dynamic above emphasises the importance of strategic resource management and financial planning in a competitive, global environment. Together with the interactive approach, this dynamic provides a rich learning experience, illustrating complex economic principles in an engaging and intuitive manner.

### Textbook (Ch.2)

#### Ch. 2

RLM <b>1</b>	2.1 Perfectly Competitive Markets
RLM <b>4</b>	2.2 Supply Curve for an Individual
PSFB <b>4</b>	2.3 How to Derive the Supply Curve for a Firm
RLM <b>4</b>	2.4 From a Discrete to a Continuous Model
RLM <b>3</b>	2.5 Price Elasticity of Supply
RLM <b>3</b>	2.6 Determinants of Price Elasticity of Supply

Review Questions

Additional Questions

### Assessments

The screenshot shows a digital textbook interface. At the top, there's a header with the title 'Assessments'. Below it is a navigation bar with items like 'Home', 'About', 'Contact', 'Log Out', and 'Help'. The main content area has a sidebar on the left with categories like 'Chapter Progress', 'Perfectly Competitive Markets', and 'Supply Curve for an Individual'. The main area lists chapters with completion counts: 'How to Derive the Supply Curve for a Firm' (0/4), 'From a Discrete to a Continuous Model' (0/3), 'Price Elasticity of Supply' (0/1), 'Determinants of Price Elasticity of Supply' (0/2), 'Capstone Activity: In the News!' (0/1), 'Review Questions' (0/1), 'Review Question Solutions' (0/1), 'Additional Questions' (0/1), and 'Additional Question Solutions' (0/1). Each chapter entry has a small yellow box indicating the number of questions to complete.

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BLOCK 6	
Market Failure and Government Intervention	
~9-11	Class Periods
8-13%	Assess. Weighing

## Gameplay

Market Power and externalities play a significant role in shaping the economy within the game, naturally emerging as players terraform their islands and establish businesses. Additionally, public goods are crucial for fostering a thriving economy, allowing players to create non-rival and non-excludable goods that benefit society and enhance the value of leisure. The game also includes government buildings like town halls, where players can manage immigration, policies, and financial options, influencing market decisions through tools like taxes and subsidies. Lastly, income inequality is a notable feature, as agents compete for work and pass on income across generations, leading to

visible disparities in wealth over time.

## Textbook (Ch.9 and 10)

### Ch. 9

MFPI	9.1 Positive Consumption Externality
4	
MFPI	9.2 Negative Production Externality
4	
MFPI	9.3 Externalities in Large Markets
4	
MFPI	9.4 Negative Consumption Externality
3	
MFPI	9.5 Positive Production Externality
3	

Review Questions

Additional Questions

### Ch. 10

MFPI	10.1 Introduction
1	
MFPI	10.2 Non-rivalry and Non-excludability
1	
MFPI	10.3 Aggregating Individual Demands: Marginal Social Benefit and Efficiency
4	
MFPI	10.4 Market Provision and Free-riding
4	

MFPI	10.5 Public Goods and Externalities
4	

MFPI	10.6 Market, Government, and Taxation
1	

Review Questions

Additional Questions

## Assessments

 Chapter 9 - Externalities	 Chapter 10 - Public Goods
Chapter progress	Chapter progress
Positive Consumption Externality	Introduction
Negative Production Externality	Non-rivalry and Non-excludability
Externalities in Large Markets	Aggregating Individual Demands: Marginal Social Benefit and Efficiency
Negative Consumption Externality	Market Provision and Free-riding
Positive Production Externality	Public Goods and Externalities
Capstone Activity: In the News!	Market, Government, and Taxation
Review Questions	Capstone Activity: In the News!
Review Question Solutions	Review Questions
Additional Questions	Review Question Solutions
Additional Question Solutions	Additional Questions
	Additional Question Solutions

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# **Relevance to High School Syllabuses**

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## **Introduction**

*The STEP UP Education Outreach Program is considerate of the high school curriculum and the pre-established duties and responsibilities of secondary teachers. This program was designed to help support and elevate a teacher's resources when teaching Commerce in junior years and teaching Business Studies and Economics in senior years.*

While this outreach initiative is predominantly an economics program, it achieves creating interconnections between syllabus outcomes for these subjects to Academia and the Playeconomics game, bringing seamless integration into existing subject content. Furthermore, the program's self-led learning style allows for teachers to approach the program with the options to include resources within classroom activities or as a separate task present outside the classroom.

The following pages explore:

- Australian Curriculum content interconnected with Academia and the Playeconomics game.
- NSW high school syllabuses for Commerce, Business Studies and Economics, and their interconnection of these subject's objectives and outcomes to Academia and the Playeconomics game content.

Note that this section will be updated with the change of subject syllabuses when necessary.

# Australian Curriculum: Economics and Business (Years 7-10)

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The STEP UP Education Outreach Program is inclusive of both junior and senior high school education. Academia and the Playeconomics game aim to embody the Australian Curriculum's desire to help young Australians become successful, confident and creative individuals. Regarding this curriculum, there is a main focus on junior years of 7-10 in Economic and Business.

Within junior years of high school, the STEP UP Education Outreach Program aims to cultivate and empower students from all different socioeconomic backgrounds to shape their social and economic futures. Introducing students to the program early in their high school career will help form an individual's understanding of the influence of the Australian Government's decision-making and ability to provide explanations and strategies to tackle economic issues.

By the end of a student's journey within the program, they should be able to have a strong knowledge and understanding of:

- Economic indicators and its influence on economic decision-making
- The impact of government intervention to improve economic performance

- Factors that influence consumer and financial decisions, and their short and long term consequences
- Management of businesses to manage workforce and improve productivity

Skills developed within this program:

- Questioning and understanding economic and business issues
- Interpreting and analysing data and trends from simulated economic scenarios
- Communicating knowledge, explanations and decisions that affect an economic situation.

# NSW Commerce Syllabus

## OVERVIEW

Content from the Playeconomics game and Academia also intersect with the objectives and topics required for Commerce. The following table highlights the outcomes related to the Business Studies objectives and outlines in their numbered form. These outcomes are then connected to relevant content developed from the Playeconomics game and Academia.

For further information on these outcomes visit the NESA website to see the Commerce high school syllabus.

See the syllabus here: [Commerce 7–10 | NSW Education Standards](#)

Outcomes	Learning Blocks	Playeconomics Game Content
<b>Consumer, financial, economic, business, legal, political and employment matters</b>		
COMLS-1 COMLS-2 COM4-1 COM5-1	<b>Block 2:</b> Supply and Demand  <b>Block 3:</b> Supply in a Perfectly Competitive Market	<ul style="list-style-type: none"><li>Explore various methods of obtaining goods and services within the game's local community market, simulating real-life economic transactions.</li><li>Apply consumer, financial, economic, business, legal, political, and employment concepts and terminology in diverse game contexts, reflecting real-world challenges and decision-making processes.</li></ul>
COMLS-3 COMLS-4 COMLS-5 COM4-2 COM5-2	<b>Block 1:</b> Basic Economic Theories	<ul style="list-style-type: none"><li>Investigate and address daily life issues such as budgeting, saving, and managing debt through interactive, real-life inspired challenges.</li></ul>
COMLS-6 COM4-3 COM5-3	<b>Block 6:</b> Market Failure and the Role of Government	<ul style="list-style-type: none"><li>Identify the role of law in society by participating in simulations where players must adhere to laws, regulations, and policies affecting business and personal decisions.</li></ul>
<b>Decision-making and problem-solving in relation to consumer, financial, economic, business, legal, political and employment issues</b>		
COMLS-7 COMLS-8 COMLS-9 COM4-4 COM5-4	<b>Block 1:</b> Basic Economic Theories  <b>Block 2:</b> Supply and Demand	<ul style="list-style-type: none"><li>Make informed decisions in a variety of contexts, such as budgeting, investing, or choosing suppliers, by weighing pros and cons and considering potential outcomes in the game.</li><li>Purchase goods and services within the game's virtual market, learning about consumer behaviour, price comparison, and the impact of purchasing decisions on personal and business finances.</li><li>Identify and utilise financial services that assist in making decisions, such as loans and investment opportunities, to better manage resources and risks.</li></ul>
COMLS-10 COM4-5 COM5-5 COM4-6 COM5-6	<b>Block 1:</b> Basic Economic Theories	<ul style="list-style-type: none"><li>Evaluate options for solving problems and issues by analysing the effectiveness, feasibility, and impact of various strategies within the game, leading to informed decision-making.</li></ul>

## Effective research and communication

<b>COMLS-11</b> <b>COM4-7</b> <b>COM5-7</b> <b>COMLS-12</b> <b>COM4-8</b> <b>COM5-8</b>	<b>All Blocks:</b> Students analyse and answer questions to communicate appropriate decisions for business scenarios with an economic focus.	<ul style="list-style-type: none"><li>Use strategies to locate and select information by navigating the game's virtual resources and databases to find relevant data and insights.</li></ul>
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## Working independently and collaboratively

<b>COMLS-13</b> <b>COM4-9</b> <b>COM5-9</b>	<b>All Blocks:</b> Students work with fellow players to solve problems with an economic focus.	<ul style="list-style-type: none"><li>Work independently and collaboratively to meet in-game goals within specified timeframes, managing personal tasks and coordinating with other players to achieve objectives in the game (e.g. reducing CO2 emissions).</li></ul>
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# NSW Business Studies Syllabus

## OVERVIEW

While economics is not the main focus for Business Studies classes, content from the Playeconomics game and Academia also intersect with the objectives and topics required for this subject. The following table highlights the Business Studies objects and outlines related outcomes in their numbered form. These outcomes are then connected to relevant content developed from the Playeconomics game and Academia.

For further information on these outcomes visit NESA website to see the Business Studies high school syllabus in their entirety.

See the syllabus here: [Business Studies | NSW Education Standards](#)

Outcomes	Learning Blocks	Playeconomics Game Content
<b>The nature, role and structure of business</b>		
P1, H1	<b>Block 1:</b> Basic Economic Theories	<ul style="list-style-type: none"><li>Ability to control in real time core principles of business such as profit, employment, income, innovation, entrepreneurship and risk.</li><li>Players have the ability to construct economies that mirror real world countries, and make consequential decisions that have educationally valuable impacts on the simulation.</li></ul>
<b>Internal and external influences on business</b>		
P2, H2	<b>Block 6:</b> Market Failure and the Role of Government	<ul style="list-style-type: none"><li>External influences on business such as governmental regulation, geographic location, market forces and technological advancement.</li><li>Internal influences on businesses such as day-to-day management, access to resources and product decision making.</li><li>Globalisation and its effect on international markets.</li><li>Influence of rapidly changing technology on business efficiency</li><li>Effect of governmental regulation especially taxes and subsidies on businesses.</li><li>Implementation of policy decisions on environmental sustainability.</li></ul>
P3, H3	<b>Block 1:</b> Basic Economic Theories  <b>Block 6:</b> Market Failure and the Role of Government	<ul style="list-style-type: none"><li>Challenges at all stages of the business life cycle due to competition of market forces.</li><li>The rise and fall of businesses including solvency, bankruptcy and liquidation.</li><li>The employment contract: rights and obligations of employers and employees.</li><li>Anti-discrimination and equal employment opportunity.</li></ul>
<b>The functions and processes of business activity</b>		
P4, H4	<b>Block 3:</b> Supply in a Perfectly Competitive Market  <b>Block 6:</b> Market Failure and the Role of Government	<ul style="list-style-type: none"><li>Real-time management of key business functions based on dynamic market forces.</li><li>Differences in decision making for large and global businesses with regards to international trade, regulations and responsibilities.</li></ul>

## Management strategies and their effectiveness

P5, H5	<b>Block 2:</b> Supply and Demand  <b>Block 3:</b> Supply in a Perfectly Competitive Market	<ul style="list-style-type: none"> <li>● Implementation of different management approaches including planning, organising, controlling, hierarchical structure and various leadership styles.</li> <li>● Financial management choices informed by demand and supply.</li> <li>● Decision making regarding the short term and long term profitability of businesses.</li> </ul>
P6, H6	<b>Block 2:</b> Supply and Demand  <b>Block 3:</b> Supply in a Perfectly Competitive Market	<ul style="list-style-type: none"> <li>● The growth of a business from small to national to global.</li> <li>● Influences on the creation of a new business determined by personal qualities, sources of information, market forces, financial restrictions and governmental regulations.</li> <li>● Financial management choices informed by demand and supply.</li> <li>● Decision making regarding the short term and long term profitability of businesses.</li> </ul>

## Investigate, synthesise and evaluate contemporary business issues and hypothetical and actual business situations

P7, H7	<b>Block 4:</b> Imperfectly Competitive Markets	<ul style="list-style-type: none"> <li>● External influences on business such as governmental regulation, geographic location, market forces and technological advancement.</li> <li>● Controlling business operations including purchasing new equipment, redundancy, inertia, payments and research and development.</li> <li>● Reaction to global factors such as global sourcing, economies of scale and market power.</li> </ul>
P8, H8	<b>Block 2:</b> Supply and Demand  <b>Block 3:</b> Supply in a Perfectly Competitive Market  <b>Block 6:</b> Market Failure and the Role of Government	<ul style="list-style-type: none"> <li>● External influences on business such as governmental regulation, geographic location, market forces and technological advancement.</li> <li>● Internal influences on businesses such as day-to-day management, access to resources and product decision making.</li> <li>● Interaction with various different markets including resource, industrial, intermediate, consumer, mass and niche.</li> <li>● Financial management choices informed by profits, debt and equity.</li> </ul>

## Communicate business information and issues using appropriate formats

P9, H9	<b>All Blocks:</b> Students analyse and answer questions to communicate appropriate decisions for business scenarios with an economic focus.	<ul style="list-style-type: none"> <li>● Playeconomics uses an interactive virtual world in which students can demonstrate their acquisition of economic knowledge and skills in a more engaging way than standard assessment-based pathways.</li> </ul>
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## Apply mathematical concepts appropriate to business situations

P10, H10	<b>All Blocks:</b> Students engage with mathematical equations and economic graphs to analyse and understand economic situations for	<ul style="list-style-type: none"> <li>● Ability to constantly monitor market graphs leading to trend analysis, identifying and sustaining competitive advantage and avoiding overextension of finance and other resources.</li> <li>● Optional mathematical exploration of game data to better inform gameplay decisions.</li> </ul>
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- different hypothetical businesses.
- Business loans and repayments.
  - Monitoring and controlling business income and outgoing expenditure over time.
  - Utilising game data to measure business success using techniques such as comparative ratio analysis.
  - Capital Management factors are highlighted such as businesses assets liabilities and potential strategies to guide the player.

# NSW Economics Syllabus

## OVERVIEW

Content from Academia and the Playeconomics game intersect with the objectives and topics required for Economics very closely. The following table highlights the Economics objectives and outlines related outcomes in their numbered form. These outcomes are then connected to relevant content developed from Academia and the Playeconomics game. For further information on these outcomes visit NESA website to see the Business Studies high school syllabus in their entirety.

See the syllabus here: [Economics | NSW Education Standards](#)

Outcomes	Academia Course Content	Playeconomics Game Content
<b>The economic behaviour of individuals, firms, institutions and governments</b>		
P1, H1	<b>Block 1:</b> Basic Economic Theories	<ul style="list-style-type: none"><li>Control real-time business principles such as profit, employment, and innovation, demonstrating understanding of economic terms and concepts.</li></ul>
<b>The function and operation of markets</b>		
P3, H3	<b>Block 2:</b> Supply and Demand  <b>Block 6:</b> Market Failure and the Role of Government	<ul style="list-style-type: none"><li>Make economic decisions related to personal budgeting, investing, and consumer behaviour, highlighting the individual's role in the economy.</li><li>Control and manage firms by making decisions on production, supply, pricing, and innovation, reflecting their economic impact on markets.</li><li>Implement and respond to governmental regulations, taxes, subsidies, and policies affecting business operations and market outcomes.</li></ul>
<b>The operation and management of economies</b>		
P4, H4	<b>Block 4:</b> Imperfectly Competitive Markets	<ul style="list-style-type: none"><li>Engage in international trade within the game, making decisions on importing and exporting goods and services, and observing the impact on global market prices.</li><li>Investigate how markets are interconnected globally, with changes in one market affecting others, and the role of multinational corporations in the global economy.</li></ul>
P5, H5	<b>Block 5:</b> Factor Markets  <b>Block 6:</b> Market Failure and the Role of Government	<ul style="list-style-type: none"><li>Analyse and implement policies to deal with market failures, such as externalities, public goods, and income inequality.</li></ul>
P6, H6	<b>Block 6:</b> Market Failure and the Role of Government	<ul style="list-style-type: none"><li>Engage in discussions and debates within the game on the merits and drawbacks of various policy options, using data and outcomes to support arguments.</li></ul>

## Contemporary economic problems and issues facing individuals, firms and governments

P7, H7	<b>Block 2:</b> Supply and Demand <b>Block 5:</b> Factor Markets	<ul style="list-style-type: none"> <li>● Analyse how changes in supply and demand due to contemporary issues (e.g., supply chain disruptions, shifts in consumer behaviour) impact market equilibrium and prices.</li> <li>● Adapt business strategies to cope with economic issues such as fluctuating demand, resource scarcity, and regulatory changes.</li> </ul>
P8, H8	<b>Block 4:</b> Imperfectly Competitive Markets	<ul style="list-style-type: none"> <li>● Use foundational economic terminology and concepts (e.g., opportunity cost, comparative advantage) in various game scenarios to make informed decisions.</li> <li>● Students that have a better understanding of economic theory will naturally excel within the game, as they are knowledgeable on the underlying causes of problems, and the reasons for their society's successes.</li> </ul>

## Investigate and engage in effective analysis, synthesis and evaluation of economic information from a variety of sources

P9, H9	<b>Block 3:</b> Supply in a Perfectly Competitive Market	<ul style="list-style-type: none"> <li>● Select and organise data on production costs, resource allocation, and efficiency to make informed decisions in a competitive market.</li> <li>● Filter and prioritise information based on its relevance to current objectives and challenges within the game.</li> </ul>
P10, H10	<b>Block 1:</b> Basic Economic Theories  <b>Block 6:</b> Market Failure and the Role of Government	<ul style="list-style-type: none"> <li>● Develop internal policy proposals to address market failures, using data-driven arguments.</li> </ul>
P11, H11	<b>All Blocks:</b> Students engage with mathematical equations and economic graphs to analyse and understand economic situations for different hypothetical businesses.	<ul style="list-style-type: none"> <li>● Ability to constantly monitor market graphs leading to trend analysis, identifying and sustaining competitive advantage and avoiding overextension of finance and other resources.</li> <li>● Optional mathematical exploration of game data to better inform gameplay decisions.</li> <li>● Utilising game data to measure business success using techniques such as comparative ratio analysis.</li> <li>● Capital management factors are highlighted such as businesses assets liabilities and potential strategies to guide the player.</li> </ul>

## Communicate economic information, ideas and issues in appropriate forms

P12, H12	<b>All Blocks:</b> Students work with fellow players to solve problems with an economic focus.	<ul style="list-style-type: none"> <li>● Work independently and collaboratively to meet in-game goals within specified timeframes, managing personal tasks and coordinating with other players to achieve objectives in the game (e.g. reducing CO2 emissions).</li> </ul>
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# Social Development Goals, Macroeconomics, HS Syllabus

## LINKS TO OUR SELF-DIRECTED VIDEO GAME ACHIEVEMENT SYSTEM

This section of the document is highly adaptable and subject to frequent updates. This flexibility stems from the ongoing nature of the Playeconomics game development, where continuous improvements and new features are implemented term after term. Our early access model allows us to regularly introduce significant milestones that not only expand the range of subjects we gamify but also enhance gameplay functionalities, achievements, and goals. To stay current with the latest developments and achievements in the game, please refer to this [link](#). The table will be updated frequently over the coming months and years. Although we will routinely update this document, this specific section is likely to undergo more frequent changes.

STEP UP Outreach Program (MICROECONOMICS, MACROECONOMICS)	Syllabus (COMMERCE [COM5], BUSINESS STUDIES [BUS], ECONOMICS [ECO])	SDG	Objective	Reward	Learning – Connecting Sources to Gameplay
Topic 1.1 Scarcity  Define resources and explain the reasons for their scarcity.  SMKT-1.A Define resources and explain the causes of their scarcity.	COM5-1,2,3 Consumer, financial, economic, business, legal, political and employment matters  COM5-1 applies consumer, financial, economic, business, legal, political and employment concepts and terminology in a variety of contexts  COM5-2 analyses the rights and responsibilities of individuals in a range of consumer, financial, economic, business, legal, political and employment contexts  COM5-3 examines the role of law in society	SDG 8: Decent Work and Economic Growth, 8.4: Improve progressively, through 2030, global resource efficiency in consumption and production and endeavour to decouple economic growth from environmental degradation, in accordance with the 10-Year Framework of Programmes on Sustainable Consumption and Production, with developed countries taking the lead.	(Target 11.7) Purchase 10 extra terrain tiles.	Receive 1 free terrain tile.	Students are first introduced to the concept of scarcity through terraforming, where buying extra tiles comes at a monetary cost to their government.
Topic 1.2 Managing Resources  Most resources are limited, and their use typically involves constraints and trade-offs.  SMKT-1.B Explain how the economic system chosen by a society affects resource allocation.	ECO-H4,H5,H6 The operation and management of economies  ECO-H4 analyses the impact of global markets on the Australian and global economies  ECO-H5 discusses policy options for dealing with problems and issues in contemporary and hypothetical contexts  ECO-H6 analyses the impact of economic policies in theoretical and contemporary Australian contexts	SDG 7: Affordable and Clean Energy, 7.1: By 2030, ensure universal access to affordable, reliable, and modern energy services.  SDG 7: Affordable and Clean Energy, 7.3: By 2030, double the global rate of improvement in energy efficiency.  SDG 12: Responsible Consumption and Production, 12.1: Implement the 10-Year Framework of Programmes on Sustainable Consumption and Production Patterns, all countries taking action, with developed countries taking the lead, taking into account the development and capabilities of developing countries.  SDG 12: Responsible Consumption and Production, 12.2: By 2030, achieve the sustainable management and efficient use of natural resources.	(Target 8.4) Increase GDP in the same moment that you've also increased natural resource supply.	Renew all your renewable natural resource tiles (fish, forest) to full.	Students learn the responsible consumption of renewable resources.

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# OUTREACH MICROECONOMICS

## Learning Blocks Guides

### HARMONISED WITH AP “UNITS”

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In this section, we connect the content from our textbook to a series of learning blocks that align with the AP units. This approach simplifies the process of identifying and understanding the links between our programs. The learning block guides are designed to serve as a potential pathway or structure for teachers, offering a suggested sequence for delivering the content. Each topic and sequence is carefully linked to the competencies and key concepts introduced in the previous section, ensuring clarity regarding the educational objectives to focus on as one progresses through the material. Additionally, these guides include links to formative assessments, integrated within the ebook, to enhance usability and provide further support. The guides have been organised so there is an overarching unit overview that outlines:

- Learning Journey
- Associated **Key Concepts**
- Building **Competencies**
- The learning block at a glance

# Using the Learning Blocks Guides

## Unit Introduction

### Developing Understanding

This section offers a summary that places the core content of the learning block within the broader context of the course.

### Building Competencies

Here you'll learn how the competencies taught in this block apply to the textbook, as well as how the game enhances students' experience.

### Planet Trials and Academia

This section explains how both Playeconomics and Academia work hand-in-hand to deliver the content seamlessly and in an engaging manner.

### Key Concepts

The Key Concepts are important economic concepts that are covered in the unit, and provide a quick-start way to understand what will be taught.

## Learning Block at a Glance

This page offers a short overview of the topics covered in this unit, and of their assessment weighting.

## Main Gameplay Activities

The table on this page will clearly explain what game mechanics Playeconomics uses to convey the Key Concepts and topics covered within this learning block. Look here for information on how playing a video game can be equally as valuable a learning experience as it is fun and engaging.

## Topic Pages

AP TOPIC 1.1	STEP UP CONTENT	Topic Focus
<p><b>AP TOPIC 1.1 Scarcity</b> <b>SKM(T)3:</b> Define resources and explain the reasons for their scarcity.</p> <p><b>AP LEARNING OBJECTIVE</b> <b>SKM(T)1.A:</b> Define resources and explain the causes of their scarcity.</p> <p><b>AP ESSENTIAL KNOWLEDGE</b> <b>SKM(T)1.A.1:</b> Understand that economic trade-offs result from the scarcity of resources needed to satisfy society's wants and needs. <b>SKM(T)1.A.2:</b> Determine that factors of production, like land, labour, and capital, are scarce. However, some factors, such as established knowledge, may not be scarce due to their non-rival nature.</p>	<p><b>Chapter 1</b></p> <p><b>Chapter 1: Comparative Advantage and Trade</b></p> <p><b>Playeconomics Gameplay</b></p> <p>Each player in the world of Playeconomics is given an island to build and terraform, which comes with a select amount of resources. These resources are not infinite and will guide player decisions.</p>	<p>Short explanation of what this topic will discuss. Usually only one or two sentences.</p>

### Learning Intention and Success Criteria

This provides a guide to what students will learn at the end of this topic.

### Playeconomics Gameplay

On the side of each topic page is a column for gameplay, where the relevant mechanics features in the Main Gameplay Activities page are highlighted.



OUTREACH MICROECONOMICS

# BLOCK 1

## Basic Economic Theories

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**12–15%**

ASSESSMENT WEIGHTING

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**~9–11**

CLASS PERIODS

# BLOCK 1: Basic Economic Theories

HARMONISED WITH AP “UNITS”

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<b>12-15%</b> ASSESSMENT WEIGHTING	<b>~9-11</b> CLASS PERIODS
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Competence 1	Competence 2	Competence 3	Competence 4
PRINCIPLES AND THEORIES	ECONOMIC INTERPRETATIONS	SITUATION ASSESSMENT	MODELLING VISUALISATION
Key Concept 1	Key Concept 2	Key Concept 3	Key Concept 4
RESOURCE LIMITATION AND MARKET DYNAMICS <b>RLM</b>	TRADE-OFFS AND MARGINAL DECISION-MAKING <b>TMDM</b>	PRODUCTION STRATEGIES AND FIRM BEHAVIOUR <b>PSFB</b>	MARKET FAILURE AND GOVERNMENT INTERVENTION <b>MFPI</b>

# BLOCK 1: Basic Economic Theories

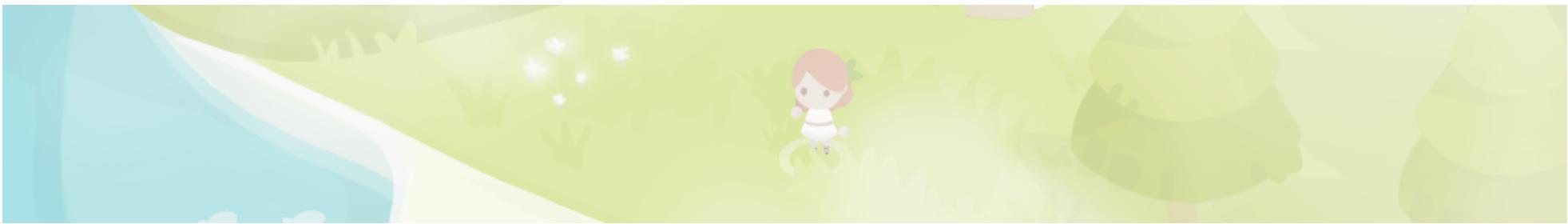
HARMONISED WITH AP "UNITS"

Learning Journey	Competencies	Assessments
<p>Understanding economics requires recognizing that the limited nature of resources forces individuals and societies to make choices. Rational decision-making involves assessing small, incremental changes by weighing the additional costs against the benefits. This unit introduces key economic principles that form the basis for more detailed studies of consumer and producer behaviour, which will be explored as the course progresses.</p>	<p>This learning block equips students with a strong grasp of foundational economic concepts, essential for tackling more complex topics and engaging effectively in gameplay. Given that many students may have limited exposure to economics, understanding how to evaluate decisions based on constraints, trade-offs, and marginal changes may not come easily. By playing the Playeconomics game, students can begin honing these skills early on. For example, a scenario requiring them to consider the change in satisfaction for each additional unit consumed will help them grasp marginal decision-making and the principle of diminishing marginal utility. These firsthand experiences will enable students to articulate these concepts and apply them in various future contexts.</p>	<p>The MCQs and SAQs provided in the chapters of this block serve as both formative and summative assessment tools. These questions are designed to align with our extensive bank of test-style questions, which includes hundreds of additional questions that meet the standards of assessments in similar programs. Additionally, embracing the research-oriented side of economics, the STEP UP program creates opportunities for students to participate in large-scale in-game economic experiments, testing the concepts they've been learning. Students can either be randomly assigned or choose different planets to join a "challenge event," where they will face unique restrictions and objectives. Their results will be showcased on Academia's homepage, with Play Coins earned from their performance being tracked and collected.</p>

# Links to AP Units, Competencies and Key Concepts

AP Microeconomics Topic	STEP UP Textbook	Competencies	Key Concepts
1.1 Scarcity	Chapter 1 - Comparative Advantage and the Basis for Trade	1.A Articulate economic ideas, principles, or theories	RESOURCE LIMITATION AND MARKET DYNAMICS (RLM)
1.2 Resource Allocation and Economic Systems	Chapter 1 - Comparative Advantage and the Basis for Trade	1.C Differentiate between economic concepts, principles, or theories by discussing their similarities, differences, and constraints.	RESOURCE LIMITATION AND MARKET DYNAMICS (RLM)
1.3 Production Possibilities Curve	Chapter 1 - Comparative Advantage and the Basis for Trade	4.A Create an accurately labelled diagram or visual to depict an economic theory or market.	RESOURCE LIMITATION AND MARKET DYNAMICS (RLM)
1.4 Comparative Advantage and Trade	Chapter 1 - Comparative Advantage and the Basis for Trade	1.C Differentiate between economic concepts, principles, or theories by discussing their similarities, differences, and constraints.	TRADE-OFFS AND MARGINAL DECISION-MAKING (TMDM)
1.5 Cost-Benefit Analysis	Chapter 1 - Comparative Advantage and the Basis for Trade	1.C Differentiate between economic concepts, principles, or theories by discussing their similarities, differences, and constraints.	TRADE-OFFS AND MARGINAL DECISION-MAKING (TMDM)
1.6 Marginal Analysis and Consumer Choice	Chapter 3 - Demand in a Perfectly Competitive Market	2.C Use numerical data or statistical analysis to analyse specific economic outcomes.	TRADE-OFFS AND MARGINAL DECISION-MAKING (TMDM)

# MAIN GAMEPLAY ACTIVITIES



Playeconomics gameplay mentioned in this section are major gameplay activities that investigates and explores the concepts in the following topics. Other game mechanics may explore these concepts but not as strongly as the listed one. However, these additional game mechanics will be outlined briefly within the individual topic overviews.

AP Microeconomics Topic	STEP UP Textbook Chapters	STEP UP Gameplay Activities
1.1 Scarcity	Chapter 1 - Comparative Advantage and the Basis for Trade	<p><b>Scarcity: land, labour, capital and entrepreneurship</b></p> <p>The objective of the game is to encapsulate all the primary economic forces, agents, actors, and scenarios observed in the real world, breaking them down into digestible learning units. Players are introduced to a virtual world complete with land, oceans, and natural resources. This simulation highlights the four key economic factors: land, labour, capital, and entrepreneurship. Regarding land, students have the ability to terraform the world, creatively designing a continent with diverse natural resources with just a click of their mouse. They can also invite labour to their island through an immigration system and influence the capital market by attracting firms and entrepreneurs to populate the region. Every action taken by the player, such as adding an extra piece of land or deciding whether to invite a worker or an entrepreneur, or how to invest available capital, represents an economic decision. These decisions are inherently tied to the concept of scarcity and immediately illustrate the trade-offs involved, affecting both the micro-economy and the macro-economy. Because there are limits to the number of factors a player can introduce into their economy at any given time, each decision comes with trade-offs. This constraint forces players to think critically about their choices, demonstrating the real-world implications of economic decision-making.</p>

## 1.2 Resource Allocation and Economic Systems

### Chapter 1 - Comparative Advantage and the Basis for Trade

#### The Sandbox Universe

The game offers students the opportunity to explore not just a single planet, but multiple planets across an entire galaxy. Each planet is uniquely themed and comes with its own set of conditions that influence its climate, resource availability, and institutional and economic systems. This diversity allows players to encounter planets with various economic models. For instance, one planet might have a centralised or controlled economy, while another could operate on perfectly competitive markets, or even feature an economy where resources are evenly distributed among its inhabitants. By exploring these different planets, players gain firsthand experience of how different incentives and systems shape societies. A particularly intriguing educational feature of the game is what we call “planet trials.” These are timed events on specific planets where players are randomly assigned to participate in community activities.

During these trials, we can set up planets with varying institutions for a limited period, engage players in gameplay, and then provide feedback, including data and observations on how each planet performed with its randomly selected inhabitants. This essentially creates randomised controlled trials, enabling players to study the counterfactuals of how different economic systems yield different outcomes. In addition to the planet trials, the game also features a persistent sandbox universe. Here, players can travel between planets or settle on a specific one with their friends and colleagues, building societies without any time constraints. This persistent world allows for continuous exploration and development, offering a rich and immersive educational experience.

## 1.3 Production Possibilities Curve

### Chapter 1 - Comparative Advantage and the Basis for Trade

#### The Production Possibility Curve

The game is particularly well-suited for illustrating economic concepts such as the production possibility curve (PPC). In this simulated world, every economic factor - land, labour, capital, and entrepreneurship - is explicitly and clearly represented. This allows players to quickly grasp the composition of their economy at a glance. Moreover, the game vividly demonstrates the output possibilities of an economy by showcasing its structure. For instance, players can explore the number of households (indicated by the number of houses), the number of factories, and the production capacity of each factory. Each choice involves a trade-off, as adding one type of agent means forgoing an alternative use of that space in the economy.

This mirrors the fundamental trade-off in the PPC, where increasing the production of one good requires reducing the production of another. The game offers various modes of play to enhance understanding. In solo planets, players can focus on their own production possibility curve, gaining a clear view of their production capabilities. Alternatively, they can participate in a larger multiplayer universe with planets inhabited by other players. This allows them to explore the PPC concept at both the microeconomic and macroeconomic levels. Overall, the game serves as an engaging and effective tool for teaching the intricacies of the production possibility curve and the trade-offs inherent in economic decision-making.

## 1.4 Comparative Advantage and Trade

### Chapter 1 - Comparative Advantage and the Basis for Trade

#### Comparative Advantage and Trade

Playeconomics effectively illustrates the concept of comparative advantage through several mechanisms. Productivity within the game's simulated universe is influenced by various factors, such as the type of climate or biome chosen by the student for their country. For instance, one region might be rich in rare earth minerals, another may have abundant sun or wind resources for renewable energy, and yet another might offer a more comfortable environment for workers. These differences mirror real-world variations in regional productivity. Consequently, players face implicit trade-offs when selecting a region to settle and develop their economies. However, the game's portrayal of comparative advantage extends beyond initial geographic and environmental conditions. Players can actively shape comparative advantage through their decisions and investments. For example, they can choose to invest in technological upgrades that enhance specific industries or make strategic choices about resource utilisation, which can either positively or negatively impact regional productivity.

This dynamic element means that productivity is not fixed but can evolve over time due to strategic investments and student decisions. The virtual world also simulates trade organically, driven by demand and supply dynamics. This mirrors real-world trade, where countries that are relatively more efficient at producing certain goods end up exporting them, while countries with higher demand for specific goods import them. Players can observe this trade behaviour in a solo gameplay mode, where they manage an economy within a single region, allowing for a clearer and more digestible view of economic outcomes. Alternatively, players can engage in planet-wide exploration and trade with other students, experiencing the complexities of a global market. This multiplayer aspect highlights the market tensions and competitive dynamics as players strive to achieve comparative advantage and bolster their economies. Through these varied gameplay experiences, the game provides a comprehensive and interactive understanding of comparative advantage and trade.

## 1.5 Cost-Benefit Analysis

### Chapter 1 - Comparative Advantage and the Basis for Trade

#### Economic Trade-offs

The cost-benefit analysis is a central theme in the video game, as every decision - such as expanding the economy or managing population growth - involves trade-offs. This fundamental economic principle is consistently illustrated and explained through the game's visual elements and user interface, ensuring

that players understand its importance throughout their gameplay experience. One of the key messages conveyed is that decision-making isn't solely about the absolute costs, like constructing a new building, terraforming to expand the economy, or inviting an additional agent.

## 1.6 Marginal Analysis and Consumer Choice

### Chapter 3 - Demand in a Perfectly Competitive Market

The game emphasises the concept of opportunity cost. By choosing a particular piece of land or inviting a specific type of agent, players are essentially forgoing an alternative use of space or a different immigration policy, which significantly impacts economic outcomes. For more individualised decisions, the game includes a *comic module*. This module provides a playful, vibrant representation of the life of a single agent in the economy, whether they are a consumer, producer, or any decision-maker within the game. The comic learning module offers an engaging and fun perspective on the trade-offs and cost-benefit analyses these agents perform.

For instance, it might illustrate a consumer deciding between purchasing an apple or a banana, a worker choosing between working or resting, or an entrepreneur deciding whether to continue production or shut down. These lively comic book-style modules not only engage players but also deeply connect with the simulated economy, offering a close-up view of the individuals' lives within it. This approach helps players understand the broader economic principles by zooming in on the personal decisions that drive the economy.

#### Marginal Decision Making

The game is meticulously designed to embody the concept of marginal decision making, not just in theory but through its interactive elements and overall construction. Our guiding philosophy in developing the game was to ensure that every action taken by the player, represented by each click, mirrors the marginal decision-making process. Each click signifies a minor choice that slightly impacts the game world, seamlessly integrating this theme throughout all in-game actions. This principle is deeply embedded in the game's core interaction design. For instance, a single click can build terrain, invite an agent into the world, or upgrade a building. These small, continuous decisions subtly reinforce the concept of marginal decision making that is also taught in the accompanying textbook.

In addition to this, the game offers an engaging feature that allows players to delve into the decision-making processes of individual agents within the economy. This is facilitated through an interactive *comic learning module*, providing a playful yet educational exploration of how marginal decisions are made at an individual level. Depending on a player's game progress, the Comic Learning Module is triggered where players can read a comic that explores an economic scenario from one of the student's agents on the island. In these comics players must create decisions based on the information presented. For example, agents might confront players with a conundrum, where the players must choose a decision based on the current market and utility of the agent themselves.

# AP TOPIC 1.1

## AP TOPIC 1.1 Scarcity

### RLM-1

Define resources and explain the reasons for their scarcity.

## AP LEARNING OBJECTIVE

### RLM-1.A

Define resources and explain the causes of their scarcity.

## AP ESSENTIAL KNOWLEDGE

### RLM-1.A.1

Understand that economic trade-offs result from the scarcity of resources needed to satisfy society's wants and needs.

### RLM-1.A.2

Determine that factors of production, like land, labour, and capital, are scarce. However, some factors, such as established knowledge, may not be scarce due to their non-rival nature.

# STEP UP CONTENT (Ch. 1)

## Chapter 1

**Summary:** Comparative Advantage and Trade explores how specialisation based on comparative advantage leads to economic benefits, even when one party has an absolute advantage. Using the Production Possibility Curve (PPC), it demonstrates that trade allows for consumption beyond production capacity. The key principle is that opportunity costs drive efficient production and trade strategies.

## Playeconomics Gameplay

### Scarcity

The game simulates scarcity by allowing players to make economic decisions using limited resources - land, labour, capital, and entrepreneurship - illustrating trade-offs and their effects on micro and macro-economies.

### RLM-1.A.1

Students must carefully balance their use of limited resources (e.g. building-ready tiles), making trade-offs that demonstrate how scarcity drives economic choices, directly impacting the development and success of their virtual economy.

### RLM-1.A.2

The game emphasises the scarcity of land, labour, and capital, requiring players to manage these limited resources, while also illustrating that knowledge (through the upgrade system) is not depleted by use.

▼ ⓘ Chapter 1 - Comparative Advantage and the Basis for Trade

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Chapter progress

Your First Model

One Agent Economy

0/1

Two Agents Economy

0/4

Trading in a Two-Agent Economy

0/1

Economy-wide PPC in a Two-Agent Economy

0/1

Trading Between Economies: International Trade

0/2

Economy-wide PPC in a Many-Agent Economy

0/1

Classic Critiques to the Model

Capstone Activity: In the News!

0/1

Review Questions

Review Question Solutions

Additional Questions

Additional Question Solutions

# AP TOPIC 1.2

## AP TOPIC 1.2 Resource Allocation And Economic Systems

### RLM-1

Most resources are limited, and their use typically involves constraints and trade-offs.

## AP LEARNING OBJECTIVE

### RLM-1.B

Explain how the economic system chosen by a society affects resource allocation.

## AP ESSENTIAL KNOWLEDGE

### RLM-1.B.1

Discuss resource allocation through answering three fundamental questions: What goods and services should be produced? How should these goods and services be produced? And who will consume these goods and services?

### RLM-1.B.2

Understand that resource allocation is greatly affected by the economic system a society adopts, whether it be a command economy, market economy, or mixed economy. Each system has its own set of institutional arrangements and coordinating mechanisms for allocating scarce resources and distributing output.

# STEP UP CONTENT (Ch. 1)

## Chapter 1

**Summary:** Comparative Advantage and Trade explores how specialisation based on comparative advantage leads to economic benefits, even when one party has an absolute advantage. Using the Production Possibility Curve (PPC), it demonstrates that trade allows for consumption beyond production capacity. The key principle is that opportunity costs drive efficient production and trade strategies.

## Playeconomics Gameplay

### Sandbox Universe

Players explore various planets, each with unique economic systems, enabling them to study the effects of different economic models through gameplay and randomised trials.

### RLM-1.B.1

As students navigate different planets, they must decide what goods and services to produce, how to produce them, and who will consume them, directly engaging with the core questions of resource allocation.

### RLM-1.B.2

The diverse economic systems across planets demonstrate how resource allocation is shaped by the chosen economic model, highlighting the differences between command, market, and mixed economies.

## ▼ 🔍 Chapter 1 - Comparative Advantage and the Basis for Trade

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### Chapter progress

#### Your First Model

#### One Agent Economy

0/1

#### Two Agents Economy

0/4

#### Trading in a Two-Agent Economy

0/1

#### Economy-wide PPC in a Two-Agent Economy

0/1

#### Trading Between Economies: International Trade

0/2

#### Economy-wide PPC in a Many-Agent Economy

0/1

#### Classic Critiques to the Model

#### Capstone Activity: In the News!

0/1

#### Review Questions

#### Review Question Solutions

#### Additional Questions

#### Additional Question Solutions

# AP TOPIC 1.3

## AP TOPIC 1.3 Production Possibilities Curve

### RLM-1

Most resources are scarce, and in most cases the use of resources involves constraints and trade-offs.

## AP LEARNING OBJECTIVE

### RLM-1.C

- Understand the production possibilities curve (PPC) and related terms, using graphs where appropriate.
- Reading and analysing graphs where appropriate, explain how the production possibilities curve (PPC) illustrates opportunity costs, trade-offs, inefficiency, efficiency, and economic growth or contraction under different conditions.
- Calculate opportunity cost using data from PPCs or tables.

## AP ESSENTIAL KNOWLEDGE

### RLM-1.C.1

Understand that the PPC is a model that illustrates the trade-offs involved in resource allocation.

### RLM-1.C.2

Demonstrate understanding of the concepts of scarcity, opportunity cost, efficiency, underutilised resources, and economic growth or contraction using the PPC

### RLM-1.C.3

Understanding the shape of the PPC varies based on whether opportunity costs are constant, increasing, or decreasing.

### RLM-1.C.4

Recognise that the PPC can shift due to changes in factors of production and variations in productivity or technology.

### RLM-1.C.5

Comprehend that economic growth results in an outward shift of the PPC.

# STEP UP CONTENT (Ch. 1)

## Chapter 1

**Summary:** Comparative Advantage and Trade explores how specialisation based on comparative advantage leads to economic benefits, even when one party has an absolute advantage. Using the Production Possibility Curve (PPC), it demonstrates that trade allows for consumption beyond production capacity. The key principle is that opportunity costs drive efficient production and trade strategies.

## Playeconomics Gameplay

### Production Possibility Curve (PPC)

The game visualises the PPC by showcasing trade-offs in resource allocation, helping students understand the limits and potential outputs of an economy.

### RLM-1.C.1

The game requires students to make trade-offs when allocating resources, clearly demonstrating the concept of the PPC as a model of these trade-offs.

### RLM-1.C.2

Students experience scarcity, opportunity costs, and efficiency by managing their resources and observing how these decisions impact their PPC, illustrating economic growth or contraction.

### RLM-1.C.3

The game shows how different decisions lead to varying opportunity costs, helping students understand why the PPC can have different shapes.

### RLM-1.C.4

Students witness PPC shifts in real-time as they alter factors of production or improve technology, visualising the impact on their economy.

### RLM-1.C.5

The game illustrates economic growth by showing how successful management and investment result in an outward shift of the PPC, expanding production possibilities.

## ▼ ⓘ Chapter 1 - Comparative Advantage and the Basis for Trade

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### Chapter progress

#### Your First Model

##### One Agent Economy

0/1

##### Two Agents Economy

0/4

##### Trading in a Two-Agent Economy

0/1

##### Economy-wide PPC in a Two-Agent Economy

0/1

##### Trading Between Economies: International Trade

0/2

##### Economy-wide PPC in a Many-Agent Economy

0/1

##### Classic Critiques to the Model

##### Capstone Activity: In the News!

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##### Review Questions

##### Review Question Solutions

##### Additional Questions

##### Additional Question Solutions

# AP TOPIC 1.4

## AP TOPIC 1.4 Comparative Advantage and Trade

### RLM-2

The effects of scarcity can be alleviated through production specialisation and exchange.

### AP LEARNING OBJECTIVE

#### RLM-2.A

- A. Explain the concepts of absolute advantage and comparative advantage.
- B. Describe and use data from PPCs and tables to determine absolute and comparative advantage.

#### RLM-2.B

- A. Describe how specialisation based on comparative advantage, along with appropriate terms of trade, can lead to gains from trade, using data from Production Possibility Curves (PPCs) or tables as needed.
- B. Determine mutually beneficial terms of trade, using data from PPCs or tables where applicable.

### AP ESSENTIAL KNOWLEDGE

#### RLM-2.A.1

Understand that absolute advantage occurs when an individual, business, or country can produce more of a good or service than others using the same amount of resources.

#### RLM-2.A.1

Use comparative advantage occurs to describe when an individual, business, or country can produce a good or service at a lower opportunity cost than another producer.

#### RLM-2.B.1

Understand that production specialisation results in exchange opportunities that lead to consumption possibilities beyond the PPC.

#### RLM-2.B.2

Establish that comparative advantage and opportunity costs affect the terms of trade that enable mutually beneficial exchanges.

# STEP UP CONTENT (Ch. 1)

## Chapter 1

**Summary:** Comparative Advantage and Trade explores how specialisation based on comparative advantage leads to economic benefits, even when one party has an absolute advantage. Using the Production Possibility Curve (PPC), it demonstrates that trade allows for consumption beyond production capacity. The key principle is that opportunity costs drive efficient production and trade strategies.

### Playeconomics Gameplay

#### RLM-2.B.1

Students focus on developing specific industries within their region, which leads to trade opportunities that enable them to consume goods and services beyond what they could produce on their own, effectively expanding their economy beyond the PPC.

#### RLM-2.A.1

In the game, students can observe absolute advantage when a region or country is better able to produce a specific resource or goods compared to other regions, using the same amount of in-game resources.

#### RLM-2.A.1

The concept of comparative advantage is illustrated in the game when students make strategic decisions that allow their chosen region to produce goods at a lower opportunity cost than others, emphasising the importance of efficient resource utilisation.

▼ 🔍 Chapter 1 - Comparative Advantage and the Basis for Trade

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Chapter progress

Your First Model

One Agent Economy

0/1

Two Agents Economy

0/4

Trading in a Two-Agent Economy

0/1

Economy-wide PPC in a Two-Agent Economy

0/1

Trading Between Economies: International Trade

0/2

Economy-wide PPC in a Many-Agent Economy

0/1

Classic Critiques to the Model

Capstone Activity: In the News!

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Review Questions

Review Question Solutions

Additional Questions

Additional Question Solutions

# AP TOPIC 1.5

## AP TOPIC 1.5 Cost-Benefit Analysis

### TMDM-1

Most resources are limited, and their use typically involves constraints and trade-offs.

## AP LEARNING OBJECTIVE

### TMDM-1.A

- Identify and define opportunity cost.
- Describe the opportunity costs associated with choices.
- Calculate and compare the opportunity costs associated with choices.

### TMDM-1.B

Use tables and graphs, choose decisions by comparing total benefits and total costs

## AP ESSENTIAL KNOWLEDGE

### TMDM-1.A.1

Rational agents consider opportunity costs, whether implicit or explicit, when calculating the total economic costs of any decision.

### TMDM-1.A.2

Understand total benefits are measured as "utility" for consumers and as "total revenue" for firms.

### TMDM-1.B.1

Define total net benefits, by understanding the difference between total benefits and total costs being maximised at the optimal choice

### TMDM-1.B.2

Understand that some decisions allow rational agents to consider only marginal benefits and marginal costs. However, other decisions cannot be divided into increments and must be assessed by examining total benefits and total costs.

# STEP UP CONTENT (Ch. 1)

## Chapter 1

**Summary:** Comparative Advantage and Trade explores how specialisation based on comparative advantage leads to economic benefits, even when one party has an absolute advantage. Using the Production Possibility Curve (PPC), it demonstrates that trade allows for consumption beyond production capacity. The key principle is that opportunity costs drive efficient production and trade strategies.

## Playeconomics Gameplay

### Economic Trade-offs

Through cost-benefit analysis and opportunity cost, the game emphasises the importance of trade-offs in economic decision-making, enhanced by a comic module for individual agent scenarios.

### TMDM-1.A.1

In the game, students must consider opportunity costs in decisions like land expansion or agent selection, showing how these costs impact economic outcomes.

### TMDM-1.A.2

The game illustrates the concepts of "utility" for consumers (satisfaction) and "total revenue" for firms (profitability) as performance metrics.

### TMDM-1.B.1

Students learn to maximise total net benefits by finding the optimal choice that balances total benefits against total costs.

### TMDM-1.B.2

The game loop includes decisions assessed incrementally (marginal benefits/costs, adding buildings) and those requiring a full analysis of total benefits and costs (island treasury).

## ▼ 1 Chapter 1 - Comparative Advantage and the Basis for Trade

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### Chapter progress

#### Your First Model

##### One Agent Economy

0/1

##### Two Agents Economy

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##### Trading in a Two-Agent Economy

0/1

##### Economy-wide PPC in a Two-Agent Economy

0/1

##### Trading Between Economies: International Trade

0/2

##### Economy-wide PPC in a Many-Agent Economy

0/1

##### Classic Critiques to the Model

##### Capstone Activity: In the News!

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##### Review Questions

##### Review Question Solutions

##### Additional Questions

##### Additional Question Solutions

# AP TOPIC 1.6

## AP TOPIC 1.6 Marginal Analysis and Consumer Choice

### TMDM-2

Most resources are scarce, and in most cases the use of resources involves constraints and trade-offs.

## AP LEARNING OBJECTIVE

### TMDM-2.A

- A. Define the key assumptions of consumer choice theory.
- B. Explain how a rational consumer's decision making involves the use of marginal benefits and marginal costs. Use graphs and tables where possible.
- C. Calculate and understand how a rational consumer's decision making involves the use of marginal benefits and marginal costs.

### TMDM-2.B

- A. Define marginal analysis and explain through in-game examples.

## AP ESSENTIAL KNOWLEDGE

### TMDM-2.A.1

Understand the constraints consumers face when making optimal decisions. Use gameplay to model rational consumer choice, to maximise their total utility.

### TMDM-2.A.2

Comprehend consumers experience of the diminishing marginal utility of the consumption of goods and services, and maximise their utility based on their limited income and comparison of goods

### TMDM-2.B.1

Use marginal analysis to compare marginal benefit (MB) with marginal cost (MC) and understand how it helps individuals (firms) decide whether to increase, decrease, or maintain their production levels.

### TMDM-2.B.2

Understand that the optimal quantity at any point in time does not depend on fixed (sunk) costs or fixed benefits that have already been determined by past choices.

### TMDM-2.B.3

Understanding that optimal quantity is achieved when marginal benefit is equal or larger than marginal cost.

# STEP UP CONTENT (Ch. 3)

## Chapter 3

**Summary:** Demand in Perfect Competition explains consumer purchasing decisions based on budget, prices, and utility. It introduces concepts like decreasing marginal utility, substitution, and income effects, showing how these influence demand changes with price variations. The demand curve and factors shifting demand are discussed, along with price elasticity of demand and its key determinants.

## Playeconomics Gameplay

### Marginal Decision Making

The game integrates marginal decision-making into every action, teaching players how small choices impact the economy, with interactive comic modules exploring these decisions on an individual level.

### TMDM-2.A.1

The game models rational consumer choice, where each click allows students to make optimal decisions that maximise total utility within given constraints.

### TMDM-2.A.2

Students experience diminishing marginal utility as they make decisions, for example when terraforming, and learn to maximise utility.

### TMDM-2.B.1

Students compare marginal benefits and marginal costs when city-planning, helping them decide whether to increase, decrease, or maintain production.

### TMDM-2.B.2

The game teaches that optimal decisions depend on current marginal benefits and costs, not necessarily on past choices or fixed costs.

### TMDM-2.B.3

When constructing their islands, players consider when marginal benefits equal or exceed marginal costs, to get the optimal quantity.

▼ ⓘ Chapter 3 - Demand in a Perfectly Competitive Market

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Chapter progress

Demand Curve for an Individual

0/3

From a Discrete to a Continuous Model

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Price Elasticity of Demand

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Determinants of Price Elasticity of Demand

0/1

Capstone Activity: In the News!

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Review Questions

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Additional Questions

Additional Question Solutions

OUTREACH MICROECONOMICS

# BLOCK 2

## Supply

and

## Demand

**20-25%**

ASSESSMENT WEIGHTING

**~13-15**

CLASS PERIODS

# BLOCK 2: Supply and Demand

HARMONISED WITH AP “UNITS”

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<b>20-25%</b> ASSESSMENT WEIGHTING	<b>~13-15</b> CLASS PERIODS
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Competence 1	Competence 2	Competence 3	Competence 4
PRINCIPLES AND THEORIES	ECONOMIC INTERPRETATIONS	SITUATION ASSESSMENT	MODELLING VISUALISATION

Key Concept 1	Key Concept 2	Key Concept 3	Key Concept 4
RESOURCE LIMITATION AND MARKET DYNAMICS <b>RLM</b>	TRADE-OFFS AND MARGINAL DECISION-MAKING <b>TMDM</b>	PRODUCTION STRATEGIES AND FIRM BEHAVIOUR <b>PSFB</b>	MARKET FAILURE AND GOVERNMENT INTERVENTION <b>MFPI</b>

# BLOCK 2: Supply and Demand

HARMONISED WITH AP "UNITS"

Learning Journey	Competencies	Assessments
<p>This module serves as a foundation for grasping the mechanisms of market operations through the lens of supply and demand dynamics. Building on the fundamental ideas of scarcity and decision-making introduced earlier, students will delve into the various elements influencing consumer and producer actions. They will explore how consumer-producer interactions within competitive markets set prices and achieve optimal resource distribution. By the end of this module, students will start examining how government interventions impact market results, setting the stage for more detailed analysis in subsequent lessons.</p>	<p>It is vital for students to continue honing their graphing abilities in this section. A common pitfall for students is improper labelling of axes or incorrect graphing of curves, which can lead to losing points. Emphasising the correct construction of graphs and the importance of clear labelling can help students better demonstrate the implications of shifts in graphs. This skill is not only crucial for exams but also for understanding broader economic principles. Guided practice in drawing and adjusting graphs should be integrated to reinforce these skills.</p>	<p>The MCQs and SAQs provided in the chapters of this block serve as both formative and summative assessment tools. These questions are designed to align with our extensive bank of test-style questions, which includes hundreds of additional questions that meet the standards of assessments in similar programs. Additionally, embracing the research-oriented side of economics, the STEP UP program creates opportunities for students to participate in large-scale in-game economic experiments, testing the concepts they've been learning. Students can either be randomly assigned or choose different planets to join a "challenge event," where they'll face unique restrictions and objectives. Their results will be showcased on Academia's homepage, with Play Coins earned from their performance being tracked and collected.</p>

# Links to AP Units, Competencies and Key Concepts

AP Microeconomics Topic	STEP UP Textbook	Competencies	Key Concepts
2.1 Demand	Chapter 3 - Demand in a Perfectly Competitive Market	4.A Create an accurately labelled diagram or visual to depict an economic theory or market.	RESOURCE LIMITATION AND MARKET DYNAMICS (RLM-3)
2.2 Supply	Chapter 2 - Supply in a Perfectly Competitive Market	4.A Create an accurately labelled diagram or visual to depict an economic theory or market.	RESOURCE LIMITATION AND MARKET DYNAMICS (RLM-3)
2.3 Price Elasticity of Demand	Chapter 3 - Demand in a Perfectly Competitive Market	3.C Measure the impact of a change in an economic scenario using quantitative methods or calculations.	RESOURCE LIMITATION AND MARKET DYNAMICS (RLM-3)
2.4 Price Elasticity of Supply	Chapter 2 - Supply in a Perfectly Competitive Market	3.C Measure the impact of a change in an economic scenario using quantitative methods or calculations.	RESOURCE LIMITATION AND MARKET DYNAMICS (RLM-3)
2.5 Other Elasticities	Chapter 3 - Demand in a Perfectly Competitive Market	3.C Measure the impact of a change in an economic scenario using quantitative methods or calculations.	RESOURCE LIMITATION AND MARKET DYNAMICS (RLM-3)

2.6 Market Equilibrium and Consumer and Producer Surplus	Chapter 4 - Demand and Supply: Equilibrium Analysis	2.A Explain why a specific economic result occurs or determine actions needed to achieve a desired outcome, utilising economic ideas, principles, or theories	RESOURCE LIMITATION AND MARKET DYNAMICS (RLM-4)
2.7 Market Disequilibrium and Changes in Equilibrium	Chapter 4 - Demand and Supply: Equilibrium Analysis	3.A Predict the result of an economic scenario using economic ideas, principles, or theories.	RESOURCE LIMITATION AND MARKET DYNAMICS (RLM-4)
2.8 The Effects of Government Intervention in Markets	Chapter 5 - Government Intervention: The Cost of Interfering with Market Forces	4.C Depict the impact of a change in an economic scenario on a labelled diagram or visual.	MARKET FAILURE AND GOVERNMENT INTERVENTION (MFPI-1)
2.9 International Trade and Public Policy	Chapter 6 - International Trade	4.C Depict the impact of a change in an economic scenario on a labelled diagram or visual.	MARKET FAILURE AND GOVERNMENT INTERVENTION (MFPI-1)

# MAIN GAMEPLAY ACTIVITIES



Playconomics gameplay mentioned in this section are major gameplay activities that investigates and explores the concepts in the following topics. Other game mechanics may explore these concepts but not as strongly as the listed one. However, these additional game mechanics will be outlined briefly within the individual topic overviews.

AP Microeconomics Topic	STEP UP Textbook Chapters	STEP UP Gameplay Activities
2.1 Demand	Chapter 3 - Demand in a Perfectly Competitive Market	<p><b>Demand in the Game</b></p> <p>The game offers a dynamic simulation of various market types and demand configurations. One of the initial scenarios immerses the player in a perfectly competitive market, allowing them to explore how demand emerges within the economy. Players can introduce different agents - workers, households, and entrepreneurs - each of whom can act as consumers in the economic system. For instance, an entrepreneur might hire workers, thus becoming a consumer in the labour market, or they might require inputs for production.</p> <p>Similarly, the government can purchase goods and services to develop public infrastructure. Households spend money on final goods, while workers might save for retirement. All these actions are immediately captured in the game, and each agent in the virtual environment is represented as a point on a demand curve graph. Players can click on these points to inspect individual agents. In a single-player mode, players can build demand functions and curves by expanding their economy, maintaining full control over the economic variables.</p>

## 2.2 Supply

### Chapter 2 - Supply in a Perfectly Competitive Market

In a multiplayer universe, the dots on the demand curve graph might represent consumers from different regions, including other players, demonstrating how demand curves are formed by a diverse range of consumers, including governments, households, workers, and entrepreneurs. This interactive graph not only illustrates the traditional relationship between price and quantity but also shows exactly how the demand curve is formed. As the economy grows, the graph transitions from a discrete set of points to a continuous function, helping players understand the conceptual shift from discrete to continuous models in a transparent and comprehensible manner.

Additionally, players can interact with individual agents through a comic book module that provides detailed stories of these agents. This feature helps players understand the trade-offs and cost-benefit analyses that different agents - workers, households, entrepreneurs - go through in their decision-making processes.

#### Supply in the Game

Supply is a fundamental concept in the realm of the Playconomics game. One of the first market structures introduced to players is the perfectly competitive market. In this scenario, players are tasked with deciding which types of firms, or entrepreneurs, to invite into their simulated countries. This decision-making process occurs at both the intensive margin - determining how many entrepreneurs to allow in a given market - and the extensive margin, which involves choosing which markets to prioritise first. The game rigorously addresses supply by having each entrepreneur conduct an individual cost-benefit analysis based on their production costs. This approach naturally captures the traditional shape of a supply curve, derived directly from the simulation.

Players can observe all productive agents in the economy and quickly understand their activities. Each entrepreneur is represented as a point on a graph, which collectively forms the supply curve, as typically taught in introductory economics courses. Players can click on these dots to investigate what they represent, revealing the marginal cost of production for each firm. Due to comparative advantage and varying productivity, the supply curve usually exhibits the upward-sloping aspect familiar to players. Players have the option to explore this concept in a solo mode, where they can control the environment entirely.

## 2.3 Price Elasticity of Demand

### Chapter 3 - Demand in a Perfectly Competitive Market

In this mode, players can place individual producers, observe their production costs, and see how new points are created on the demand and supply curves. Alternatively, they can engage in a massive multiplayer game where multiple players contribute to expanding the supply curve in real-time by introducing more entrepreneurs into their economies. As more players participate, the supply curve becomes smoother, approximating a continuous line, akin to the models presented in textbooks. This interactive experience helps players understand the transition from a discrete to a continuous model. Additionally, the game offers a comic book module where players can delve into the stories of individual entrepreneurs.

This feature provides insight into their decision-making processes, the costs and benefits involved, and why the supply curve increases as prices rise. The game effectively balances personal and generic elements, micro and macro perspectives, by focusing on both the people in an economy and the interconnected actions of multiple agents within that economy. Demand and supply is a cornerstone of Playeconomics - it is fundamental to progression and learning. All of the markets in Playeconomics are built off demand and supply that players have intentionally added and removed. Very often players will have to react to this changing market, by balancing demand, supply and price.

### Price Elasticity of Demand in Action

The game is meticulously designed to track the rational economic behaviour of every agent within the economy. Central to its educational value is the comic book module, which helps players grasp how these economic decisions are made. This module covers key concepts like the elasticity of demand, which measures how the quantity demanded of a good changes in response to variations in its price, changes in consumer income, or shifts in the prices of related goods. Through the engaging medium of a comic book, players can delve into the nuances of price elasticity, learning how it is calculated and interpreted.

The comic also explores the different types of demand elasticity: elastic, inelastic, and unit elastic. One clear take away from both the game and its simulations is the significant impact of substitute availability on the price elasticity of demand. For instance, a household's demand elasticity for meat and fish can vary greatly depending on the availability of alternative food options. This dynamic is thoroughly illustrated in the comic, providing a comprehensive understanding of how substitutes influence economic behaviour.

		<p>The markets in the game are intentionally designed to have various degrees of price elasticity of demand. For example, to better demonstrate how energy is bought and sold, demand for energy is incredibly inelastic. Players can then explore the energy market and compare it to other markets with varying degrees of elasticity.</p>	
<b>2.4 Price Elasticity of Supply</b>	<b>Chapter 2 - Supply in a Perfectly Competitive Market</b>	<p><b>Price Elasticity of Supply in Action</b></p> <p>The game places significant emphasis on the role of production within organisations and the broader functioning of society. It naturally captures the concept of price elasticity by allowing multiple producers to have varied production costs, which results in different slopes for their supply curves. This variation is one way to visualise the price elasticity of supply. Through its comic book module, the game effectively illustrates how changes in price influence a producer's decision to manufacture goods.</p>	<p>It provides clear explanations of situations where supply is elastic, unit elastic, or inelastic. Additionally, by incorporating factor markets, the game helps students understand the relationship between the availability of certain inputs and factors - such as the price of alternative inputs - and a firm's ability to respond to price changes. Every firm requires inputs to produce goods, and the game transparently explains this concept, making it easier for players to grasp the complexities of production and supply dynamics.</p>
<b>2.5 Other Elasticities</b>	<b>Chapter 3 - Demand in a Perfectly Competitive Market</b>	<p><b>Other Elasticities in Action</b></p> <p>The game effectively encapsulates the comprehensive actions of all agents within a simplified economy, enabling us to explore various forms of elasticity beyond just the determinants of price elasticity of demand and supply. For instance, a key component of our circular flow model is that workers earn an income, part of which is saved for retirement consumption.</p>	<p>Retirees, in turn, possess wealth and also receive capital gains from their savings in financial markets. Through its comic book module, the game helps players understand that elasticity for demand and supply can be measured for all its determinants, not just the price of goods. For example, income elasticity can be calculated by dividing the percentage change in quantity demanded by the percentage change in household income.</p>

## 2.6 Market Equilibrium and Consumer and Producer Surplus

### Chapter 4 - Demand and Supply: Equilibrium Analysis

This measure reveals whether consumption of a good increases or decreases following an income change, thereby indicating to economists whether a good is normal or inferior. Additionally, the game transparently illustrates the concept of cross-price elasticity. For instance, it might present a scenario where a household must decide between consuming two types of food or different varieties of final consumption goods. A change in the price of one good can impact the demand for another, depending on whether these goods are substitutes or complements, thereby introducing the idea of cross-price elasticity of demand.

All these concepts are seamlessly integrated into the game's circular flow general equilibrium economy, serving as a constant mechanism driving the markets. They are also highlighted in detail through the comic book module, providing a comprehensive understanding of elasticity in various economic contexts.

### Market equilibrium and surplus in the game

The game places a strong emphasis on consumer and producer surplus as a way to evaluate players' understanding of economic principles. This focus serves a dual purpose: it helps players gauge their own performance and the societal impact of their actions, and it also functions as an objective within the game. Leaderboards track these metrics, keeping players engaged with the idea that there might be better ways to optimise their economies or to address global issues like globalisation and international trade. Through simple gameplay, players aim to maximise consumer and producer surplus. The game visually represents each individual agent in the economy, constructing supply and demand curves based on these agents.

This approach helps players grasp that supply and demand are influenced by numerous underlying factors that affect prices and quantities, and that these factors can change over time. The game interface provides an at-a-glance understanding of these concepts. The game also plots a point for each agent, seamlessly deriving the supply and demand model in front of the player. It clearly illustrates how market equilibrium is achieved through a process of suppliers undercutting each other to attract more customers by lowering prices, and consumers outbidding each other to secure goods by offering higher prices. This visual representation shows players how equilibrium is reached when the price of a good or service balances the quantity supplied and demanded, resulting in no shortages or surpluses. This makes it easy to understand how surplus is

## 2.7 Market Disequilibrium and Changes in Equilibrium

### Chapter 4 - Demand and Supply: Equilibrium Analysis

If the market is not in equilibrium, there will be incentives for either producers or consumers to undercut or outbid. Equilibrium prices serve as a powerful tool in guiding players' behaviour. For instance, a market with very high prices might attract new firms, prompting players to specialise their economies in that particular product. Conversely, excess demand or supply might encourage players to adjust their market presence accordingly. Thus, prices guide economic decision-makers and influence resource allocation. The demand and supply graph in the game is intuitive, with each point representing an individual agent.

calculated visually, showing the benefit for a specific agent as the difference between the reservation price and the market price. This concept is further explained in detail in the comic book module for each agent. The game also demonstrates that no other method of resource allocation can maximise total economic surplus better than the equilibrium price and quantity, in a perfectly competitive market. It helps players contrast this by examining markets that are not perfectly competitive, highlighting the differences in outcomes across various market structures.

#### Market Disequilibrium

Players often become accustomed to seeing demand and supply graphs where equilibrium is neatly depicted at the intersection of the curves. This familiarity can sometimes lead to an oversight: economies frequently experience disequilibrium, where prices and quantities do not match, resulting in either excess demand or excess supply. In the game, economies transition from short-run to long-run equilibriums, with many adjustments occurring through a "tick system." This system empowers players to advance time by clicking, effectively placing the progression of time in their hands. In single-player mode on a solo planet, players alone advance time, gaining a clear understanding of how market disequilibrium adjusts over time.

These adjustments can occur in various ways. Price changes are one method, where prices may rise or fall to eliminate excess demand or supply. However, adjustments can also be driven by factors other than prices. For instance, technological advancements can reduce production costs, shifting the supply curve and allowing more quantities to be sold and bought. Changes in consumer preferences over time or marketing campaigns can shift the demand curve, thereby impacting the market. These shifts can either facilitate the achievement of equilibrium or move the market further from it.

## 2.8 The Effects of Government Intervention in Markets

### Chapter 5 - Government Intervention: The Cost of Interfering with Market Forces

Additionally, new firms entering the market or demographic changes bringing in new consumers can affect demand and supply. Price changes in other markets, such as the cost of production factors, can also influence demand and supply through the game's fully simulated supply chain, creating shocks that perturb the entire economy and lead to disequilibrium. Many of these actions are under the player's control, and time plays a crucial role in adjusting disequilibria through subsequent actions or natural adjustments, such as price changes driven by outbidding or undercutting by students. The concept becomes even more dynamic and engaging in multiplayer mode, where multiple players simultaneously strive to maximise their economic surplus, pushing the market towards a natural equilibrium through their actions.

Players can observe how various factors that shift demand and supply curves influence price, quantity, consumer surplus, producer surplus, and total economic surplus. The impact of these changes depends on the elasticity of demand and supply, revealing potential vulnerabilities in the player's economy and allowing them to focus on markets that are particularly susceptible to shifts.

#### Government Intervention in the Game

The game places a significant emphasis on the role of government intervention in markets. Players are given control over their own regions, effectively allowing them to assume the role of the government if they choose. However, they must also navigate a multiplayer environment where other students control their own regions similarly. This setup provides each player with hands-on experience in understanding government intervention in markets. The game offers traditional tools for intervention, such as price floors, price ceilings, taxes, subsidies, and lump-sum transfers.

There are also lump-sum money transfer tools to enable the government to either take money from or give money to specific agents within the economy. Additionally, the government can provide stimuli to encourage firms to expand their investments further. Because the game simulates an entire society, players can easily observe the impact of these policies on individual agents. By extension, they can see how these changes affect the demand and supply graphs, altering incentives and decision-making processes. This concept is further explored in our comic book modules, which provide detailed scenarios involving specific agents.

## 2.9 International Trade and Public Policy

### Chapter 6 - International Trade

For instance, players can directly observe how the introduction of a tax affects either the supply or demand side of the market, depending on where the tax is applied. They can also evaluate whether the intervention improves overall surplus, which is a primary objective of the game. The game helps players assess the positive or negative effects of government intervention on market efficiency and resource allocation. It also contrasts perfectly competitive markets, where government intervention is unlikely to improve surplus, with other types of markets where such intervention might have beneficial effects.

Leaderboards and relative performance feedback show players how their surplus compares to that of other players. This competitive element underscores the importance of avoiding government intervention in already efficient markets, like perfectly competitive ones, to prevent a reduction in allocative efficiency and the resulting dead-weight loss. In other words, players learn that inappropriate government intervention can lead to a loss in consumer, producer, or government surplus.

#### International Trade

The game offers players the option to either play in single-player mode, where they are the sole inhabitant of an entire planet, or join other players on planets that host dozens of other players. This setup enables the game to effectively illustrate the impact of opening an economy to international trade and the resulting changes in equilibrium. For instance, players can observe fluctuations in equilibrium prices, which may rise or fall compared to a closed economy. Additionally, they can see shifts in consumer and producer surplus, identifying potential winners and losers and understanding the overall impact on total economic surplus.

Moreover, players have the opportunity to employ various government intervention tools, such as tariffs and quotas, to influence international trade. They can witness the outcomes of these interventions through demand and supply graphs, which are based on the behaviour of agents on their islands. These graphs are designed to be easily understandable and transparent, allowing players to grasp the consequences of their actions clearly.

# AP TOPIC 2.1

## AP TOPIC 2.1 Demand

### RLM-3

Individuals and firms respond to incentives and encounter constraints.

## AP LEARNING OBJECTIVE

### RLM-3.A

- A. Define key terms and factors related to consumer decision-making and the law of demand, using graphs where appropriate.
- B. Explain the relationship between price and quantity demanded, and how buyers respond to incentives and constraints, using graphs where appropriate.

## AP ESSENTIAL KNOWLEDGE

### RLM-3.A.1

Understanding a clearly defined system of property rights is essential for the effective functioning of the market system.

### RLM-3.A.2

Observe how economic agents react to incentives.

### RLM-3.A.3

Understand Individuals' reactions to incentives, such as price changes, but also encounter constraints like income, time, and legal and regulatory frameworks.

### RLM-3.A.4

Describe that the law of demand suggests that a change in the own-price causes a change in quantity demanded in the opposite direction and a movement along a demand (marginal benefit) curve.

### RLM-3.A.5

Grasp the conceptual relationship between price and quantity as stated by the law of demand, and understand how downward-sloping demand curves are explained by the income effect, substitution effect, and diminishing marginal utility.

# STEP UP CONTENT (Ch. 3)

## Chapter 3

**Summary:** Demand in Perfect Competition explains consumer purchasing decisions based on budget, prices, and utility. It introduces concepts like decreasing marginal utility, substitution, and income effects, showing how these influence demand changes with price variations. The demand curve and factors shifting demand are discussed, along with price elasticity of demand and its key determinants.

## Playeconomics Gameplay

### RLM-3.A.4

**Demand in the Game**  
The game simulates a dynamic market, allowing players to explore demand by interacting with different economic agents - workers, households, entrepreneurs - each represented on a demand curve graph, which evolves from discrete points to a continuous function.

### RLM-3.A.1

The introduction of different agents - such as entrepreneurs, who hire workers and require inputs for production - demonstrates the role of property rights in the game. Entrepreneurs act as consumers in the economic system, reflecting the importance of property rights in the market system.

### RLM-3.A.6

In the multiplayer universe, the demand curve graph represents consumers from different regions, including other students. This shows how the market demand curve is the sum of individual demand curves, each represented by a point on the graph.

### RLM-3.A.2

The game allows students to see how different agents react to various incentives, such as price changes or the opportunity to save for retirement. This is illustrated by the agents' actions being immediately captured in the game and represented as points on a demand curve.

### Chapter 3 - Demand in a Perfectly Competitive Market

0/11

#### Chapter progress

##### Demand Curve for an Individual

0/3

##### From a Discrete to a Continuous Model

0/3

##### Price Elasticity of Demand

0/3

##### Determinants of Price Elasticity of Demand

0/1

##### Capstone Activity: In the News!

0/1

#### Review Questions

##### Review Question Solutions

##### Additional Questions

##### Additional Question Solutions

**RLM-3.B**

Explain how buyers respond to changes in incentives and constraints, using graphs where appropriate.

**RLM-3.A.6**

Recognize that the market demand curve (or schedule) is derived from the sum of individual demand curves (or schedules).

**RLM-3.B.1**

Analyse how changes in the determinants of consumer demand can cause the demand curve to shift.

**RLM-3.A.3**

Students can interact with agents through a comic book module that provides detailed stories, helping them understand the trade-offs, cost-benefit analyses, and constraints that different agents face, such as income limitations and regulatory frameworks.

**RLM-3.B.1**

The game allows students to manipulate economic variables and observe how these changes affect the demand curve. By expanding their economy and introducing new agents, students can see how shifts in consumer demand are reflected in the shifting of the demand curve.

# AP TOPIC 2.2

## AP TOPIC 2.2 Supply

### RLM-3

Individuals and firms react to incentives and face constraints.

## AP LEARNING OBJECTIVE

### RLM-3.C

- A. Define the law of supply, using graphs where appropriate.
- B. Explain the relationship between price and quantity supplied, using graphs where appropriate.

### RLM-3.D

Explain how producers (sellers) respond to changes in incentives and technology, using graphs where appropriate.

## AP ESSENTIAL KNOWLEDGE

### RLM-3.C.1

Evaluate the change in own-price and how it results in a change in quantity supplied in the same direction, leading to movement along the supply curve.

### RLM-3.C.2

Understand that the market supply curve (or schedule) is derived from the sum of individual supply curves (or schedules) and is typically upward-sloping.

### RLM-3.D.1

Analysing the variations in the determinants of supply can cause the supply curve to shift.

# STEP UP CONTENT (Ch. 2)

## Chapter 2

**Summary:** Supply in Perfect Competition examines price and quantity determination in perfectly competitive markets. It covers price-taking behaviour, market equilibrium, and how producers optimise production by comparing marginal costs and benefits. The chapter introduces the supply curve and price elasticity of supply, highlighting the factors influencing supply responsiveness to price changes.

## Playeconomics Gameplay

### Supply in the Game

In the game, players shape supply in a virtual market by managing entrepreneurs, observing how decisions affect the supply curve. The game offers solo and multiplayer modes, with additional narrative insights through a comic book module.

### RLM-3.C.1

In the game, as the price of goods adjusts, students observe how changes in own-price result in a change in quantity supplied, moving points along the supply curve in the same direction.

### RLM-3.C.2

The market supply curve in the game is derived from the sum of individual entrepreneurs' supply curves, and students can see how these collectively form an upward-sloping supply curve.

### RLM-3.D.1

The game allows students to analyse how changes in supply determinants, such as production costs or market conditions, cause shifts in the supply curve, helping them understand the dynamic nature of supply.

## ▼ Chapter 2 - Supply in a Perfectly Competitive Market

0/11

Chapter progress

Perfectly Competitive Markets

Supply Curve for an Individual

How to Derive the Supply Curve for a Firm

0/4

From a Discrete to a Continuous Model

0/3

Price Elasticity of Supply

0/1

Determinants of Price Elasticity of Supply

0/2

Capstone Activity: In the News!

0/1

Review Questions

Review Question Solutions

Additional Questions

Additional Question Solutions

# AP TOPIC 2.3

## AP TOPIC 2.3 Price Elasticity of Demand

### RLM-3

Individuals and firms react to incentives and encounter constraints.

## AP LEARNING OBJECTIVE

### RLM-3.E

- A. Define elasticity measures.
- B. Explain elasticity measures and their impact on total revenue or total expenditure following a given price change, using graphs where appropriate.
- C. Calculate elasticity measures using data from a graph or table, as appropriate.

## AP ESSENTIAL KNOWLEDGE

### RLM-3.E.1

Understand the concept of elasticity to measure the magnitude of percentage changes in quantity resulting from changes in own-price, income, and prices of related goods.

### RLM-3.E.2

Understand that price elasticity of demand is measured by the percentage change in quantity demanded divided by the percentage change in price, reflecting the responsiveness of quantity demanded to price changes. Elasticity varies along a linear demand curve, indicating that slope is not the same as elasticity.

### RLM-3.E.3

Comprehend that elasticity of demand is categorised based on the value of elasticity:

- A. Elastic demand: Elasticity value more than 1 (quantity demanded is highly responsive to price changes).
- B. Inelastic demand: Elasticity value less than 1 (quantity demanded is less responsive to price changes).
- C. Unit elastic demand: Elasticity value equivalent 1 (quantity demanded changes proportionally with price).

# STEP UP CONTENT (Ch. 3)

## Chapter 3

**Summary:** Demand in Perfect Competition explains consumer purchasing decisions based on budget, prices, and utility. It introduces concepts like decreasing marginal utility, substitution, and income effects, showing how these influence demand changes with price variations. The demand curve and factors shifting demand are discussed, along with price elasticity of demand and its key determinants.

## Playeconomics Gameplay

### Price Elasticity of Demand in Action

In the game, players explore price elasticity of demand through a comic book module, which illustrates how demand for goods changes with price shifts, income variations, or changes in prices of related goods. It highlights different elasticity types - elastic, inelastic, unit elastic - and the influence of substitutes on demand. The game specifically designs markets, like energy, with varying elasticity degrees to enrich learning.

### RLM-3.E.1

The game uses the comic module to help students understand elasticity through fun, relatable characters.

### RLM-3.E.2

Students can perform calculations with the information from the game to find the elasticity varying along the demand curve.

### RLM-3.E.3

The game categorises demand elasticity - elastic, inelastic, and unit elastic - based on elasticity values, helping students see how quantity demanded responds to price changes.

### RLM-3.E.4

The availability of substitutes is highlighted in the game as a key factor influencing price elasticity of demand, illustrated through scenarios like varying demand for different food options.

### RLM-3.E.5

The game's Demand and Supply graph shows how the impact of price changes on total revenue or expenditure depends on whether the demand is elastic, inelastic, or unit elastic, giving students practical insights into pricing strategies.

### Chapter 3 - Demand in a Perfectly Competitive Market

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#### Chapter progress

##### Demand Curve for an Individual

0/3

##### From a Discrete to a Continuous Model

0/3

##### Price Elasticity of Demand

0/3

##### Determinants of Price Elasticity of Demand

0/1

##### Capstone Activity: In the News!

0/1

#### Review Questions

#### Review Question Solutions

#### Additional Questions

#### Additional Question Solutions

**RLM-3.E.4**

Recognize that price elasticity of demand is influenced by factors such as the availability of substitutes.

**RLM-3.E.5**

Understand that the effect of a price change on total revenue or total expenditure depends on whether the demand is elastic, inelastic, or unit elastic.



# AP TOPIC 2.5

## AP TOPIC 2.5 Other Elasticities

### RLM-3

Individuals and firms react to incentives and face constraints.

## AP LEARNING OBJECTIVE

### RLM-3.E

- A. Define elasticity measures.
- B. Explain elasticity measures and their impact on total revenue or total expenditure following a price change, using graphs where appropriate.
- C. Calculate elasticity measures using data from graphs or tables, as needed.

## AP ESSENTIAL KNOWLEDGE

### RLM-3.E.9

Recognise elasticity can be measured for any determinant of demand or supply, not just the price.

### RLM-3.E.10

Understand that income elasticity of demand is calculated by dividing the percentage change in quantity demanded by the percentage change in consumers' income. Economists use this measure to determine whether a good is normal or inferior.

### RLM-3.E.11

Analyse how the cross-price elasticity of demand is calculated (dividing the percentage change in the quantity demanded of one good by the percentage change in the price of another good) and understand that this measure is used to determine whether goods are substitutes, complements, or unrelated.

# STEP UP CONTENT (Ch. 3)

## Chapter 3

**Summary:** Demand in Perfect Competition explains consumer purchasing decisions based on budget, prices, and utility. It introduces concepts like decreasing marginal utility, substitution, and income effects, showing how these influence demand changes with price variations. The demand curve and factors shifting demand are discussed, along with price elasticity of demand and its key determinants.

## Playeconomics Gameplay

### Other Elasticities in Action

The game illustrates various elasticities beyond price, such as income and cross-price elasticity, by integrating these concepts into its circular flow model and comic book module, offering players a comprehensive understanding of elasticity in different economic contexts.

### RLM-3.E.9

The game demonstrates that elasticity can be measured for any determinant of demand or supply, not just price, by exploring scenarios like income changes or the impact of related goods on demand.

### RLM-3.E.10

Students identify whether goods are normal or inferior by analysing the market changes that appear in-world, through dynamic agents.

### RLM-3.E.11

The game explains visually the cross-price elasticity of demand to determine if goods are substitutes, complements, or unrelated.

## ▼ ⓘ Chapter 3 - Demand in a Perfectly Competitive Market

0/11

## Chapter progress

### Demand Curve for an Individual

0/3

### From a Discrete to a Continuous Model

0/3

### Price Elasticity of Demand

0/3

### Determinants of Price Elasticity of Demand

0/1

### Capstone Activity: In the News!

0/1

## Review Questions

### Review Question Solutions

### Additional Questions

### Additional Question Solutions

# AP TOPIC 2.6

## AP TOPIC 2.6 Market Equilibrium and Consumer and Producer Surplus

### RLM-4

While equilibria are stable, an economy can shift from one equilibrium to another when market conditions change.

## AP LEARNING OBJECTIVE

### RLM-4.A

- A. Define market equilibrium, consumer surplus, and producer surplus, using graphs where appropriate.
- B. Explain how equilibrium price, quantity, consumer surplus, and producer surplus are determined for a good or service, using graphs where appropriate.
- C. Calculate areas of consumer surplus and producer surplus at equilibrium, using data from graphs or tables as needed.

## AP ESSENTIAL KNOWLEDGE

### RLM-4.A.1

Understand that the supply-demand model helps to understand the factors that influence prices and quantities, and why these might vary across markets or change over time.

### RLM-4.A.2

Analyse perfectly competitive markets, and how equilibrium is achieved when the price of a good or service balances the quantity supplied and quantity demanded, resulting in no shortages or surpluses. Understand that this occurs when buyers want to purchase the same quantity that sellers are willing to provide.

### RLM-4.A.3

Recognise that the equilibrium price offers information to economic decision-makers, helping to guide resource allocation.

### RLM-4.A.4

Understand economists use consumer surplus and producer surplus to measure the benefits markets provide to buyers and sellers and to understand market efficiency.

### RLM-4.A.5

Market equilibrium maximises total economic surplus when there are no market failures, showing that perfectly competitive markets are efficient.

# STEP UP CONTENT (Ch. 4)

## Chapter 4

**Summary:** Equilibrium Analysis explores how market equilibrium is established through aggregate supply and demand interaction. It explains market equilibrium, consumer and producer surplus, and how total surplus is maximised at equilibrium. The chapter concludes with discussions on Pareto efficiency and the invisible hand principle in competitive markets.

## Playeconomics Gameplay

### RLM-4.A.3

Equilibrium prices guide students' economic decisions, reflecting the role of prices in resource allocation.

### RLM-4.A.4

The game highlights consumer and producer surplus as key measures that relate to a student's progression.

### RLM-4.A.5

Students can access perfectly competitive markets, which demonstrate a maximisation of total economic surplus.

### RLM-4.A.1

The game visually demonstrates how various factors influence supply, demand, and market dynamics over time.

### RLM-4.A.2

Graphs in the game will illustrate how equilibrium is achieved when prices balance supply and demand, preventing shortages or surpluses.

## ▼ ⓘ Chapter 4 - Demand and Supply: An Equilibrium Analysis

0/11

Chapter progress

Demand and Supply Aggregation

Market Equilibrium

Consumer and Producer Surplus

0/2

This Toy is Yours to Play With

0/5

Competitive Markets Are Great! Pareto Efficiency (Short Run)

0/1

Competitive Markets Are Great! The Invisible Hand (Long Run)

0/2

The Long Run Supply Curve in a More General Model

Capstone Activity: In the News!

0/1

Review Questions

Review Question Solutions

Additional Questions

Additional Question Solutions

# AP TOPIC 2.7

## AP TOPIC 2.7 Market Disequilibrium and Changes in Equilibrium

### RLM-4

Although equilibria are stable, an economy can shift from one equilibrium to another when market conditions change.

## AP LEARNING OBJECTIVE

### RLM-4.B

- A. Define surplus and shortage.
- B. Explain how changes in underlying conditions and shocks to a competitive market can affect price, quantity, consumer surplus, and producer surplus, using graphs where appropriate.
- C. Calculate changes in price, quantity, consumer surplus, and producer surplus in response to market condition changes or market disequilibrium, using data from graphs or tables as needed.

## AP ESSENTIAL KNOWLEDGE

### RLM-4.B.1

Understand that when markets experience imbalances, resulting in disequilibrium prices, quantities, surpluses, and shortages, market forces drive price and quantity back toward equilibrium.

### RLM-4.B.2

Recognise the factors that shift the market demand and supply curves influence price, quantity, consumer surplus, producer surplus, and total economic surplus within that market. The extent of these changes depends on the price elasticities of demand and supply.

# STEP UP CONTENT (Ch. 4)

## Chapter 4

**Summary:** Equilibrium Analysis explores how market equilibrium is established through aggregate supply and demand interaction. It explains market equilibrium, consumer and producer surplus, and how total surplus is maximised at equilibrium. The chapter concludes with discussions on Pareto efficiency and the invisible hand principle in competitive markets.

## Playeconomics Gameplay

### Market Disequilibrium

Market disequilibrium occurs when prices and quantities don't match, leading to excess demand or supply. In a game, players adjust time and market conditions, observing how price changes, technological advancements, and external factors impact equilibrium and economic surplus.

### RLM-4.B.1

Advancing time in the game (with the "tick system") shows how market forces naturally adjust prices and quantities, moving the market from disequilibrium back toward equilibrium.

### RLM-4.B.2

The game demonstrates how shifts in demand and supply curves influence prices, quantities, and surpluses, highlighting the impact of elasticity on market outcomes.

## ▼ Chapter 4 - Demand and Supply: An Equilibrium Analysis

0/11

Chapter progress

Demand and Supply Aggregation

Market Equilibrium

Consumer and Producer Surplus

0/2

This Toy Is Yours to Play With

0/5

Competitive Markets Are Great! Pareto Efficiency (Short Run)

0/1

Competitive Markets Are Great! The Invisible Hand (Long Run)

0/2

The Long Run Supply Curve in a More General Model

Capstone Activity: In the News!

0/1

Review Questions

Review Question Solutions

Additional Questions

Additional Question Solutions

# AP TOPIC 2.8

## AP TOPIC 2.8 The Effects of Government Intervention in Markets

### MFPI-1

Government policies influence consumer and producer behaviour, thereby affecting market outcomes.

## AP LEARNING OBJECTIVE

### MFPI-1.A

- Define various forms of government price and quantity interventions.
- Explain how government policies alter consumer and producer behaviours and affect market outcomes, using graphs where appropriate.
- Calculate changes in market outcomes resulting from government policies, using data from graphs or tables as needed.

## AP ESSENTIAL KNOWLEDGE

### MFPI-1.A.1

Recognise government policies, such as price floors, price ceilings, and other forms of price and quantity regulation, impact incentives and outcomes across all market structures.

### MFPI-1.A.2

Understand governments use taxes and subsidies to alter incentives, thereby influencing consumer and producer behaviour and shifting the supply and demand curves.

### MFPI-1.A.3

Know that taxes and subsidies impact government revenues and expenditures.

### MFPI-1.A.4

Analysing government intervention's effect in a market that is producing the efficient quantity (through taxes, subsidies, price controls, or quantity controls) can only reduce allocative efficiency.

### MFPI-1.A.5

Recognise that deadweight loss represents the losses incurred by buyers and sellers due to government intervention in an efficient market.

# STEP UP CONTENT (Ch. 4)

## Chapter 4

**Summary:** Equilibrium Analysis explores how market equilibrium is established through aggregate supply and demand interaction. It explains market equilibrium, consumer and producer surplus, and how total surplus is maximised at equilibrium. The chapter concludes with discussions on Pareto efficiency and the invisible hand principle in competitive markets.

## Playeconomics Gameplay

### Government Intervention in the Game

The game emphasises government intervention in markets, allowing players to control their regions and use tools like price controls, taxes, and subsidies. They observe how these interventions impact demand, supply, and overall surplus, learning about market efficiency and potential dead-weight loss.

### MFPI-1.A.1

In the game, using price controls shows how government policies impact incentives and outcomes across different market structures.

### MFPI-1.A.2

The game demonstrates how taxes and subsidies shift supply and demand, altering consumer and producer behaviour.

### MFPI-1.A.3

Students observe how taxes and subsidies affect government revenues and expenditures in their regions.

### MFPI-1.A.4

The game highlights how government intervention in an efficient market reduces allocative efficiency, leading to inefficiency.

### MFPI-1.A.5

By applying taxes or subsidies in the game, students see how deadweight loss reduces overall market surplus.

## ▼ Chapter 4 - Demand and Supply: An Equilibrium Analysis

0/11

Chapter progress

Demand and Supply Aggregation

Market Equilibrium

Consumer and Producer Surplus

0/2

This Toy Is Yours to Play With

0/5

Competitive Markets Are Great! Pareto Efficiency (Short Run)

0/1

Competitive Markets Are Great! The Invisible Hand (Long Run)

0/2

The Long Run Supply Curve in a More General Model

Capstone Activity: In the News!

0/1

Review Questions

Review Question Solutions

Additional Questions

Additional Question Solutions

# AP TOPIC 2.9

## AP TOPIC 2.9 International Trade and Public Policy

### MFPI-1

Government policies impact consumer and producer behaviour, thus affecting market outcomes.

## AP LEARNING OBJECTIVE

### MFPI-1.B

- A. Define tariffs and quotas.
- B. Explain how public policies related to international trade affect markets, using graphs where appropriate.
- C. Calculate changes in market outcomes resulting from public policies related to international trade, using data from graphs or tables as needed.

## AP ESSENTIAL KNOWLEDGE

### MFPI-1.B.1

Realise that opening an economy to international trade can alter equilibrium in competitive markets; equilibrium prices may be higher or lower than under autarky, and trade fills the gap between domestic supply and demand. This shift affects consumer surplus, producer surplus, and total economic surplus.

### MFPI-1.B.2

Understand that tariffs, used by governments to influence international trade, impact domestic price, quantity, government revenue, consumer surplus, and total economic surplus.

### MFPI-1.B.3

Recognise quotas can be implemented to change production quantities, thereby affecting price, consumer surplus, and total economic surplus.

### Exclusion:

While graphing quotas is beyond the scope of the course and the Assessment, understanding how quotas impact production quantities is included.

# STEP UP CONTENT (Ch. 5)

## Chapter 5

**Summary:** Government Intervention examines the impact of government-imposed price controls, taxes, and subsidies. It discusses the inefficiencies and deadweight losses associated with price ceilings, price floors, taxation, and subsidies in perfectly competitive markets, emphasising the unintended consequences of such interventions on economic efficiency.

## Playeconomics Gameplay

### International Trade

The game simulates international trade by allowing players to open their economies, observing changes in equilibrium prices and shifts in consumer and producer surplus. Players can use tools like tariffs and quotas to influence trade, understanding their effects through clear demand and supply graphs.

### MFPI-1.B.1

In the game, occupying a planet with other students (international trade) shows how equilibrium prices and surpluses change compared to a closed economy (one-person planet).

### MFPI-1.B.2

Students use tariffs in the game to see how they impact domestic prices, quantities, government revenue, and economic surpluses.

### MFPI-1.B.3

Implementing quotas in the game allows students to observe changes in production, prices, and overall economic surpluses.

▼ ⓘ Chapter 5 - Government Intervention: The Cost of Interfering with Market Forces

0/11

### Chapter progress

#### Price Ceiling

0/1

#### Price Floor

0/1

#### Taxation

0/6

#### Subsidy

0/2

#### Capstone Activity: In the News!

0/1

#### Review Questions

#### Review Question Solutions

#### Additional Questions

#### Additional Question Solutions

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OUTREACH MICROECONOMICS

# BLOCK 3

## Supply in a Perfectly Competitive Market

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22-25%

ASSESSMENT WEIGHTING

---

~11-13

CLASS PERIODS

# BLOCK 3: Production, Cost, and the Perfect Competition Model

HARMONISED WITH AP “UNITS”

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<b>22-25%</b> ASSESSMENT WEIGHTING	<b>~11-13</b> CLASS PERIODS
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Competence 1	Competence 2	Competence 3	Competence 4
<b>PRINCIPLES AND THEORIES</b>	<b>ECONOMIC INTERPRETATIONS</b>	<b>SITUATION ASSESSMENT</b>	<b>MODELLING VISUALISATION</b>

Key Concept 1	Key Concept 2	Key Concept 3	Key Concept 4
<b>RESOURCE LIMITATION AND MARKET DYNAMICS</b> <b>RLM</b>	<b>TRADE-OFFS AND MARGINAL DECISION-MAKING</b> <b>TMDM</b>	<b>PRODUCTION STRATEGIES AND FIRM BEHAVIOUR</b> <b>PSFB</b>	<b>MARKET FAILURE AND GOVERNMENT INTERVENTION</b> <b>MFPI</b>

# BLOCK 3: Production, Cost, and the Perfect Competition Model

HARMONISED WITH AP "UNITS"

Learning Journey	Competencies	Assessments
<p>In Block 3, the focus shifts to understanding firm behaviour, eventually leading to an exploration of the perfect competition model. This model will serve as a benchmark for comparing other market structures in the following units. Building on the supply concepts introduced earlier, this unit delves into the factors that influence firm decisions. Since students are often more accustomed to thinking like consumers, learning to think like a firm can be challenging. Tying these concepts to students' personal experiences and using classroom activities and simulations can help make these ideas more relatable. Revisiting the principles of cost-benefit analysis and marginal decision-making, introduced earlier in the course, may also aid in clarifying these concepts.</p>	<p>In this block, students will learn to articulate the production function, understand the costs associated with production, and describe how firms strive to maximise profits. They should be capable of illustrating these concepts both visually and mathematically. It's crucial to introduce new terminology methodically, as students may find it beneficial to maintain a vocabulary journal. Understanding firm behaviour can be challenging, so starting the unit with a hands-on activity, like a factory simulation, can help students grasp and analyse the data, leading to a more profound comprehension of the material. After the simulation, it's beneficial to discuss the outcomes with the class to clear up any misconceptions and reinforce key concepts. Students should be given multiple chances to practise graphing, interpreting, and solving numerical problems relevant to this unit's material. Consistently reinforcing good graphing practices throughout the course is essential.</p>	<p>The MCQs and SAQs provided in the chapters of this block serve as both formative and summative assessment tools. These questions are designed to align with our extensive bank of test-style questions, which includes hundreds of additional questions that meet the standards of assessments in similar programs. Additionally, embracing the research-oriented side of economics, the STEP UP program creates opportunities for students to participate in large-scale in-game economic experiments, testing the concepts they've been learning. Students can either be randomly assigned or choose different planets to join a "challenge event," where they'll face unique restrictions and objectives. Their results will be showcased on Academia's homepage, with Play Coins earned from their performance being tracked and collected.</p>

# Links to AP Units, Competencies and Key Concepts

AP Microeconomics Topic	STEP UP Textbook	Competencies	Key Concepts
3.1 The Production Function	Chapter 2 - Supply in a Perfectly Competitive Market	1.A Articulate economic ideas, principles, or theories.	PRODUCTION STRATEGIES AND FIRM BEHAVIOUR (PSFB-1)
3.2 Short-Run Production Costs	Chapter 2 - Supply in a Perfectly Competitive Market	4.A Create an accurately labelled diagram or visual to depict an economic theory or market.	PRODUCTION STRATEGIES AND FIRM BEHAVIOUR (PSFB-1)
3.3 Long-Run Production Costs	Chapter 2 - Supply in a Perfectly Competitive Market	1.C Differentiate between economic concepts, principles, or theories by discussing their similarities, differences, and constraints.	PRODUCTION STRATEGIES AND FIRM BEHAVIOUR (PSFB-1)
3.4 Types of Profit	Chapter 2 - Supply in a Perfectly Competitive Market	1.C Differentiate between economic concepts, principles, or theories by discussing their similarities, differences, and constraints.	TRADE-OFFS AND MARGINAL DECISION-MAKING (PSFB-2)
3.5 Profit Maximisation	Chapter 2 - Supply in a Perfectly Competitive Market	2.A Explain why a specific economic result occurs or determine actions needed to achieve a desired outcome, utilising economic ideas, principles, or theories	TRADE-OFFS AND MARGINAL DECISION-MAKING (PSFB-2)
3.6 Firms' Short-Run Decisions to Produce and Long-Run Decisions to Enter or Exit a Market	Chapter 2 - Supply in a Perfectly Competitive Market	2.A Explain why a specific economic result occurs or determine actions needed to	PRODUCTION STRATEGIES AND FIRM BEHAVIOUR (PSFB-2)

		achieve a desired outcome, utilising economic ideas, principles, or theories	
3.7 Perfect Competition	Chapter 2 - Supply in a Perfectly Competitive Market	<p>4.A</p> <p>Create an accurately labelled diagram or visual to depict an economic theory or market.</p>	PRODUCTION STRATEGIES AND FIRM BEHAVIOUR (PSFB-3)

# MAIN GAMEPLAY ACTIVITIES



Playeconomics gameplay mentioned in this section are major gameplay activities that investigates and explores the concepts in the following topics. Other game mechanics may explore these concepts but not as strongly as the listed one. However, these additional game mechanics will be outlined briefly within the individual topic overviews.

AP Microeconomics Topic	STEP UP Textbook Chapters	STEP UP Gameplay Activities
3.1 The Production Function	Chapter 2 - Supply in a Perfectly Competitive Market	<p><b>The Production Function in Game</b></p> <p>The game places significant emphasis on the production component of the economy, clearly delineating the specific inputs required by firms and entrepreneurs to generate certain outputs. These inputs can range from raw materials to labour. In some cases, inputs might include natural resources, such as wind for wind turbines or sunlight for solar panels. Certain activities may necessitate a diverse array of inputs, which are part of the supply chain for many other firms within the economy.</p> <p>The game distinguishes between short-run and long-run scenarios, highlighting how the availability of inputs and the ability of firms to switch from one type of input to another can evolve over time. This flexibility can significantly alter a firm's production possibilities as time progresses. Additionally, employing different inputs can impact both marginal and average products. The game effectively illustrates the concept of increasing marginal costs, or conversely, diminishing marginal returns, through various mechanisms.</p>

### 3.2 Short-Run Production Costs

#### Chapter 2 - Supply in a Perfectly Competitive Market

One such mechanism allows players to deploy an increasing number of entrepreneurs in a specific industry within the market. However, each additional entrepreneur becomes progressively less efficient, symbolising the rising marginal cost. This setup permits players to determine the quantity produced by considering the number of entrepreneurs of a given type on an island. To counteract this inefficiency, players can invest in new technologies or government infrastructure.

The underlying principle is that diminishing marginal returns occur when the usage of one input increases while other inputs remain constant. For instance, fixed factors of production, infrastructure, and investments impact output production in the short-run, where some factors are fixed and cannot be altered.

#### Short-Run Production Cost in the Game

In Playeconomics, the game introduces players to various types of factors of production and their associated costs. These costs can be categorised into variable costs, such as inputs that need to be increased to produce a certain output, and fixed costs, such as machinery that can be used to produce output. The game effectively illustrates the difference between fixed and variable costs through various mechanisms, one of which is the use of loans. For instance, a firm might take out a loan to invest in new machinery that increases output for a given amount of input. However, the machinery comes with a cost that the firm cannot afford immediately. In the absence of government subsidies, the entrepreneur must start a loan, which needs to be repaid periodically, regardless of the firm's production levels. This scenario clearly demonstrates what a fixed cost of production is, associated with a fixed factor of production.

As the player uses the “tick system” to advance time in the simulation, the loan is gradually repaid, eventually placing the student in a long-run situation where all factors become variable. At this point, there are no more loans to pay and no sunk costs. The player can then decide on new investments and potentially start new loans. The presence of fixed costs affects the definitions of marginal cost, average variable cost, and total cost. These costs can be easily accessed by the player for each individual agent and are visually explained by placing the agent in a graph. This allows players to fully understand the various costs of production and how the supply curve captures only the variable costs, as it measures the marginal cost of production. The game’s virtual environment enables players to observe individual producers and trace their cost structures by interacting with points on the supply curve.

### 3.3 Long-Run Production Costs

#### Chapter 2 - Supply in a Perfectly Competitive Market

Fixed costs, such as the loan, must be paid even if production is zero, and this information is provided through agent interaction. Additionally, the game helps players understand how specialisation and division of labour can lower a firm's marginal cost.

Players can observe how different students on the planet might have a comparative advantage in different productions. This leads to a process of specialisation that reduces the marginal cost for firms operating in the market.

#### Long-Run Production Cost

In Playeconomics, the game introduces players to various types of factors of production and their associated costs. For instance, a firm might take out a loan to invest in new machinery that increases output for a given amount of input. However, the machinery comes with a cost that the firm cannot afford immediately. In the absence of government subsidies, the entrepreneur must start a loan, which needs to be repaid periodically, regardless of the firm's production levels. This scenario clearly demonstrates what a fixed cost of production is, associated with a fixed factor of production. As the player uses the "tick system" to advance time in the simulation, the loan is gradually repaid, eventually placing the student in a long-run situation where all factors become variable. At this point, there are no more loans to pay and no sunk costs. The player can then decide on new investments and potentially start new loans. This is when all costs become variable again. The game provides players with the opportunity to manage firms that exhibit increasing, decreasing, or constant returns to scale.

These types of firms can create imperfectly competitive markets in certain scenarios, such as monopolies in the case of decreasing returns to scale. The game illustrates this concept by visually demonstrating the relationship between inputs and outputs in the long-run, where all factors of production are variable, allowing companies to adjust their scale of production freely. In this context, the game's depiction of long-run average total cost is influenced by economies of scale, diseconomies of scale, or constant returns to scale. It emphasises the concentration of firms in the market as a measure of the minimum efficient scale, which is impacted by the type of technology the company employs. Additionally, the game allows players to upgrade technology, enabling them to compare the outcomes of their decisions for each firm individually and at the market level when different production technologies are utilised.

### 3.4 Types of Profit

#### Chapter 2 - Supply in a Perfectly Competitive Market

##### Private Costs – Greed

The game offers a comprehensive equilibrium model that accurately represents every aspect of the economy. Unlike traditional approaches, it avoids incorporating exogenous or mechanical elements based on assumptions. Even the best textbooks struggle to achieve this level of integration, as transitioning from one chapter to another often necessitates changing assumptions or holding certain parts of the economy constant. Considering some parts of the model as exogenous can indeed simplify learning for players, and we also leverage this via our “planet trials”, where we sometimes limit the scope of the economy to a subset of moving parts. This allows players to better grasp the concepts without overwhelming complexity. One significant advantage of using a fully endogenous model though is its clarity. Players quickly understand that every action has a cost, not just explicit costs, like the amount of money required to allow a certain firm or actor into the economy, but also opportunity costs.

For example, what benefits might have been gained if a different type of agent occupied that slot? This principle applies to nearly every element of the game, including firm decision making. By engaging with a complete economic model, players can fully appreciate the distinction between economic profits and accounting profits. Economic profits consider opportunity costs, reflecting what could have been achieved with a different strategy. In contrast, accounting profits only account for explicit costs, excluding implicit costs such as financial capital, risk compensation, and the player’s time and its potential alternative uses. This immersive approach helps players understand the multifaceted nature of economic decisions and the broader implications of their choices within the game.

### 3.5 Profit Maximisation

#### Chapter 2 - Supply in a Perfectly Competitive Market

##### Profit Maximisation in Game

The game provides players with a diverse array of scenarios and various types of firms and entrepreneurs, allowing them to engage in expanding their virtual economies. Players can assist these agents either directly or indirectly to maximise their profits by comparing the marginal cost of production with the marginal revenue.

For instance, a player might decide to increase production output in a specific industry by incurring higher marginal costs, which must be weighed against the marginal revenue, or the current market price.

### 3.6 Firms' Short-Run Decisions to Produce and Long-Run Decisions to Enter or Exit a Market

	<p>It is important to note that increasing production excessively by adding more firms could lead to marginal costs surpassing market prices, resulting in lost opportunities and inefficiencies. One of the game's standout features is its immersive and personal approach, presenting worlds, planets, and regions that challenge players to see themselves within the game. Unlike traditional educational exercises, the game includes a multiplayer component, encouraging social interactions and collaboration. This aspect introduces behaviours that may deviate from pure profit maximisation, challenging the assumption that firms always aim to maximise profit. Players can analyse these behavioural components during multiplayer interactions, revealing complexities not easily captured in textbook exercises or simulations.</p>	<p>The game's complexity means that finding optimal solutions is not always straightforward, exposing players to various behavioural aspects of economics, such as cognitive limitations that affect decision-making. Additionally, the game captures social preferences, allowing players to consider the wellbeing of other players when making decisions at the planetary level. This richness can be scaled down in a single-player mode, but at full capacity, the game illustrates how economic theories guide world interpretation while emphasising the importance of expanding beyond simple rational models to include behavioural models. This approach fosters robust debate and a deeper understanding of economic principles.</p>
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<h3>Chapter 2 - Supply in a Perfectly Competitive Market</h3>
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<h4>Entering and Exiting a Market in Game</h4> <p>In the game, players can engage with a comic book module to have direct conversations with their agents. These agents, which may include entrepreneurs running firms, are equipped with artificial intelligence that allows them to learn from the player. Through these interactions, players can guide their agents on how to navigate various scenarios and make specific decisions. For instance, a player might advise an agent to ignore fixed costs when making short-term operational decisions.</p>	<p>Conversely, they might instruct the agent to adopt a different approach for long-term decisions, where all factors of production are variable. The game effectively captures the transition from short-term to long-term decision-making through a tick system, which allows players to advance time within the economy.</p>
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### 3.7 Perfect Competition

#### Chapter 2 - Supply in a Perfectly Competitive Market

This system helps illustrate how certain costs, like a loan for a major investment that boosts productivity, can shift from being fixed to variable over time. Initially, the firm has to make decisions while accounting for fixed costs such as loan repayments. As time progresses and the loan is paid off, the firm enters a phase where all costs are variable, enabling decision-making without fixed cost considerations. Additionally, players must decide whether new firms can enter the market and which existing firms should exit, providing a hands-on experience of market entry and exit dynamics.

These decisions are influenced by changes in the overall market structure. The multiplayer aspect of the game adds a layer of complexity and dynamism, highlighting the role of market entry and exit in balancing the market and responding to optimal decision-making at the firm level.

#### Perfect Competition in Game

The game offers players a dynamic and interactive environment where they can explore various productive activities and consumption choices. Unlike traditional economic models that rely on rigid assumptions, this game allows a perfectly competitive market to emerge naturally. This emergence is driven by the technology adopted, the competitive landscape, and consumer preferences. For instance, players do encounter perfectly competitive markets within the game, but these markets are not predefined. Instead, they arise because no single player has privileged access to production inputs, there are minimal technological investments required, and there are no significant barriers to entry such as government regulations, permits, or patents.

Additionally, the lack of economies of scale might have prevented the formation of monopolies, allowing a competitive market to thrive. In these scenarios, players observe how fierce competition among firms, characterised by bidding and undercutting, leads to a market environment where no single firm can influence the market equilibrium price. This happens because each firm is relatively small and cannot affect the market price through individual strategic behaviour. This outcome is a result of the game's model, not an assumption built into it.

The game also employs in-game graphs and a comic module to visually and interactively connect economic actors. Players can track how demand and supply interact in a perfectly competitive market and understand how equilibrium prices convey information about producers' marginal costs and consumers' marginal benefits. The game illustrates how competitive undercutting and outbidding drive the market towards equilibrium.

Players are also exposed to production decision-making processes through individualised comic book modules that explain firms' decision-making. At the market level, it's easy to see how individual decisions aggregate to form market equilibrium, where the equilibrium price aligns with both the marginal cost of production and the marginal benefit of consumption. This results in allocative efficiency, where the extra cost of production equals the extra benefit to society. The game also highlights the short-run fluctuations in a competitive market, where prices may fall below long-run competitive levels, leading to potential profits or losses. Students can experiment with market entry and exit strategies and observe how these decisions, along with those of other players in a multiplayer setup, affect the long-run market equilibrium.

The game also includes firms that can produce multiple units where scale is important. Players can advance time using a tick system to see how competitive pressures drive firms to produce at an efficient scale, where the long-run price equals the minimum average total cost. This ensures that firms operate efficiently, producing at the lowest possible cost given their infrastructure. The game integrates all these elements in a condensed, interactive format. Through deliberate choices regarding entry, exit, and investments, players can see how these decisions impact the overall economy. By aiming to maximise economic surplus, players gain a clear understanding of how perfectly competitive markets achieve both allocative and productive efficiency, ensuring that society's total surplus is maximised and firms produce at the lowest average total cost.

# AP TOPIC 3.1

## AP TOPIC 3.1 The Production Function

### PSFB-1

Firms' production and cost constraints at various input and output levels influence their optimal decisions in both the short-run and long-run.

## AP LEARNING OBJECTIVE

### PSFB-1.A

- A. Define key terms and concepts related to production and cost, using graphs where appropriate.
- B. Describe the relationship between production and cost in the short-run and long-run, using graphs where appropriate.
- C. Calculate various measures of productivity and short-run and long-run costs, using data from graphs or tables as needed.

## AP ESSENTIAL KNOWLEDGE

### PSFB-1.A.1

Use the production function to describe the relationship between inputs and outputs in both the short-run and the long-run.

### PSFB-1.A.2

Understand that marginal and average products vary with changes in input usage, thereby altering total product.

### PSFB-1.A.3

Recognising diminishing marginal returns occur when a firm increases the use of one input while keeping other inputs constant, affecting output production in the short-run.

# STEP UP CONTENT (Ch. 2)

## Chapter 2

**Summary:** Supply in Perfect Competition examines price and quantity determination in perfectly competitive markets. It covers price-taking behaviour, market equilibrium, and how producers optimise production by comparing marginal costs and benefits. The chapter introduces the supply curve and price elasticity of supply, highlighting the factors influencing supply responsiveness to price changes.

## Playeconomics Gameplay

### PSFB-1.A.1

The game demonstrates how inputs relate to outputs in both short-run and long-run scenarios through the player's production decisions.

### PSFB-1.A.2

Players observe how varying input usage affects marginal and average products, impacting total output in the game.

### PSFB-1.A.3

The game illustrates diminishing marginal returns when increasing one input while keeping others constant, affecting short-run production.

▼ ⓘ Chapter 2 - Supply in a Perfectly Competitive Market

0/11

Chapter progress

Perfectly Competitive Markets

Supply Curve for an Individual

How to Derive the Supply Curve for a Firm

0/4

From a Discrete to a Continuous Model

0/3

Price Elasticity of Supply

0/1

Determinants of Price Elasticity of Supply

0/2

Capstone Activity: In the News!

0/1

Review Questions

Review Question Solutions

Additional Questions

Additional Question Solutions

# AP TOPIC 3.2

## AP TOPIC 3.2 Short-Run Production Cost

### PSFB-1

Production and cost constraints at various input and output levels influence firms' optimal decisions in both the short-run and long-run.

## AP LEARNING OBJECTIVE

### PSFB-1.A

- A. Define key terms and concepts related to production and cost, using graphs where applicable.
- B. Describe the relationship between production and cost in both the short-run and long-run, using graphs where applicable.
- C. Calculate various measures of productivity and short-run and long-run costs, using data from graphs or tables as needed.

## AP ESSENTIAL KNOWLEDGE

### PSFB-1.A.4

Understand total cost is determined by fixed costs and variable costs.

### PSFB-1.A.5

Discuss that marginal cost, average cost (fixed, variable, and total), total cost, and total variable cost vary with changes in total output, while total fixed cost remains constant at all output levels, including zero output.

### PSFB-1.A.6

Recall that production functions with diminishing marginal returns result in an upward-sloping marginal cost curve.

### PSFB-1.A.7

Understand specialisation and division of labour lower firms' marginal costs.

### PSFB-1.A.8

Recognise and evaluate the changes in input and productivity costs due to the changes in cost curves.

# STEP UP CONTENT (Ch. 2)

## Chapter 2

**Summary:** Supply in Perfect Competition examines price and quantity determination in perfectly competitive markets. It covers price-taking behaviour, market equilibrium, and how producers optimise production by comparing marginal costs and benefits. The chapter introduces the supply curve and price elasticity of supply, highlighting the factors influencing supply responsiveness to price changes.

## Playeconomics Gameplay

### Short-Run Production Cost in the Game

In the game, players use loans to invest in machinery, introducing them to fixed and variable production costs. Through the tick system, players explore cost structures, the impact of specialisation on marginal costs, and the dynamics of cost curves in production.

### PSFB-1.A.4

The game combines fixed and variable costs into total production costs, derived from the in-world agents.

### PSFB-1.A.5

Demonstrates costs' variability with output, while fixed costs remain constant.

### PSFB-1.A.6

There is an in-game upward-sloping marginal cost curve due to diminishing returns that is derived from gameplay.

### PSFB-1.A.7

Highlights cost reduction through specialisation and labour (worker agent) division.

### PSFB-1.A.8

Allows evaluation of input costs and productivity changes for firms on cost curves.

## ▼ Chapter 2 - Supply in a Perfectly Competitive Market

0/11

### Chapter progress

### Perfectly Competitive Markets

### Supply Curve for an Individual

### How to Derive the Supply Curve for a Firm

0/4

### From a Discrete to a Continuous Model

0/3

### Price Elasticity of Supply

0/1

### Determinants of Price Elasticity of Supply

0/2

### Capstone Activity: In the News!

0/1

### Review Questions

### Review Question Solutions

### Additional Questions

### Additional Question Solutions

# AP TOPIC 3.3

## AP TOPIC 3.3 Long-Run Production Cost

### PSFB-1

Production and cost constraints at various input and output levels influence firms' optimal decisions in both the short-run and long-run.

## AP LEARNING OBJECTIVE

### PSFB-1.A

- A. Define key terms and concepts related to production and cost, using graphs where appropriate.
- B. Explain the relationship between production and cost in both the short-run and long-run, using graphs where appropriate.
- C. Calculate various measures of productivity, as well as short-run and long-run costs, using data from graphs or tables as needed.

## AP ESSENTIAL KNOWLEDGE

### PSFB-1.A.9

Recognise that in the long-run, firms can adjust all their inputs therefore making all costs variable.

### PSFB-1.A.10

Demonstrate that the relationship between inputs and outputs in the long-run is characterised by the scale of production, which can exhibit increasing, decreasing, or constant returns to scale.

### PSFB-1.A.11

Recount that long-run average total cost is defined by economies of scale, diseconomies of scale, or constant returns to scale (efficient scale).

### PSFB-1.A.12

Understand that the minimum efficient scale influences the concentration of firms in a market and helps determine the market structure.

# STEP UP CONTENT (Ch. 2)

## Chapter 2

**Summary:** Supply in Perfect Competition examines price and quantity determination in perfectly competitive markets. It covers price-taking behaviour, market equilibrium, and how producers optimise production by comparing marginal costs and benefits. The chapter introduces the supply curve and price elasticity of supply, highlighting the factors influencing supply responsiveness to price changes.

## Playeconomics Gameplay

### Long-Run Production Cost

The game teaches long-run production costs, fixed vs. variable costs, and returns to scale, highlighting economies of scale and technology upgrades to compare firm-level and market-level outcomes.

### PSFB-1.A.9

The loan and investment system in the game shows that in the long-run, all inputs and costs become variable as loans are repaid and new investments are made.

### PSFB-1.A.10

Students observe how firms exhibit increasing, decreasing, or constant returns to scale as they adjust inputs in the long-run.

### PSFB-1.A.11

The game illustrates how long-run average total cost is shaped by economies, diseconomies, or constant returns to scale.

### PSFB-1.A.12

Students see how minimum efficient scale influences firm concentration in the market, affecting market structure.

▼ ⓘ Chapter 2 - Supply in a Perfectly Competitive Market

0/11

Chapter progress

Perfectly Competitive Markets

Supply Curve for an Individual

How to Derive the Supply Curve for a Firm

0/4

From a Discrete to a Continuous Model

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Price Elasticity of Supply

0/1

Determinants of Price Elasticity of Supply

0/2

Capstone Activity: In the News!

0/1

Review Questions

Review Question Solutions

Additional Questions

Additional Question Solutions

# AP TOPIC 3.4

## AP TOPIC 3.4 Types of Profit

### TMDM-2

Rational economic agents determine the optimal level for pursuing an activity, where total benefits exceed total costs, by comparing marginal benefits and marginal costs.

## AP LEARNING OBJECTIVE

### TMDM-2.C

- A. Define various types of profit.
- B. Explain how firms react to profit opportunities.
- C. Calculate a firm's profit or loss.

## AP ESSENTIAL KNOWLEDGE

### TMDM-2.C.1

Understand that firms react to economic profits (or losses) instead of accounting profits.

### TMDM-2.C.2

Recall that accounting profit does not include implicit costs such as the cost of financial capital, compensation for risk, or an entrepreneur's time, which are necessary to achieve normal profit.

# STEP UP CONTENT (Ch. 2)

## Chapter 2

**Summary:** Supply in Perfect Competition examines price and quantity determination in perfectly competitive markets. It covers price-taking behaviour, market equilibrium, and how producers optimise production by comparing marginal costs and benefits. The chapter introduces the supply curve and price elasticity of supply, highlighting the factors influencing supply responsiveness to price changes.

## Playeconomics Gameplay

### Private Costs – Greed

The game offers a fully integrated equilibrium model, emphasising endogenous factors and opportunity costs, helping players grasp economic vs. accounting profits and the complex implications of their decisions.

### TMDM-2.C.1

The game emphasises that agents make decisions based on economic profits, considering opportunity costs, not just accounting profits.

### TMDM-2.C.2

By analysing the deals that agents make, students learn that accounting profit excludes implicit costs like capital, risk, and time, highlighting the difference from economic profit.

▼ ⓘ Chapter 2 - Supply in a Perfectly Competitive Market

0/11

Chapter progress

Perfectly Competitive Markets

Supply Curve for an Individual

How to Derive the Supply Curve for a Firm

0/4

From a Discrete to a Continuous Model

0/3

Price Elasticity of Supply

0/1

Determinants of Price Elasticity of Supply

0/2

Capstone Activity: In the News!

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Review Questions

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# AP TOPIC 3.5

## AP TOPIC 3.5 Profit Maximisation

### TMDM-2

To decide the optimal level for an activity where total benefits surpass total costs, rational economic agents weigh marginal benefits against marginal costs.

## AP LEARNING OBJECTIVE

### TMDM-2.D

- A. Define the rule for maximising profit, using graphs or data where appropriate.
- B. Explain the level of production that maximises profit, using a graph or data as needed.

## AP ESSENTIAL KNOWLEDGE

### TMDM-2.D.1

Evaluate the assumption that firms produce output to maximise profits by comparing marginal revenue with marginal cost.

# STEP UP CONTENT (Ch. 2)

## Chapter 2

**Summary:** Supply in Perfect Competition examines price and quantity determination in perfectly competitive markets. It covers price-taking behaviour, market equilibrium, and how producers optimise production by comparing marginal costs and benefits. The chapter introduces the supply curve and price elasticity of supply, highlighting the factors influencing supply responsiveness to price changes.

## Playeconomics Gameplay

### Profit Maximisation in Game

The game immerses players in profit maximisation by comparing marginal costs with marginal revenue across diverse scenarios. It challenges pure profit maximisation assumptions through multiplayer interactions, exposing players to behavioural economics and cognitive limitations, fostering deeper understanding and debate.

### TMDM-2.D.1

Students evaluate profit maximisation by comparing marginal revenue with marginal cost for their entrepreneur agents, who try to find deals in the market.

▼ ⓘ Chapter 2 - Supply in a Perfectly Competitive Market

0/11

Chapter progress

Perfectly Competitive Markets

Supply Curve for an Individual

How to Derive the Supply Curve for a Firm

0/4

From a Discrete to a Continuous Model

0/3

Price Elasticity of Supply

0/1

Determinants of Price Elasticity of Supply

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Capstone Activity: In the News!

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Review Questions

Review Question Solutions

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Additional Question Solutions

# AP TOPIC 3.6

## AP TOPIC 3.6 Firms' Short-Run Decisions to Produce and Long-Run Decisions to Enter or Exit a Market

PSFB-2

Firms use profitability to base their short-run decisions to produce output and their long-run decisions to enter or exit a market.

## AP LEARNING OBJECTIVE

PSFB-2.A

Describe, using graphs or data as necessary, how firms make short-run decisions to produce at positive output levels and long-run decisions to enter or exit markets based on opportunities to make a profit.

## AP ESSENTIAL KNOWLEDGE

PSFB-2.A.1

Understand that in the short-run, firms determine whether to operate (produce positive output) or shut down (produce zero output) by comparing total revenue with total variable costs, or price with average variable cost (AVC).

PSFB-2.A.2

Recall that when there are no barriers to entry or exit, in the long-run (when short-run fixed factors become variable), firms enter markets where they see opportunities for profit and exit markets where they expect economic losses.

# STEP UP CONTENT (Ch. 2)

## Chapter 2

**Summary:** Supply in Perfect Competition examines price and quantity determination in perfectly competitive markets. It covers price-taking behaviour, market equilibrium, and how producers optimise production by comparing marginal costs and benefits. The chapter introduces the supply curve and price elasticity of supply, highlighting the factors influencing supply responsiveness to price changes.

### Playeconomics Gameplay

#### Entering and Exiting a Market in Game

In the game, players guide AI-driven agents through short-term and long-term decision-making, learning to ignore fixed costs initially and focusing on variable costs over time. They experience market entry and exit dynamics, influenced by changing market structures, and explore these concepts in both single-player and multiplayer modes, enhancing their understanding of economic decision-making.

#### PSFB-2.A.1

In the game, firms decide to operate or shut down in the short-run by comparing total revenue with total variable costs, or price with AVC.

#### PSFB-2.A.2

The game shows that in the long-run, firms enter profitable markets and exit those with expected economic losses, especially when there are no barriers.

▼ ⓘ Chapter 2 - Supply in a Perfectly Competitive Market

0/11

Chapter progress

Perfectly Competitive Markets

Supply Curve for an Individual

How to Derive the Supply Curve for a Firm

0/4

From a Discrete to a Continuous Model

0/3

Price Elasticity of Supply

0/1

Determinants of Price Elasticity of Supply

0/2

Capstone Activity: In the News!

0/1

Review Questions

Review Question Solutions

Additional Questions

Additional Question Solutions

# AP TOPIC 3.7

## AP TOPIC 3.7 Perfect Competition

### PSFB-3

Although all aim to maximise profits, the structure of the market shapes and impacts prices, output, and efficiency.

## AP LEARNING OBJECTIVE

### PSFB-3.A

- Define the characteristics of perfectly competitive markets and efficiency, using graphs where appropriate.
- Explain how equilibrium and firm decision-making in perfectly competitive markets result in efficient outcomes, using graphs where appropriate.
- Calculate economic profit (or loss) in perfectly competitive markets, using data from graphs or tables as needed.

## AP ESSENTIAL KNOWLEDGE

### PSFB-3.A.1

Understand that a perfectly competitive market operates efficiently. Faced with no entry barriers and possessing no market power, firms in these markets compete freely.

### PSFB-3.A.2

Recall that in perfectly competitive markets, prices convey to consumers and producers the extent of the marginal costs of production and the marginal benefits of consumption, offering incentives to respond to this information (i.e., in an efficient market, price equals marginal cost).

### PSFB-3.A.3

Know that in perfectly competitive markets, firms sell their entire output at a constant price set by the market.

### PSFB-3.A.4

Summarise that in a competitive market equilibrium, firms are price takers and maximise profits by producing at a level where marginal cost equals marginal revenue, which is determined by the market price.

# STEP UP CONTENT (Ch. 4)

## Chapter 4

**Summary:** Equilibrium Analysis explores how market equilibrium is established through aggregate supply and demand interaction. It explains market equilibrium, consumer and producer surplus, and how total surplus is maximised at equilibrium. The chapter concludes with discussions on Pareto efficiency and the invisible hand principle in competitive markets.

## Playeconomics Gameplay

### Perfect Competition in Game

The game naturally simulates perfectly competitive markets, where minimal barriers and fierce competition drive firms to achieve allocative and productive efficiency. Players explore market dynamics, entry/exit strategies, and how decisions influence equilibrium, maximising economic surplus and minimising costs.

### PSFB-3.A.1

Students are allowed to place firms in perfectly competitive markets, with no entry barriers, and compete freely and efficiently.

### PSFB-3.A.2

Students observe how prices convey marginal costs and benefits, guiding efficient firm decisions in a competitive market.

### PSFB-3.A.3

The game demonstrates that firms sell their entire output at a constant market-determined price.

### PSFB-3.A.5

In the game, the equilibrium price reflects both marginal benefit and marginal cost, achieving allocative efficiency.

### PSFB-3.A.6

Students observe short-run price fluctuations leading to profits or losses, which gives them the chance to undergo market entry or exit.

### PSFB-3.A.7

The game illustrates that in long-run equilibrium, firms will naturally operate at an efficient scale, where price equals marginal cost and minimum average total cost.

### PSFB-3.A.8

The game shows how long-run prices are determined by the cost curve segment where firms operate.

### PSFB-3.A.9

By using the market cycle system, students learn that in long-run equilibrium, perfectly competitive markets achieve total efficiency.

## ▼ Chapter 4 - Demand and Supply: An Equilibrium Analysis

0/11

Chapter progress

Demand and Supply Aggregation

Market Equilibrium

Consumer and Producer Surplus

0/2

This Toy is Yours to Play With

0/5

Competitive Markets Are Great! Pareto Efficiency (Short Run)

0/1

Competitive Markets Are Great! The Invisible Hand (Long Run)

0/2

The Long Run Supply Curve in a More General Model

Capstone Activity: In the News!

0/1

Review Questions

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**PSFB-3.A.5**

Understand that in a competitive market equilibrium, the price of a product matches both the private marginal benefit of the last unit consumed and the private marginal cost of producing that last unit, thereby achieving allocative efficiency.

**PSFB-3.A.6**

Recall in short-run competitive equilibrium, the price may exceed or fall below its long-run competitive level, leading to either profits or losses. This motivates firms to either enter or exit the market, driving prices and quantities toward long-run equilibrium.

**PSFB-3.A.7**

Recount that in a long-run perfectly competitive equilibrium, productive efficiency means that all active firms produce at their efficient scale, the price matches both marginal cost and minimum average total cost, and firms earn zero economic profit.

**PSFB-3.A.8**

Outline that firms may operate in constant cost, increasing cost, or decreasing cost industries. Long-run prices are determined by the segment of the long-run cost curves where firms operate.

**PSFB-3.A.9**

Understand that a perfectly competitive market in long-run equilibrium achieves both allocative and productive efficiency.

**PSFB-3.A.4**

Students see how firms maximise profits by producing (making deals) where marginal cost equals marginal revenue, as determined by market price.

OUTREACH MICROECONOMICS

# BLOCK 4

## Imperfectly Competitive Markets

**15-22%**

ASSESSMENT WEIGHTING

**~8-10**

CLASS PERIODS

# BLOCK 4: Imperfect Competition

HARMONISED WITH AP “UNITS”

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<b>15-22%</b> ASSESSMENT WEIGHTING	<b>~8-10</b> CLASS PERIODS
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Competence 1	Competence 2	Competence 3	Competence 4
<b>PRINCIPLES AND THEORIES</b>	<b>ECONOMIC INTERPRETATIONS</b>	<b>SITUATION ASSESSMENT</b>	<b>MODELLING VISUALISATION</b>

Key Concept 1	Key Concept 2	Key Concept 3	Key Concept 4
<b>RESOURCE LIMITATION AND MARKET DYNAMICS</b> <b>RLM</b>	<b>TRADE-OFFS AND MARGINAL DECISION-MAKING</b> <b>TMDM</b>	<b>PRODUCTION STRATEGIES AND FIRM BEHAVIOUR</b> <b>PSFB</b>	<b>MARKET FAILURE AND GOVERNMENT INTERVENTION</b> <b>MFPI</b>

# BLOCK 4: Imperfect Competition

HARMONISED WITH AP "UNITS"

Learning Journey	Competencies	Assessments
<p>In reality, firms typically do not operate under the ideal conditions of perfect competition. This block focuses on exploring how real-world markets diverge from the perfect competition model introduced in Block 3. Students will deepen their understanding of market efficiency and inefficiency as they consider the broader impacts of imperfect markets. Additionally, the concept of oligopoly behaviour will be introduced, along with an introduction to game theory as a method for analysing strategic decision-making.</p>	<p>In this block, students will be expected to differentiate between various market structures. To help them develop this skill, it's beneficial to start with concrete, real-world examples, encouraging students to identify and describe the unique features of each. Tools like Venn diagrams can be useful in helping students visualise and organise the similarities and differences.</p> <p>Graphing remains a key skill in this block, and accurately graphing different market structures may be challenging for some students. It's important to carefully guide them through the distinctions between, for example, a licensed monopoly and a naturally occurring monopoly, as well as a monopolistically competitive firm in both the short-run and long-run. Understanding these differences is crucial, but students should also recognize the common features, such as the marginal revenue curve lying below the demand curve in all imperfect markets.</p> <p>Practising neat and accurate graphing, with proper labelling, is essential until students can perform this task confidently.</p>	<p>The MCQs and SAQs provided in the chapters of this block serve as both formative and summative assessment tools. These questions are designed to align with our extensive bank of test-style questions, which includes hundreds of additional questions that meet the standards of assessments in similar programs. Additionally, embracing the research-oriented side of economics, the STEP UP program creates opportunities for students to participate in large-scale in-game economic experiments, testing the concepts they've been learning. Students can either be randomly assigned or choose different planets to join a "challenge event," where they'll face unique restrictions and objectives. Their results will be showcased on Academia's homepage, with Play Coins earned from their performance being tracked and collected.</p>

# Links to AP Units, Competencies and Key Concepts

AP Microeconomics Topic	STEP UP Textbook	Competencies	Key Concepts
4.1 Introduction to Imperfectly Competitive Markets	Chapter 7 - Market Power: Monopoly	1.C Differentiate between economic concepts, principles, or theories by discussing their similarities, differences, and constraints.	PRODUCTION STRATEGIES AND FIRM BEHAVIOUR (PSFB-3)
4.2 Monopoly	Chapter 7 - Market Power: Monopoly	4.B Illustrate your comprehension of a particular economic scenario using a well-labelled diagram or visual.	PRODUCTION STRATEGIES AND FIRM BEHAVIOUR (PSFB-3)
4.3 Price Discrimination	Chapter 7 - Market Power: Monopoly	4.C Depict the impact of a change in an economic scenario on a labelled diagram or visual.	PRODUCTION STRATEGIES AND FIRM BEHAVIOUR (PSFB-3)
4.4 Monopolistic Competition	Chapter 7 - Market Power: Monopoly	4.B Illustrate your comprehension of a particular economic scenario using a well-labelled diagram or visual.	PRODUCTION STRATEGIES AND FIRM BEHAVIOUR (PSFB-3)
4.5 Oligopoly and Game Theory	Chapter 8 - Market Power: Oligopoly	2.C Use numerical data or statistical analysis to analyse specific economic outcomes.	PRODUCTION STRATEGIES AND FIRM BEHAVIOUR (PSFB-3)

# MAIN GAMEPLAY ACTIVITIES



Playeconomics gameplay mentioned in this section are major gameplay activities that investigates and explores the concepts in the following topics. Other game mechanics may explore these concepts but not as strongly as the listed one. However, these additional game mechanics will be outlined briefly within the individual topic overviews.

AP Microeconomics Topic	STEP UP Textbook Chapters	STEP UP Gameplay Activities
4.1 Introduction to Imperfectly Competitive Markets	Chapter 7 - Market Power: Monopoly	<p><b>Imperfectly Competitive Markets</b></p> <p>The Playeconomics virtual world mirrors real life in numerous ways, particularly in how it naturally allows various market structures to emerge. For instance, if certain activities require high fixed or startup costs, or if there are legal restrictions on producing specific goods on a given planet, market dynamics can shift. Additionally, if production rights are assigned to a limited number of players or if a player has exclusive control over crucial resources - like owning an island with all the coal deposits - entry barriers rise.</p> <p>As a result, some players might gain market power due to these barriers to entry. In such markets, the game effectively illustrates concepts from the textbook on monopoly, oligopoly, and monopolistic competition. There's also the potential for a firm to become highly prominent in its market, thus acquiring monopsonistic power in the factor market. For example, a firm with immense startup costs and control over scarce resources might become the sole demander of a specific type of input, thereby gaining market power on the demand side as well.</p>

		<p>In perfectly competitive markets, companies have limited power to influence the market and its prices. They are subject to the rules of perfect competition, where firms can only sell a small amount without affecting the market equilibrium. Conversely, in the case of a monopolist, increasing production would require accepting a lower price.</p>	<p>The game facilitates understanding by visually connecting actors in the simulated world to economic graphs through its user interface. This helps players grasp that equilibrium in an imperfectly competitive market differs from that in a perfectly competitive market. The last unit sold in imperfectly competitive markets does not necessarily align with the marginal cost equaling the marginal benefit. Typically, the market price is higher than it would be in a perfectly competitive market.</p>
<b>4.2 Monopoly</b>	<b>Chapter 7 - Market Power: Monopoly</b>	<p><b>Monopoly in the Game</b></p> <p>In Playconomics, the virtual world simulates real-life market structures, including monopolies, by allowing various conditions to create market dynamics. For instance, high startup costs, legal restrictions, or exclusive control over key resources like coal can lead to significant market power for certain players. This setup illustrates textbook concepts of monopoly, oligopoly, and monopolistic competition. The game visually connects these market dynamics to economic graphs, helping players understand how monopolies and other imperfect markets differ from perfectly competitive markets.</p>	<p>In a monopoly, for example, the firm can control prices and production, often leading to higher prices and inefficiencies compared to a competitive market. Economists often define a natural monopoly as a single firm that dominates a market due to economies of scale. This means that the firm's monopoly status arises naturally from the industry's production structure. The game effectively illustrates how these economies of scale impact long-run costs across the entire spectrum of the product's demand.</p>
<b>4.3 Price Discrimination</b>	<b>Chapter 7 - Market Power: Monopoly</b>	<p><b>Price Discrimination</b></p> <p>Currently, Playconomics does not offer the option for players to explore price discrimination within an imperfectly competitive market. However, we are actively developing this feature, so please check back soon for updates, as we are keen to incorporate it.</p>	<p>Our goal is to enable a monopolist within the game to set different prices for various regions, making these distinctions clear and verifiable for players.</p>

		<p>Additionally, we are considering extending price discrimination capabilities to target different consumer groups based on their preferences or demographics.</p>	<p>This enhancement aims to encompass the major forms of price discrimination discussed in standard economic curricula.</p>
4.4 Monopolistic Competition	Chapter 7 - Market Power: Monopoly	<p><b>Monopolistic Competition</b></p> <p>Monopolistic competition serves as a natural middle ground between perfect competition and monopoly. This economic model is prevalent in both real-world markets and the Playconomics game because it encapsulates the complexities of real-life market dynamics without imposing rigid assumptions. In reality, perfectly competitive and monopolistic markets represent extreme points on a spectrum of market structures, with monopolistic competition being a more common scenario. In the context of monopolistic competition, firms possess some degree of market power, allowing them to use strategies like advertising to gain a competitive edge. For example, players participating in a virtual market can target specific regions with tailored advertising campaigns, thereby forging stronger connections with consumers in those areas.</p>	<p>This targeted approach can facilitate trade even if the firm's prices are less competitive than those of rivals, or in situations where consumers are indifferent between different companies. Monopolistic competition can be analysed using standard demand graphs, which are accessible to players within the virtual environment. These graphs allow for easy comparisons with other market structures, such as monopoly or perfect competition. They also highlight the inefficiencies inherent in monopolistic competition, where the quantity produced is neither allocatively or productively efficient. This inefficiency arises because prices are not set at a level where the marginal cost equals the marginal benefit for the last unit sold, leading to suboptimal outcomes in terms of resource allocation and production efficiency.</p>
4.5 Oligopoly and Game Theory	Chapter 8 - Market Power: Oligopoly	<p><b>Oligopoly and Game Theory in Game</b></p> <p>The game's structure is meticulously designed to incorporate numerous concepts from game theory, transforming the multiplayer experience into an extensive game theory exercise for players.</p>	<p>While game theory plays a minimal role in perfectly competitive markets or monopolistic markets - where a single company dominates, or many companies coexist - it becomes significantly more relevant in oligopolistic markets.</p>

In these markets, a limited number of firms exist, making strategic interactions crucial. Players have various avenues for strategic interaction within the game. For instance, marketing campaigns can illustrate concepts like Nash Equilibria, emphasising the importance of understanding these principles when competing against opponents. The game also allows for the formation of cartels and alliances across different regions, providing a practical demonstration of cooperative strategies. Additionally, players can visit other regions to set up companies, fostering collaboration and expanding their strategic options. The game even includes scenarios where regions can engage in conflicts, introducing another layer of strategic decision-making.

This aspect highlights the importance of strategic actions in war and conquest, where conquering regions can lead to counter attacks from the conquered territories. Moreover, the game allows for more subtle forms of encroachment, such as exploiting natural resources from another region or establishing companies on foreign terrain to leverage those resources. These scenarios underscore the strategic importance of resource management and territorial expansion in an oligopolistic market setting.

# AP TOPIC 4.1

## AP TOPIC 4.1 Introduction to Imperfectly Competitive Markets

### PSFB-3

Despite the shared objective of maximising profits, the structure of the market significantly shapes and impacts prices, output, and efficiency.

## AP LEARNING OBJECTIVE

### PSFB-3.B

- A. Define the characteristics of imperfectly competitive markets and inefficiency, using graphs where necessary.

## AP ESSENTIAL KNOWLEDGE

### PSFB-3.B.1

Understand that imperfectly competitive markets encompass monopolies, oligopolies, and monopolistic competition in product markets, as well as monopsonies in factor markets.

### PSFB-3.B.2

Recognise that in imperfectly competitive output markets, assuming other conditions remain constant, a firm must reduce its prices to sell more units.

### PSFB-3.B.3

Recall that in imperfectly competitive markets, consumers and producers react to prices that exceed the marginal costs of production or the marginal benefits of consumption, indicating that prices are higher than marginal costs in these inefficient markets.

### PSFB-3.B.4

Know that barriers to entry, such as high fixed or start-up costs, legal restrictions, and exclusive control over crucial resources, can deter entry into an industry and maintain imperfectly competitive market structures.

# STEP UP CONTENT (Ch. 7)

## Chapter 7

**Summary:** Chapter 7: Monopoly and Market Power examines firms with market power, like monopolies, which influence prices due to downward-sloping demand curves. It explores different market structures, factors that create market power, and the inefficiencies of monopolies. It also discusses price discrimination and the government's role in regulating monopolies to balance profit maximisation and social welfare.

## Playeconomics Gameplay

### Imperfectly Competitive Markets

In the game, market structures like monopolies and oligopolies emerge due to high entry barriers and exclusive control of resources, allowing players to experience the dynamics of imperfect competition and the impact of market power on pricing and production.

### PSFB-3.B.1

In the game, students experience monopolies, oligopolies, and monopsonies when controlling unique resources or facing high entry barriers, mirroring real-world imperfect competition.

### PSFB-3.B.2

Within the game, firms in oligopolistic markets must lower prices to increase sales, simulating real-world pricing strategies under imperfect competition.

### PSFB-3.B.3

The game demonstrates how prices exceed marginal costs in imperfect markets, reflecting inefficiencies where producers charge more due to reduced competition.

### PSFB-3.B.4

The game's legal and resource-based entry barriers, like exclusive rights to coal deposits, illustrate how high startup costs and restricted access maintain imperfect competition.

## ▼ ⓘ Chapter 7 - Market Power: Monopoly 0/11

### Chapter progress

Introduction 0/1

Determinants of Market Power 0/1

Monopoly 0/1

Monopoly and the Invisible Hand 0/2

Government Regulation 0/1

First Degree Price Discrimination 0/3

Other Forms of Price Discrimination 0/1

Capstone Activity: In the News! 0/1

Review Questions

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Additional Questions

Additional Question Solutions

# AP TOPIC 4.2

## AP TOPIC 4.2 Monopoly

### PSFB-3

Despite a universal aim to maximise profits, the market structure significantly shapes and impacts prices, output, and efficiency.

## AP LEARNING OBJECTIVE

### PSFB-3.B

- B. Using graphs where applicable, discuss equilibrium, firm decision-making, consumer surplus, producer surplus, profit (or loss), and deadweight loss in imperfectly competitive markets, and explain why prices in such markets do not effectively coordinate the actions of all market participants, leading to inefficient outputs.

- C. Using data from a graph or table as needed, compute the areas representing consumer surplus, producer surplus, profit (or loss), and deadweight loss in imperfectly competitive markets.

## AP ESSENTIAL KNOWLEDGE

### PSFB-3.B.5

Understand that a monopoly arises due to barriers to entry.

### PSFB-3.B.6

Understand that in a monopoly, the equilibrium quantity that maximises profit is set where marginal revenue (MR) equals marginal cost (MC), resulting in a price that exceeds the marginal cost.

### PSFB-3.B.7

Acknowledge that a natural monopoly, a single firm experiences long-run economies of scale across the full range of its product's effective demand.

# STEP UP CONTENT (Ch. 7)

## Chapter 7

**Summary:** Chapter 7: Monopoly and Market Power examines firms with market power, like monopolies, which influence prices due to downward-sloping demand curves. It explores different market structures, factors that create market power, and the inefficiencies of monopolies. It also discusses price discrimination and the government's role in regulating monopolies to balance profit maximisation and social welfare.

## Playeconomics Gameplay

### Monopoly in the Game

The game simulates monopolies by allowing players to control resources and set prices, illustrating economic principles like economies of scale and market inefficiencies through interactive gameplay.

### PSFB-3.B.5

The game simulates monopolies through scenarios where high startup costs or exclusive resource control act as barriers to entry, directly illustrating this concept.

### PSFB-3.B.6

The game demonstrates that in a monopoly, firms set quantities where marginal revenue equals marginal cost, leading to prices higher than marginal costs, mirroring real-world monopolistic pricing strategies.

### PSFB-3.B.7

The game effectively shows students how a natural monopoly benefits from economies of scale over the entire demand range, fitting the economic definition by reducing long-run average costs.

▼ ⓘ Chapter 7 - Market Power:  
Monopoly 0/11

## Chapter progress

Introduction 0/1

Determinants of Market Power 0/1

Monopoly 0/1

Monopoly and the Invisible Hand 0/2

Government Regulation 0/1

First Degree Price Discrimination 0/3

Other Forms of Price Discrimination 0/1

Capstone Activity: In the News! 0/1

Review Questions

Review Question Solutions

Additional Questions

Additional Question Solutions

# AP TOPIC 4.3

## AP TOPIC 4.3 Price Discrimination

### PSFB-3

Even though all firms aim to maximise profits, the market structure significantly affects prices, output, and efficiency.

## AP LEARNING OBJECTIVE

### PSFB-3.B

- B. Using graphs where applicable, discuss equilibrium, firm decision-making, consumer surplus, producer surplus, profit (or loss), and deadweight loss in imperfectly competitive markets, and explain why prices in such markets do not effectively coordinate the actions of all market participants, leading to inefficient outputs.

- C. Using data from a graph or table as needed, compute the areas representing consumer surplus, producer surplus, profit (or loss), and deadweight loss in imperfectly competitive markets.

## AP ESSENTIAL KNOWLEDGE

### PSFB-3.B.8

Know that under specific conditions, a firm possessing market power can use price discrimination to boost its profits or capture more consumer surplus.

### PSFB-3.B.9

Understand that with perfect price discrimination, a monopolist sets production where the price matches the marginal cost, similar to a competitive market, but captures the entire economic surplus from its product, thereby eliminating any deadweight loss.

# STEP UP CONTENT (Ch. 7)

## Chapter 7

**Summary:** Chapter 7: Monopoly and Market Power examines firms with market power, like monopolies, which influence prices due to downward-sloping demand curves. It explores different market structures, factors that create market power, and the inefficiencies of monopolies. It also discusses price discrimination and the government's role in regulating monopolies to balance profit maximisation and social welfare.

## Playeconomics Gameplay

### Price Discrimination

The game is developing a price discrimination feature to allow monopolists to set varied prices by region and consumer demographics, enhancing gameplay and economic realism.

### PSFB-3.B.8

The game will soon allow monopolists to practise price discrimination, increasing profits by varying prices based on region and consumer demographics.

### PSFB-3.B.9

This upcoming feature will simulate perfect price discrimination, enabling monopolists to match prices with marginal costs, capture all consumer surplus, and eliminate deadweight loss.

▼ ⓘ Chapter 7 - Market Power:  
Monopoly 0/11

## Chapter progress

Introduction 0/1

Determinants of Market Power 0/1

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Monopoly and the Invisible Hand 0/2

Government Regulation 0/1

First Degree Price Discrimination 0/3

Other Forms of Price Discrimination 0/1

Capstone Activity: In the News! 0/1

Review Questions

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Additional Questions

Additional Question Solutions

# AP TOPIC 4.4

## AP TOPIC 4.4 Monopolistic Competition

### PSFB-3

Even though all firms aim to maximise profits, the market structure significantly affects prices, output, and efficiency.

## AP LEARNING OBJECTIVE

### PSFB-3.B

- B. Using graphs where applicable, discuss equilibrium, firm decision-making, consumer surplus, producer surplus, profit (or loss), and deadweight loss in imperfectly competitive markets, and explain why prices in such markets do not effectively coordinate the actions of all market participants, leading to inefficient outputs.
- C. Using data from a graph or table as needed, compute the areas representing consumer surplus, producer surplus, profit (or loss), and deadweight loss in imperfectly competitive markets.

## AP ESSENTIAL KNOWLEDGE

### PSFB-3.B.10

Understand that in a monopolistically competitive market, firms that produce unique products can experience positive, negative, or zero economic profits in the short-run. These firms often use advertising to distinguish their offerings. Although free entry and exit in the market eventually drive profits to zero in the long-run, the production level remains below what is required to minimise average total costs, resulting in excess capacity. Additionally, the price charged is higher than the marginal cost, leading to allocative inefficiency.

# STEP UP CONTENT (Ch. 7)

## Chapter 7

**Summary:** Monopoly and Market Power examines firms with market power, like monopolies, which influence prices due to downward-sloping demand curves. It explores different market structures, factors that create market power, and the inefficiencies of monopolies. It also discusses price discrimination and the government's role in regulating monopolies to balance profit maximisation and social welfare.

## Playeconomics Gameplay

### Monopolistic Competition

In the game, firms in monopolistic competition can use a variety of tools to create unique product identities, impacting economic profits and leading to inefficiencies and excess capacity.

### PSFB-3.B.10

In the game, firms in monopolistic competition can use a variety of tools to create unique product identities, impacting economic profits and leading to inefficiencies and excess capacity.

▼ ⓘ Chapter 7 - Market Power:  
Monopoly 0/11

## Chapter progress

Introduction	<span style="border: 1px solid #F0A000; border-radius: 50%; padding: 2px 5px;">0/1</span>
Determinants of Market Power	<span style="border: 1px solid #F0A000; border-radius: 50%; padding: 2px 5px;">0/1</span>
Monopoly	<span style="border: 1px solid #F0A000; border-radius: 50%; padding: 2px 5px;">0/1</span>
Monopoly and the Invisible Hand	<span style="border: 1px solid #F0A000; border-radius: 50%; padding: 2px 5px;">0/2</span>
Government Regulation	<span style="border: 1px solid #F0A000; border-radius: 50%; padding: 2px 5px;">0/1</span>
First Degree Price Discrimination	<span style="border: 1px solid #F0A000; border-radius: 50%; padding: 2px 5px;">0/3</span>
Other Forms of Price Discrimination	<span style="border: 1px solid #F0A000; border-radius: 50%; padding: 2px 5px;">0/1</span>
Capstone Activity: In the News!	<span style="border: 1px solid #F0A000; border-radius: 50%; padding: 2px 5px;">0/1</span>
Review Questions	
Review Question Solutions	
Additional Questions	
Additional Question Solutions	

# AP TOPIC 4.5

## AP TOPIC 4.5 Oligopoly and Game Theory

### PSFB-3

Even though all firms aim to maximise profits, the market structure significantly affects prices, output, and efficiency.

## AP LEARNING OBJECTIVE

### PSFB-3.C

- A. Define key terms, strategies, and concepts associated with oligopolies and simple games, using tables where necessary.
- B. Using tables where necessary, explain the strategies and equilibria found in simple games and their relationship to theoretical behaviours in different oligopoly market and non-market environments.
- C. Calculate, with the aid of tables, the incentives needed to change a player's dominant strategy.

## AP ESSENTIAL KNOWLEDGE

### PSFB-3.C.1

Understand that an oligopoly is a market structure characterised by inefficiency and high barriers to entry, with a small number of firms operating interdependently.

### PSFB-3.C.2

Know that firms within an oligopoly are motivated to collude and form cartels.

### PSFB-3.C.3

Know that a game involves multiple participants taking actions where each participant's payoff depends on their own decisions as well as the decisions of others.

### PSFB-3.C.4

Recall a strategy is a comprehensive plan of actions for playing a game, and the normal form model displays the payoffs resulting from each combination of strategies across players.

### PSFB-3.C.5

Recognise that a player possesses a dominant strategy when the returns from a specific action are always superior, regardless of the other player's actions.

# STEP UP CONTENT (Ch. 8)

## Chapter 8

**Summary:** Oligopoly and Strategic Interaction explores oligopolistic markets where a few firms dominate, and their decisions impact each other. It introduces game theory to study strategic interactions, discussing scenarios like the prisoner's dilemma and potential collusion through cartels. The chapter highlights the tension between competition and collusion in oligopolistic markets.

## Playeconomics Gameplay

### PSFB-3.C.4

The game helps students understand that a strategy is a comprehensive plan in a competitive environment, where payoffs are influenced by the combination of strategies across players (covering situations from war to advertising).

### PSFB-3.C.5

The game allows students to recognise a dominant strategy when a specific action consistently yields better returns, regardless of other students' actions.

### PSFB-3.C.6

The concept of a Nash equilibrium can be encountered, when students cannot improve their payoffs by unilaterally changing their actions, given the strategies of others. Often this will be the result of combat encounters with neighbouring islands.

### PSFB-3.C.7

The game illustrates how oligopolists struggle to achieve monopoly outcomes, akin to the Prisoner's Dilemma, resulting in higher prices and lower quantities compared to perfect competition.

▼ ⓘ Chapter 8 - Market Power: Oligopoly 0/11

## Chapter progress

Introduction 0/1

A Simple Entry Game 0/2

Prisoner's Dilemma Game 0/1

Cartel Game 0/1

Coordination Game: The Battle of the Sexes 0/5

Capstone Activity: In the News! 0/1

## Review Questions

## Review Question Solutions

## Additional Questions

## Additional Question Solutions

**PSFB-3.C.6**

Understanding a Nash equilibrium is a state where no player can improve their payoff by unilaterally changing their action, given the actions of the other players.

**Exclusion:** Topics such as dominant strategies and Nash equilibria involving more than two players or actions, mixed-strategy equilibria, extensive form games, and normal form games with more than two players or actions are not covered in this course or on the Assessment.

**PSFB-3.C.7**

Understand that oligopolists struggle to achieve monopoly outcomes due to issues similar to those preventing cooperative outcomes in the Prisoner's Dilemma; as a result, prices tend to be higher and quantities lower in oligopoly (or duopoly) compared to perfect competition.

**PSFB-3.C.3**

In the game, students experience game theory concepts where their payoffs depend on both their own decisions and the actions of other players, emphasising strategic interdependence.

OUTREACH MICROECONOMICS

# BLOCK 5

## Factor

## Markets

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**20-25%**

ASSESSMENT WEIGHTING

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**~13-15**

CLASS PERIODS

# BLOCK 5: Factor Markets

HARMONISED WITH AP “UNITS”

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<b>20-25%</b> ASSESSMENT WEIGHTING	<b>~13-15</b> CLASS PERIODS
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Competence 1	Competence 2	Competence 3	Competence 4
<b>PRINCIPLES AND THEORIES</b>	<b>ECONOMIC INTERPRETATIONS</b>	<b>SITUATION ASSESSMENT</b>	<b>MODELLING VISUALISATION</b>
Key Concept 1	Key Concept 2	Key Concept 3	Key Concept 4
<b>RESOURCE LIMITATION AND MARKET DYNAMICS</b> <b>RLM</b>	<b>TRADE-OFFS AND MARGINAL DECISION-MAKING</b> <b>TMDM</b>	<b>PRODUCTION STRATEGIES AND FIRM BEHAVIOUR</b> <b>PSFB</b>	<b>MARKET FAILURE AND GOVERNMENT INTERVENTION</b> <b>MFPI</b>

# BLOCK 5: Factor Markets

HARMONISED WITH AP "UNITS"

Learning Journey	Competencies	Assessments
<p>At this stage in the course, students have already grasped how product markets function and what drives firms' decisions. This unit shifts the focus to factor markets, where students will apply many of the concepts they've previously learned. Just as with product markets, the supply and demand principles are relevant here, characterised by an upward-sloping supply curve and a downward-sloping demand curve. In factor markets, firms continue to hire resources until the marginal revenue product of the resource matches its marginal cost. This decision-making process reflects the optimal choice theory discussed in Block 1, where firms equate marginal benefits with marginal costs to achieve profit maximisation.</p>	<p>Students in this block will learn to articulate the principles of factor markets and apply that understanding within real-world contexts. Time should be dedicated to introducing new terminology and connecting these key terms to concepts covered earlier in the course.</p> <p>Students will also focus on representing factor markets through graphs, which is crucial for illustrating the assumptions underlying each model. Accurate and clearly labelled graphs will help students visualise economic scenarios and interpret the relevant data.</p> <p>As they progress, students will continue enhancing their quantitative skills by tackling problems that involve interpreting how firms allocate resources to minimise costs or maximise profits. It's vital to ensure that students are conceptually grounded in these quantitative topics, with plenty of time allotted for practising numerical examples.</p>	<p>The MCQs and SAQs provided in the chapters of this block serve as both formative and summative assessment tools. These questions are designed to align with our extensive bank of test-style questions, which includes hundreds of additional questions that meet the standards of assessments in similar programs. Additionally, embracing the research-oriented side of economics, the STEP UP program creates opportunities for students to participate in large-scale in-game economic experiments, testing the concepts they've been learning. Students can either be randomly assigned or choose different planets to join a "challenge event," where they'll face unique restrictions and objectives. Their results will be showcased on Academia's homepage, with Play Coins earned from their performance being tracked and collected.</p>

# Links to AP Units, Competencies and Key Concepts

AP Microeconomics Topic	STEP UP Textbook	Competencies	Key Concepts
5.1 Introduction to Factor Markets	Chapter 2 - Supply in a Perfectly Competitive Market	1.A Articulate economic ideas, principles, or theories.	PRODUCTION STRATEGIES AND FIRM BEHAVIOUR (PSFB-4)
5.2 Changes in Factor Demand and Factor Supply	Chapter 2 - Supply in a Perfectly Competitive Market	3.B Assess the impact of changes in one or more economic markets.	PRODUCTION STRATEGIES AND FIRM BEHAVIOUR (PSFB-4)
5.3 Profits-Maximising Behaviour in Perfectly Competitive Factor Markets	Chapter 2 - Supply in a Perfectly Competitive Market	2.C Use numerical data or statistical analysis to analyse specific economic outcomes.	PRODUCTION STRATEGIES AND FIRM BEHAVIOUR (PSFB-4)
5.4 Monopsonistic Markets	Chapter 2 - Supply in a Perfectly Competitive Market	2.A Explain why a specific economic result occurs or determine actions needed to achieve a desired outcome, utilising economic ideas, principles, or theories.	PRODUCTION STRATEGIES AND FIRM BEHAVIOUR (PSFB-4)

# MAIN GAMEPLAY ACTIVITIES



Playeconomics gameplay mentioned in this section are major gameplay activities that investigates and explores the concepts in the following topics. Other game mechanics may explore these concepts but not as strongly as the listed one. However, these additional game mechanics will be outlined briefly within the individual topic overviews.

AP Microeconomics Topic	STEP UP Textbook Chapters	STEP UP Gameplay Activities
5.1 Introduction to Factor Markets	Chapter 2 - Supply in a Perfectly Competitive Market	<p><b>Factor Markets in Game</b></p> <p>The Playeconomics game offers a comprehensive simulation of societal dynamics, including the intricate workings of factor markets. In this virtual environment, firms require various inputs to produce goods and services, with labour being the most commonly utilised. Consequently, firms act as suppliers in the product market while simultaneously functioning as consumers in the labour market. This dual role of firms is a central aspect of factor markets, which the game meticulously simulates and analyses.</p> <p>In Playeconomics, factor markets are visually represented in the user interface and through detailed demand and supply graphs. This allows players to clearly observe the interconnected roles of firms as both suppliers and consumers. Inputs in these markets aren't limited to labour; they also encompass raw materials and land. For instance, a firm might need to rent land in another player's region. In such cases, a player can travel to another region to negotiate rental terms, with the landowner setting the price and deciding whether to permit resource exploitation.</p>

## 5.2 Changes in Factor Demand and Factor Supply

### Chapter 2 - Supply in a Perfectly Competitive Market

Additionally, the game includes financial markets, enabling players to save money in deposits within the planet's central bank. These deposits can then be borrowed by other players, typically for significant investments like infrastructure projects.

The financial market operates with interest rates as the price mechanism, fluctuating based on demand and supply dynamics.

Playconomics accurately portrays labour markets using traditional demand and supply graphs. These graphs link every agent in the game to the broader market, illustrating the typical structure of labour markets.

The demand curve generally slopes downward, reflecting varying productivity levels among companies, while the supply curve slopes upward, indicating workers' differing preferences for leisure and other factors influencing their willingness to work. In summary, Playconomics captures the essence of factor markets by showcasing the multifaceted roles of firms, the negotiation of resource use, and the operation of financial markets. The game provides a detailed and visual representation of these economic principles, enhancing players' understanding of market dynamics.

### Changes in Factor Demand and Factor Supply

The game, designed around a general equilibrium model of a circular flow economy, provides players with the opportunity to observe how changes in distant markets can indirectly influence factor markets. For instance, it might be intuitive for players to understand that in the labour market, an increase in wages could lead to fewer firms being willing to hire. This is because some firms may not be productive enough to justify paying higher wages, as they cannot recoup their costs through the sale of their outputs due to inefficiency. Conversely, higher wages can attract more workers to the market, illustrating the downward-sloping demand curve and the upward-sloping supply curve for labour.

However, the game goes beyond this basic interaction by allowing players to appreciate how external shocks can significantly impact the labour market. For example, if the prices of the firms' outputs decrease, firms are less likely to hire labourers because their potential revenue is reduced. This scenario would shift the demand curve for labour to the left, decreasing demand at any given wage level. On the other hand, if firms experience an increase in productivity, possibly due to government infrastructure investments or their own capital investments, workers become more productive. This increased productivity can lead firms to be willing to pay higher wages, effectively shifting the supply curve to the right.

### 5.3 Profits-Maximising Behaviour in Perfectly Competitive Factor Markets

#### Chapter 2 - Supply in a Perfectly Competitive Market

The game captures many such factors, but these primary examples are transparently explained through the interaction between virtual actors, their positions on demand and supply graphs, and the ability for players to advance time to observe how labour market dynamics unfold. Other important aspects of the labour market are also addressed in the game. For example, players can influence immigration rates, which in turn affects the labour supply by shifting it to the right or left depending on the chosen immigration policy. The level of education is another critical factor, as certain jobs may require specific qualifications. Living conditions also play a role; better living conditions might reduce the appeal of leisure activities, thereby increasing the labour supply.

Age demographics are modelled using a “dynasty system,” where workers have a life cycle of working, having children, and then retiring. As the society ages, demographic shifts create different employment opportunities, impacting the labour market. Changes in preferences for leisure, driven by government policies or cultural norms, can also affect labour supply. For example, the creation of public goods might make leisure more attractive for certain individuals, or cultural shifts might naturally alter the labour market dynamics. Overall, the game provides a comprehensive and interactive way for players to understand the complexities of labour markets and the broader economy.

#### Profit-Maximising in Perfectly Competitive Factor Markets in Game

At the core of its design, Playconomics offers an approach to player interactions that embodies the concept of marginal decision-making. For instance, within the game’s Factor Market, a player can, with a single click, increase the production of a specific good in their region. As production scales up, depending on the production function associated with that industry, varying amounts of inputs may be required. Take the simplest scenario where labour is the only input: players quickly learn that it makes sense to expand production in an industry until the marginal cost of labour equals the marginal revenue product of labour.

Essentially, this means that when producing an additional unit of the good, the revenue gained from selling this extra product should cover the cost of the labour hired to produce it. A firm might act as a price taker in a perfectly competitive labour market but not necessarily in its output market. For example, a company like Apple may not face perfect competition in the smartphone market but could be in a perfectly competitive market concerning labour.

## 5.4 Monopsonistic Markets

### Chapter 2 - Supply in a Perfectly Competitive Market

This implies that the firm will continue to hire labour as long as the marginal revenue product of labour exceeds the market wage, consistent with the general cost-benefit analysis. The principle here is that firms should allocate inputs so that the marginal product per dollar spent on each input remains consistent.

The game seamlessly connects every productive actor and consumer within the economy through a virtual environment and simulation.

It effectively illustrates how these agents participate in the market by representing them as points on traditional demand and supply graphs. By clicking on these points, players can access detailed information about various economic variables, including marginal revenue product, factors of production, total revenue, changes in those factors, and the marginal product of labour. This comprehensive access to data allows players to thoroughly understand the economic decisions being made within the game.

#### Monopsonistic Markets in the Game

The game effectively illustrates the dynamics of monopsonistic markets through its general equilibrium model, which allows for the emergence of market structures. In a monopsonistic labour market, a single company demands such a large quantity of labour that it no longer acts as a price taker. Instead, it influences the wage rate. As the company hires more workers, it exerts upward pressure on wages, altering the cost-benefit analysis and marginal decision-making processes. Within the game, players can explore these dynamics by examining the interactions between various actors in the virtual world and their corresponding positions on the demand and supply curves.

This exploration helps players determine whether increasing labour recruitment is beneficial, given that doing so raises wages for all existing labour. Consequently, the marginal factor cost exceeds the labour supply price in the market. This relationship is clearly visualised through demand and supply graphs, which connect the actions of different actors in the simulated environment. By engaging with these visual tools, players can better understand the complexities of monopsonistic markets and the implications of a single company's influence on wage rates.

# AP TOPIC 5.1

## AP TOPIC 5.1 Introduction to Factor Markets

### PSFB-4

Factor prices create incentives and communicate essential information to firms and the factors of production.

## AP LEARNING OBJECTIVE

### PSFB-4.A

- A. Define key terms and concepts related to factor markets, using graphs where applicable.
- B. Illustrate the relationship between factors of production, firms, and factor prices, employing graphs when appropriate.
- C. Compute the marginal revenue product and marginal resource cost using data from graphs or tables where suitable.

## AP ESSENTIAL KNOWLEDGE

### PSFB-4.A.1

Understand the factors of production - labour, capital, and land - respond to factor prices such as wages, interest, and rent. Employers' (firms') hiring decisions are influenced by the productivity of these factors, the output price, and the cost of the factor.

### PSFB-4.A.2

Analyse the quantity of labour demanded decreases as the wage rate increases, whereas the quantity of labour supplied increases with higher wage rates in a given labour market, assuming other factors remain constant.

# STEP UP CONTENT (Ch. 2)

## Chapter 2

**Summary:** Supply in Perfect Competition examines price and quantity determination in perfectly competitive markets. It covers price-taking behaviour, market equilibrium, and how producers optimise production by comparing marginal costs and benefits. The chapter introduces the supply curve and price elasticity of supply, highlighting the factors influencing supply responsiveness to price changes.

## Playeconomics Gameplay

### PSFB-4.A.1

Playeconomics shows firms making hiring decisions based on productivity, costs, and output prices via detailed graphs and interface elements.

### PSFB-4.A.2

The game's labour market graphs illustrate how higher wages decrease labour demand but increase labour supply.

### Chapter 2 - Supply in a Perfectly Competitive Market

0/1

Chapter progress

Perfectly Competitive Markets

Supply Curve for an Individual

How to Derive the Supply Curve for a Firm

0/4

From a Discrete to a Continuous Model

0/3

Price Elasticity of Supply

0/1

Determinants of Price Elasticity of Supply

0/2

Capstone Activity: In the News!

0/1

Review Questions

Review Question Solutions

Additional Questions

Additional Question Solutions

# AP TOPIC 5.2

## AP TOPIC 5.2 Changes in Factor Demand and Factor Supply

### PSFB-4

Factor prices create incentives and communicate information to firms and production factors.

## AP LEARNING OBJECTIVE

### PSFB-4.B

Illustrate, utilising graphs as necessary, how firms and factors react to alterations in incentives and constraints.

## AP ESSENTIAL KNOWLEDGE

### PSFB-4.B.1

Demonstrate modifications in factors affecting labour demand, like variations in output prices and worker productivity, lead to shifts in the labour demand curve.

### PSFB-4.B.2

Understanding alterations in factors impacting labour supply, such as immigration rates, levels of education, working conditions, age demographics, availability of alternative employment opportunities, preferences for leisure, and cultural norms, result in shifts of the labour supply curve.

# STEP UP CONTENT (Ch. 2)

## Chapter 2

**Summary:** Supply in Perfect Competition examines price and quantity determination in perfectly competitive markets. It covers price-taking behaviour, market equilibrium, and how producers optimise production by comparing marginal costs and benefits. The chapter introduces the supply curve and price elasticity of supply, highlighting the factors influencing supply responsiveness to price changes.

## Playeconomics Gameplay

### Changes in Factor Demand and Factor Supply

The game explores how external factors influence labour markets, using a general equilibrium model to demonstrate effects like wage changes on employment and productivity. It also allows manipulation of variables like immigration and education, providing a deep understanding of labour market dynamics.

### PSFB-4.B.1

The game demonstrates how variations in output prices and productivity impact labour demand, showing these changes through shifts in the demand curve on dynamic graphs as firms adjust hiring.

### PSFB-4.B.2

The game allows students to see how immigration, education, working conditions, demographics, employment alternatives, leisure preferences, and cultural norms influence labour supply, visualised through shifts in the supply curve.

▼ ⓘ Chapter 2 - Supply in a Perfectly Competitive Market

0/11

Chapter progress

Perfectly Competitive Markets

Supply Curve for an Individual

How to Derive the Supply Curve for a Firm

0/4

From a Discrete to a Continuous Model

0/3

Price Elasticity of Supply

0/1

Determinants of Price Elasticity of Supply

0/2

Capstone Activity: In the News!

0/1

Review Questions

Review Question Solutions

Additional Questions

Additional Question Solutions

# AP TOPIC 5.3

## AP TOPIC 5.3 Profit-Maximising Behaviour in Perfectly Competitive Factor Markets

### PSFB-4

Factor prices offer incentives and communicate information to both firms and factors of production.

### AP LEARNING OBJECTIVE

#### PSFB-4.C

- Define the attributes of perfectly competitive factor markets, employing graphs where applicable.
- Elucidate the profit-maximising conduct of firms purchasing labour in perfectly competitive markets, utilising graphs where suitable and assuming other inputs remain fixed.
- Compute metrics representing the profit-maximising conduct of firms purchasing labour in perfectly competitive markets, utilising data from graphs or tables where necessary.

### AP ESSENTIAL KNOWLEDGE

#### PSFB-4.C.1

Understand that in a perfectly competitive labour market, the wage is determined by market forces, and each firm employs workers until the point where the marginal cost of labour equals the marginal revenue product of labour.

#### PSFB-4.C.2

Knowing that a perfectly competitive labour market, a firm continues to hire labour as long as the marginal revenue product of labour exceeds the market wage.

#### PSFB-4.C.3

Acknowledge that for cost minimization or profit maximisation, firms allocate inputs so that the marginal product per dollar spent on each input remains consistent.

#### PSFB-4.C.4

Understand that the marginal revenue product of a factor of production represents the change in total revenue divided by the change in that factor, equating to the product of the marginal physical product of that factor and the marginal revenue. In perfectly competitive output markets, the marginal revenue product of labour equals the value of the marginal product of labour.

# STEP UP CONTENT (Ch. 2)

## Chapter 2

**Summary:** Supply in Perfect Competition examines price and quantity determination in perfectly competitive markets. It covers price-taking behaviour, market equilibrium, and how producers optimise production by comparing marginal costs and benefits. The chapter introduces the supply curve and price elasticity of supply, highlighting the factors influencing supply responsiveness to price changes.

### Playeconomics Gameplay

#### Profit-Maximising in Perfectly Competitive Factor Markets in Game

The game teaches marginal decision-making in factor markets, illustrating how firms in perfectly competitive markets continue to hire labour until the marginal revenue product of labour equals the market wage, effectively connecting theory with practical, interactive learning.

#### PSFB-4.C.1

The game teaches students that in a perfectly competitive labour market, wages are set by market forces, and firms hire until the marginal cost of labour meets the marginal revenue product.

#### PSFB-4.C.2

The game shows that in a perfectly competitive labour market, firms continue hiring as long as the marginal revenue product of labour exceeds the market wage, helping students see real-time cost-benefit analyses.

#### PSFB-4.C.3

The game demonstrates cost minimization and profit maximisation strategies by allowing students to adjust inputs so the marginal product per dollar spent is optimised, reflecting efficient resource allocation.

#### PSFB-4.C.4

The game illustrates that the marginal revenue product of labour, defined as the extra revenue from an additional unit of labour, equals the value of the marginal product when marginal revenue matches the price per unit in perfectly competitive markets.

## Chapter 2 - Supply in a Perfectly Competitive Market

0/11

Chapter progress

Perfectly Competitive Markets

Supply Curve for an Individual

How to Derive the Supply Curve for a Firm

0/4

From a Discrete to a Continuous Model

0/3

Price Elasticity of Supply

0/1

Determinants of Price Elasticity of Supply

0/2

Capstone Activity: In the News!

0/1

Review Questions

Review Question Solutions

Additional Questions

Additional Question Solutions

# AP TOPIC 5.4

## AP TOPIC 5.4 Monopsonistic Markets

### PSFB-4

Factor prices offer motivation and transmit information to both firms and factors of production.

## AP LEARNING OBJECTIVE

### PSFB-4.D

- A. Describe (utilising graphs as necessary) the features of monopsonistic markets.
- B. Clarify (using graphs where applicable) the profit-maximising conduct of firms purchasing labour in monopsonistic markets, assuming other inputs remain constant.
- C. Compute (utilising data from a graph or table where applicable) metrics indicating the profit-maximising behaviour of firms buying labour (with other inputs fixed) in monopsonistic markets.

## AP ESSENTIAL KNOWLEDGE

### PSFB-4.D.1

Understand that in a monopsonistic labour market, a standard firm continues to recruit more labour provided that the marginal revenue product surpasses the combined cost of hiring a new unit of labour and the wage increase allocated to all existing labour.

### PSFB-4.D.2

Recognise that as a typical firm adds more workers in a monopsonistic labour market, the marginal factor cost exceeds the labour's supply price.

# STEP UP CONTENT (Ch. 2)

## Chapter 2

**Summary** Supply in Perfect Competition examines price and quantity determination in perfectly competitive markets. It covers price-taking behaviour, market equilibrium, and how producers optimise production by comparing marginal costs and benefits. The chapter introduces the supply curve and price elasticity of supply, highlighting the factors influencing supply responsiveness to price changes.

## Playeconomics Gameplay

### Monopsonistic Markets in the Game

The game models monopsonistic labour markets, where a single company's hiring practices significantly influence wage rates. This setup allows players to explore how increased hiring affects wages and the overall market, enhancing their understanding of monopsonistic dynamics through interactive simulation.

### PSFB-4.D.1

The game shows firms hire more labour if the marginal revenue product exceeds total hiring costs, including wage increases for existing workers.

### PSFB-4.D.2

The game illustrates that in a monopsonistic market, the marginal factor cost of hiring additional workers surpasses the labour supply price.

▼ ⓘ Chapter 2 - Supply in a Perfectly Competitive Market

0/11

Chapter progress

Perfectly Competitive Markets

Supply Curve for an Individual

How to Derive the Supply Curve for a Firm

0/4

From a Discrete to a Continuous Model

0/3

Price Elasticity of Supply

0/1

Determinants of Price Elasticity of Supply

0/2

Capstone Activity: In the News!

0/1

Review Questions

Review Question Solutions

Additional Questions

Additional Question Solutions

OUTREACH MICROECONOMICS

# BLOCK 6

## Market Failure and the Role of Government

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8-13%

ASSESSMENT WEIGHTING

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~9–11

CLASS PERIODS

# BLOCK 6: Market Failure and the Role of Government

HARMONISED WITH AP “UNITS”

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<b>8-13%</b> ASSESSMENT WEIGHTING	<b>~9-11</b> CLASS PERIODS
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Competence 1	Competence 2	Competence 3	Competence 4
<b>PRINCIPLES AND THEORIES</b>	<b>ECONOMIC INTERPRETATIONS</b>	<b>SITUATION ASSESSMENT</b>	<b>MODELLING VISUALISATION</b>

Key Concept 1	Key Concept 2	Key Concept 3	Key Concept 4
<b>RESOURCE LIMITATION AND MARKET DYNAMICS</b> <b>RLM</b>	<b>TRADE-OFFS AND MARGINAL DECISION-MAKING</b> <b>TMDM</b>	<b>PRODUCTION STRATEGIES AND FIRM BEHAVIOUR</b> <b>PSFB</b>	<b>MARKET FAILURE AND GOVERNMENT INTERVENTION</b> <b>MFPI</b>

# BLOCK 6: Market Failure and the Role of Government

HARMONISED WITH AP "UNITS"

Learning Journey	Competencies	Assessments
<p>In this block, students will explore the theoretical justifications for and against government involvement in markets, which has significant implications for public policy. They will analyse the conditions under which markets may not function optimally and how government policies can address these failures. By studying market inefficiencies and the role of government intervention in correcting them, students will deepen their understanding of economic efficiency and what it means for a firm to achieve socially optimal production levels. Additionally, students will learn about the metrics used to assess inequality and the factors contributing to income and wealth disparities.</p>	<p>By this point in the course, students will have had multiple chances to refine their course-related skills. This block offers various opportunities to engage students in recognizing economic principles, analysing outcomes, and predicting the effects of economic situations through examples that are relevant to their daily lives and their roles as informed citizens.</p> <p>It's crucial to continue modelling and providing practice for students in graphing economic scenarios and understanding the impacts of shifts in these situations. This practice is especially vital when dealing with externalities and government intervention, which are challenging areas for many students preparing for exams.</p>	<p>The MCQs and SAQs provided in the chapters of this block serve as both formative and summative assessment tools. These questions are designed to align with our extensive bank of test-style questions, which includes hundreds of additional questions that meet the standards of assessments in similar programs. Additionally, embracing the research-oriented side of economics, the STEP UP program creates opportunities for students to participate in large-scale in-game economic experiments, testing the concepts they've been learning. Students can either be randomly assigned or choose different planets to join a "challenge event," where they'll face unique restrictions and objectives. Their results will be showcased on Academia's homepage, with Play Coins earned from their performance being tracked and collected.</p>

# Links to AP Units, Competencies and Key Concepts

AP Microeconomics Topic	STEP UP Textbook	Competencies	Key Concepts
6.1 Socially Efficient and Inefficient Market Outcomes	Chapter 9 - Externalities  Chapter 10 - Public Goods	2.A  Explain why a specific economic result occurs or determine actions needed to achieve a desired outcome, utilising economic ideas, principles, or theories.	MARKET FAILURES AND POLICY INTERVENTIONS (MFPI-2)
6.2 Externalities	Chapter 9 - Externalities	4.B  Illustrate your comprehension of a particular economic scenario using a well-labelled diagram or visual.	MARKET FAILURES AND POLICY INTERVENTIONS (MFPI-3)
6.3 Public and Private Goods	Chapter 10 - Public Goods	1.B  Identify an economic idea, principle, or theory through a practical illustration, or using numerical data or computations.	MARKET FAILURES AND POLICY INTERVENTIONS (MFPI-3)
6.4 The Effects of Government Intervention in Different Market Structures	Chapter 9 - Externalities  Chapter 10 - Public Goods	4.C  Depict the impact of a change in an economic scenario on a labelled diagram or visual.	MARKET FAILURES AND POLICY INTERVENTIONS (MFPI-4)
6.5 Inequality	Chapter 9 - Externalities	1.A  Articulate economic ideas, principles, or theories.	MARKET FAILURES AND POLICY INTERVENTIONS (MFPI-5)

# MAIN GAMEPLAY ACTIVITIES



Playeconomics gameplay mentioned in this section are major gameplay activities that investigates and explores the concepts in the following topics. Other game mechanics may explore these concepts but not as strongly as the listed one. However, these additional game mechanics will be outlined briefly within the individual topic overviews.

AP Microeconomics Topic	STEP UP Textbook Chapters	STEP UP Gameplay Activities
6.1 Socially Efficient and Inefficient Market Outcomes	Chapter 9 - Externalities  Chapter 10 - Public Goods	<p><b>Socially Efficient and Inefficient Market Outcomes</b></p> <p>As Playeconomics was developed, a significant emphasis was placed on enabling it to convey an instinctive and natural understanding of economic workings. The optimal way to visualise this is by clearly illustrating, at any given moment, the pairs of consumers and producers engaged in exchanges. This approach places these agents in a context that closely mirrors real life, unlike traditional supply and demand graphs.</p> <p>By linking these visually present actors to the actual transactions occurring in the economy, both through a separate UI graph and within the game world, players can achieve a natural understanding of demand and supply dynamics. This physical presence and interaction help to humanise the demand and supply curves, highlighting the real people behind these economic concepts.</p>

## 6.2 Externalities

### Chapter 9 - Externalities

Demand and supply curves after all represent numerous transactions, even in a continuous graph. By examining this graph, one can see that each point represents someone incurring a cost to offer a good or service and someone willing to pay for it. This is expressed in dollars, reflecting both the benefits and costs, which can range from spiritual pleasure to time lost with family. This meaningful human interaction is depicted in a simple graph with two agents facing each other, representing points on the demand curve and engaging in exchanges. Social efficiency is achieved when as many deals as possible occur, as long as the marginal benefit to society exceeds the marginal cost.

This creates surplus value, benefiting society. For this to happen, individuals must embody and express all societal benefits and costs from the transaction. When demand and supply agents include these factors, the outcome maximises total surplus.

However, when market actors leverage market power and consider only their private marginal benefits and costs, the market effect may not be efficient.

This misalignment can be visualised in the game, showing deals that should happen but don't because of market power. In scenarios like monopoly, oligopoly, and monopolistic competition, the equilibrium allocation observed in the game may differ from the efficient allocation. Other factors, such as externalities in production or consumption, asymmetric information, and the underproduction of public goods, also impact efficiency. These situations lead to deadweight loss, as the production quantity deviates from the optimal result competitive markets would achieve.

#### Externalities in Game

The game's design emphasises a natural and intuitive understanding of economic principles by visually representing real-life interactions between consumers and producers. Unlike traditional supply and demand graphs, this approach connects players to the actual transactions in the economy, humanising the abstract concepts of supply and demand. Each transaction, depicted as a pair of agents engaging in exchanges, their position representing the costs and benefits involved.

This scenario leads to an efficient outcome for society where the total surplus is maximised, only if each individual agent - both consumers and suppliers - embodies and considers all the benefits and costs associated with their transactions. For instance, take a private good like an apple.

		<p>If there is no pollution involved in producing the apple, the outcome is efficient because it is reasonable to assume that each agent considers all the benefits (such as the consumer's value of eating the apple) and all the costs (such as the opportunity costs for the farmer and the input costs required to produce the apple).</p> <p>However, there are situations where not all costs and benefits are captured by demand and supply. For example, an industrial district might cause pollution, which is a cost not necessarily accounted for by the firms, as it affects a large population and can be difficult to quantify initially. This scenario is referred to as a negative externality of production.</p> <p>Various negative and positive externalities in both production and consumption can disrupt the alignment between individual actors participating in supply and demand and the associated costs and benefits of their interactions.</p>	<p>The game models many of these externalities, allowing players to understand the complexities of managing a society with both positive and negative externalities from consumption and production.</p> <p>Another factor that can disrupt the link between market transactions and the relevant costs and benefits is the presence of non-excludable goods. These are goods for which it is not always possible to charge consumers, leading to underproduction compared to the optimal level. Public goods, which the government can provide through the game's government module, are a prime example. Players can also influence public policy by implementing taxes, subsidies, or environmental regulations to encourage producers or consumers to internalise the externalities associated with production or consumption. Government intervention can address the underprovision of public goods caused by the free-rider problem, ensuring a more optimal provision of these goods.</p>
6.3 Public and Private Goods	Chapter 10 - Public Goods	<p><b>Public Goods</b></p> <p>The game is designed to highlight the importance of public goods, reflecting the structure of real-world societies. For instance, within the game, a player can build a statue. This statue serves as an example of a public good because it is neither rivalrous or excludable. Charging people for viewing the statue is impractical, and it is also challenging to prevent people from admiring it.</p>	<p>Additionally, as long as there is no congestion, one person's enjoyment of the statue does not diminish the ability of others to enjoy it, making it non-rivalrous. The game effectively demonstrates the concept of a public good through the use of an area of effect around a statue. When any character enters this designated area, even if only briefly, they benefit from the presence of the statue.</p>

		<p>Importantly, the enjoyment or utility that each individual derives from the statue is not diminished by the number of people within the area of effect. Whether there is one person or many, everyone continues to experience the same level of benefit. This mechanic, common in video games, serves as a clear and illustrative example of how public goods function in real life.</p> <p>The game illustrates how individuals, when maximising their benefits and conducting cost-benefit analyses, may not necessarily invest in such public goods. This is because they might prefer to free-ride on the benefits provided by others, leading to insufficient resources for the creation of these goods.</p>	<p>Players in the game can create various public goods, such as education systems, statues, and infrastructure projects. This helps demonstrate to players the critical role of government intervention and taxation in funding these essential public goods. Natural resources also play a significant role in the game and are prominently depicted as vital components of society. For example, the game features natural resources like fish in the ocean, which are inherently non-excludable and rivalrous. These resources are shown as open-access goods that can lead to overconsumption by private individuals. The game effectively showcases this issue within its virtual world, emphasising the need for sustainable management of natural resources.</p>
<p><b>6.4 The Effects of Government Intervention in Different Market Structures</b></p>	<p><b>Chapter 9 - Externalities</b></p> <p><b>Chapter 10 - Public Goods</b></p>	<p><b>Government Intervention in Games</b></p> <p>The game effectively captures every key player in the economy by visually representing them within the demand and supply curves. This is achieved through both traditional graphing methods and an in-game arrangement of agents that automatically adjusts based on the player's focus. These actors collectively shape the demand and supply dynamics. Players have the opportunity to apply various traditional government intervention tools such as taxes, subsidies, quotas, tariffs, price ceilings, and price floors to different markets. These markets can vary in their level of competitiveness, ranging from perfect competition to monopoly and oligopoly.</p>	<p>Additionally, the game addresses market imperfections that arise from the presence of public goods, externalities, and asymmetric information. The game presents these complex economic concepts in a straightforward manner, integrating them into a unified framework. When government policies like taxes and subsidies are implemented, players can immediately observe their impact on the economy's actors and identify potential socially beneficial deals that are hindered by market imperfections.</p>

## 6.5 Inequality

### Chapter 9 - Externalities

Government intervention can thus play a crucial role in correcting these imperfections, particularly in imperfectly competitive markets, thereby enhancing efficiency and improving total surplus.

Total surplus is a significant metric in the game, and leaderboards along with other performance feedback mechanisms are based on it. This motivates players to thoroughly analyse whether government interventions are enhancing or diminishing surplus. For instance, the government can correct inefficiencies caused by monopolies or address market failures due to externalities by appropriately targeting the underlying incentives.

Antitrust policies can increase competitiveness, but the wrong policy applied to a perfectly competitive market could reduce total surplus. Players can also assume the role of the government and implement policies such as property taxes for residential or industrial areas, which represent lump-sum transfers and subsidies that do not alter marginal costs or benefits. Additionally, they can provide direct stimuli to certain firms to boost their competitiveness. Overall, the game offers a comprehensive and interactive platform for players to explore and understand the complexities of economic markets and government interventions.

### Income Inequality in the Game

The video game provides an ideal platform for exploring and discussing topics such as inequality. As a fully general equilibrium model, it meticulously tracks monetary transactions on a one-to-one basis. The game simulates the creation of dynasties, capturing the entire lifecycle of individuals - from ageing and entering the workforce to retirement and having children. This comprehensive simulation allows the game to depict the full arc of human life, emphasising each transaction's impact on a dynasty's wealth and its intergenerational transmission, which in turn affects inequality. The game not only tracks and illustrates the emergence of inequality in real-time but also elucidates the specific mechanisms through which it arises.

It can demonstrate how various market channels and government interventions contribute to inequality. For example, the game can model the effects of tax structures, disparities in human and social capital, inheritance discrimination, access to financial markets, economic mobility, and bargaining power dynamics with firms, labour unions, and families. By doing so, it offers a nuanced understanding of why and how inequality occurs.

# AP TOPIC 6.1

## AP TOPIC 6.1 Socially Efficient and Inefficient Market Outcomes

MFPI-2

While perfectly competitive markets efficiently allocate resources, imperfect competition frequently leads to inefficiencies in the market.

## AP LEARNING OBJECTIVE

MFPI-2.A

Define social efficiency.

Describe, using graphs when suitable, how resource allocation in perfectly competitive markets achieves social efficiency.

MFPI-2.B

Discuss, with the aid of graphs where necessary, how private incentives can drive rational agents to engage in actions that result in socially undesirable (inefficient) market outcomes.

MFPI-2.B.2

# STEP UP CONTENT (Ch. 9/10)

## Chapter 9/10

**Summary:** Chapter 9: Externalities examines how externalities, such as pollution (negative) and education (positive), lead to market inefficiencies. It introduces social demand and supply curves and discusses private negotiations and government interventions like taxes and subsidies to align private incentives with social optimality, reducing deadweight loss and improving welfare.

Chapter 10: Public Goods discusses public goods, which are non-rivalrous and non-excludable, leading to market failures due to under-provision. It explains how individual demands aggregate to determine the marginal social benefit and the role of government intervention in addressing inefficiencies, though challenges like free-riding and information asymmetry remain.

## Playeconomics Gameplay

### Socially Efficient and Inefficient Market Outcomes

The game intuitively demonstrates economic dynamics by representing real-life consumer-producer exchanges. It visualises market inefficiencies, showing how monopolies and externalities cause transactions to deviate from optimal outcomes, leading to deadweight loss.

### MFPI-2.A.1

The game demonstrates through its intuitive sandbox-style gameplay (adding and removing components comes at no cost) that the optimal quantity is reached when the marginal cost of producing an additional unit equals the marginal benefit derived from its consumption.

### MFPI-2.A.2

The game illustrates that market equilibrium equates to the socially optimal quantity only when all social benefits and costs are internalised, ensuring maximum total economic surplus.

### MFPI-2.B.1

In the game, firms can upgrade such that they hold considerably more market power, and can as a result capitalise on market characteristics.

### MFPI-2.B.2

The game's agents are rational - meaning they will make decisions by weighing private marginal benefits against costs, which can lead to inefficiencies when not aligned with social welfare.

### MFPI-2.C.1

The game explores scenarios like monopolies, oligopolies, and externalities, showing how equilibrium allocations can deviate from efficient allocations due to these factors.

▼ ⓘ Chapter 9 - Externalities  
0/11

Chapter progress

Positive Consumption Externality  
0/1

Negative Production Externality  
0/1

Externalities in Large Markets  
0/7

Negative Consumption Externality

Positive Production Externality  
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Review Questions

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**MFPI-2.C**

- A. Describe how equilibrium allocations in imperfect markets differ from efficient allocations, utilising graphs where appropriate, and explain the reasons behind market inefficiencies.
- B. Determine the deadweight loss caused by the production of a non-efficient quantity, using graphs where applicable.

Understand that rational agents aim to make optimal decisions by balancing private marginal benefits against private marginal costs, which can lead to market inefficiencies.

**MFPI-2.C.1**

Equilibrium allocations may differ from efficient allocations in various scenarios, such as monopoly, oligopoly, monopolistic competition, negative and positive externalities in production or consumption, asymmetric information, and the underproduction of public goods.

**MFPI-2.C.2**

Producing any quantity that is not efficient leads to deadweight loss.

**MFPI-2.C.2**

The game demonstrates that any production level deviating from the efficient quantity results in deadweight loss, highlighted through the game's economic simulations.

**Chapter 10 - Public Goods**

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[Chapter progress](#)[Introduction](#)[Non-rivalry and Non-excludability](#)

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[Aggregating Individual Demands: Marginal Social Benefit and Efficiency](#)

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[Market Provision and Free-riding](#)

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[Public Goods and Externalities](#)[Market, Government, and Taxation](#)

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[Capstone Activity: In the News!](#)

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[Review Questions](#)[Review Question Solutions](#)[Additional Questions](#)[Additional Question Solutions](#)

# AP TOPIC 6.2

## AP TOPIC TOPIC 6.2 Externalities

### MFPI-3

Private incentives can fail to account for all socially relevant considerations.

## AP LEARNING OBJECTIVE

### MFPI-3.A

- A. Define externalities.
- B. Explain (using graphs where appropriate) how in the presence of externalities, private markets do not take into consideration social costs or social benefits.

## AP ESSENTIAL KNOWLEDGE

### MFPI-3.A.1

Acknowledge that a socially optimal quantity of a good is achieved when the marginal social benefit of consuming the last unit equals the marginal social cost of producing it.

### MFPI-3.A.2

Understand that externalities, which can be positive or negative, often result from poorly defined property rights or high transaction costs.

### MFPI-3.A.3

Analyse scenarios involving externalities, rational agents tend to react based on their private costs and benefits, disregarding external costs and benefits.

### MFPI-3.A.4

Recognise rational agents are motivated to free ride when the good in question is non-excludable.

### MFPI-3.B.1

Analyse and demonstrate approaches to managing positive or negative externalities include implementing taxes or subsidies, environmental regulations, public provision, establishing property rights, and facilitating the transfer of property rights through private transactions.

## STEP UP CONTENT (Ch. 9)

### Chapter 9

**Summary:** Externalities examines how externalities, such as pollution (negative) and education (positive), lead to market inefficiencies. It introduces social demand and supply curves and discusses private negotiations and government interventions like taxes and subsidies to align private incentives with social optimality, reducing deadweight loss and improving welfare.

## Playeconomics Gameplay

### Externalities in Game

The game uses real-life scenarios to teach economic externalities by showing how transactions can fail to capture all societal costs and benefits, such as pollution. It encourages understanding through government interventions like taxes and regulations to manage these externalities effectively.

### MFPI-3.A.1

Students can collude to form market structures in which the socially optimal quantity of a good is reached when the marginal social benefit of consuming the last unit matches the marginal social cost of production, maximising total economic surplus.

### MFPI-3.A.2

The game illustrates that externalities from a wide range of sources (terraforming, firms) can impact market efficiency.

### Chapter 9 - Externalities

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#### Chapter progress

##### Positive Consumption Externality

0/1

##### Negative Production Externality

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##### Externalities in Large Markets

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##### Negative Consumption Externality

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##### Positive Production Externality

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##### Capstone Activity: In the News!

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#### Review Questions

##### Review Question Solutions

##### Additional Questions

##### Additional Question Solutions

# AP TOPIC 6.3

## AP TOPIC 6.3 Public and Private Goods

### MFPI-3

Private incentives may overlook some important social considerations.

## AP LEARNING OBJECTIVE

### MFPI-3.C

- A. Determine if goods are rival and/or excludable.
- B. Discuss how the characteristics of goods being rival and/or excludable affect the actions of individuals and groups.

## AP ESSENTIAL KNOWLEDGE

### MFPI-3.C.1

Recognise that private goods are both rival and excludable, whereas public goods are neither rival nor excludable.

### MFPI-3.C.2

Acknowledge that the free rider problem typically discourages private individuals from producing public goods, often making the government the sole provider.

### MFPI-3.C.3

Understand that governments sometimes opt to produce and provide free access to private goods, such as educational services.

### MFPI-3.C.4

Know that certain natural resources are inherently non-excludable and rival, leading to their status as open access. This results in inefficient overconsumption by private individuals.

# STEP UP CONTENT (Ch. 10)

## Chapter 10

**Summary:** Public Goods discusses public goods, which are non-rivalrous and non-excludable, leading to market failures due to under-provision. It explains how individual demands aggregate to determine the marginal social benefit and the role of government intervention in addressing inefficiencies, though challenges like free-riding and information asymmetry remain.

## Playeconomics Gameplay

### Public Goods

The game uses the example of a statue to illustrate public goods, which are non-excludable and non-rivalrous, highlighting the challenge of free-riding and underinvestment. It emphasises the role of government and taxation in providing public goods and managing natural resources sustainably.

### MFPI-3.C.1

The description of the statue in the game, where it is noted as non-rivalrous and non-excludable, directly aligns with recognizing the characteristics of public goods versus private goods.

### MFPI-3.C.2

Certain game agents prefer to free-ride on benefits provided by others, leading to insufficient resources for public goods, which contributes to the free rider problem.

### MFPI-3.C.3

Student's ability to create education systems in the game demonstrates government involvement in providing public goods like educational services.

### MFPI-3.C.4

Fish in the ocean is an example of a natural resource that is non-excludable and rivalrous, resulting in overconsumption, which exemplifies the nature of certain natural resources as open access goods.

## ▼ Chapter 10 - Public Goods

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Chapter progress

Introduction

Non-rivalry and Non-excludability

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Aggregating Individual Demands:  
Marginal Social Benefit and Efficiency

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Market Provision and Free-riding

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Public Goods and Externalities

Market, Government, and Taxation

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Review Questions

Review Question Solutions

Additional Questions

Additional Question Solutions

# AP TOPIC 6.4

## AP TOPIC 6.4 The Effects of Government Intervention in Different Market Structures

### MFPI-4

In imperfect markets, well-designed government policy can reduce waste.

## AP LEARNING OBJECTIVE

### MFPI-4.A

Describe the various types of government interventions in imperfect markets.

Demonstrate, using graphs where applicable, how government policies can modify market outcomes in both perfectly and imperfectly competitive markets. c. Using data from a graph or table as necessary, compute the changes in market outcomes that arise from government interventions in both perfectly and imperfectly competitive markets.

## AP ESSENTIAL KNOWLEDGE

### MFPI-4.A.1

Per-unit taxes and subsidies influence the total price paid by consumers, the net price received by firms, equilibrium quantity, consumer and producer surpluses, deadweight loss, and government revenue or costs. The effects of these changes are contingent on the price elasticity of demand and supply.

### MFPI-4.A.2

Lump-sum taxes and subsidies do not alter marginal cost or marginal benefit; they only affect fixed costs.

### MFPI-4.A.3

Binding price ceilings and floors impact prices and quantities differently, depending on the structure of the market (such as perfect competition, monopoly, monopolistic competition, or monopsony) and the price elasticities of supply and demand.

# STEP UP CONTENT (Ch. 9/10)

## Chapter 9/10

**Summary:** Chapter 9: Externalities examines how externalities, such as pollution (negative) and education (positive), lead to market inefficiencies. It introduces social demand and supply curves and discusses private negotiations and government interventions like taxes and subsidies to align private incentives with social optimality, reducing deadweight loss and improving welfare.

Chapter 10: Public Goods discusses public goods, which are non-rivalrous and non-excludable, leading to market failures due to under-provision. It explains how individual demands aggregate to determine the marginal social benefit and the role of government intervention in addressing inefficiencies, though challenges like free-riding and information asymmetry remain.

## Playeconomics Gameplay

### MFPI-4.A.3

While not immediately available, government policies like price ceilings and floors can be used alongside taxes and subsidies by the player to influence their trade outcomes.

### MFPI-4.A.4

When a market is inefficiently producing, oftentimes students will direct themselves to manipulating taxes and subsidies to eliminate deadweight loss.

### MFPI-4.A.5

Government policy interventions can be applied by enterprising players to locally produce in the presence of monopolies.

### MFPI-4.A.6

Just as in reality, a raw goods market in the game may give rise to a natural monopoly that needs a lump-sum subsidy to operate more efficiently.

## Chapter 9 - Externalities

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Chapter progress

Positive Consumption Externality

0/1

Negative Production Externality

0/1

Externalities in Large Markets

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Negative Consumption Externality

Positive Production Externality

0/1

Capstone Activity: In the News!

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Review Questions

Review Question Solutions

Additional Questions

Additional Question Solutions

**MFPI-4.A.4**

Government interventions in imperfect markets can enhance efficiency if they appropriately address the incentives causing market failure.

**MFPI-4.A.5**

Governments may regulate prices to correct inefficiencies caused by monopolies.

**MFPI-4.A.6**

A natural monopoly needs a lump-sum subsidy to operate at the allocatively efficient quantity.

**MFPI-4.A.7**

Governments employ antitrust policies to increase market competitiveness.

Exclusion: Analysing inefficiency and policies related to collusion through graphs is outside the course scope.

**MFPI-4.A.7**

While not immediately available, antitrust policies are a useful tool for players to increase market competition where monopolies hold market power.

**Chapter 10 - Public Goods**

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[Chapter progress](#)[Introduction](#)[Non-rivalry and Non-excludability](#)

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[Market Provision and Free-riding](#)

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[Public Goods and Externalities](#)[Market, Government, and Taxation](#)

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# AP TOPIC 6.5

## AP TOPIC 6.5 Inequality

### MFPI-5

Market outcomes may lead to disparities in income.

## AP LEARNING OBJECTIVE

### MFPI-5.A

Define the indicators used to measure economic inequality in income and wealth.

## AP ESSENTIAL KNOWLEDGE

### MFPI-5.A.1

Income levels and poverty rates exhibit significant variation across and within different demographics (such as age, gender, race) and nations.

### MFPI-5.A.2

The Lorenz curve and Gini coefficient are tools used to measure the extent of inequality in income distributions and to facilitate comparisons across different countries, policy regimes, or time periods.

**Exclusion:** Sketching the Lorenz curve and calculating the Gini coefficients are not covered.

### MFPI-5.B.1

Each factor of production earns income equivalent to its marginal product, a phenomenon that can lead to income inequality.

### MFPI-5.B.2

Factors contributing to income and wealth inequality include variations in tax structures (such as progressive versus regressive taxes), disparities in human and social capital, inheritance, discrimination effects, access to financial markets, economic mobility, and bargaining power within firms, labour unions, and families.

# STEP UP CONTENT (Ch. 9)

## Summary

Chapter 9: Externalities examines how externalities, such as pollution (negative) and education (positive), lead to market inefficiencies. It introduces social demand and supply curves and discusses private negotiations and government interventions like taxes and subsidies to align private incentives with social optimality, reducing deadweight loss and improving welfare.

## Playeconomics Gameplay

### Income Inequality in the Game

This game simulates economic inequality by tracking transactions through dynasties, illustrating wealth accumulation and disparity over generations. It explores the causes of inequality, such as tax structures and access to financial markets, providing a comprehensive view of social stratification.

### MFPI-5.A.1

The game's detailed simulation of dynasties across generations highlights income levels and poverty rates varying due to different factors within demographics and over time. A working family that has strong access to stable work may gradually become more financially stable over generations, or vice versa.

### MFPI-5.A.2

Inequality between islands can be tracked and measured by the student, and representations like the Lorenz curve and Gini coefficient can be approximated through the in-world agent's movements.

### MFPI-5.B.1

Inequality can naturally appear as the market "tick system" progresses, due to different types of labour being assigned different marginal products, which over time can both benefit and be at the detriment of working agents depending on their job.

### MFPI-5.B.2

The sandbox model of the game includes factors such as tax structures and human and social capital disparities, which can be primary drivers of inequality.

## Chapter 9 - Externalities

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### Chapter progress

#### Positive Consumption Externality

0/1

#### Negative Production Externality

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#### Externalities in Large Markets

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#### Negative Consumption Externality

0/1

#### Positive Production Externality

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#### Capstone Activity: In the News!

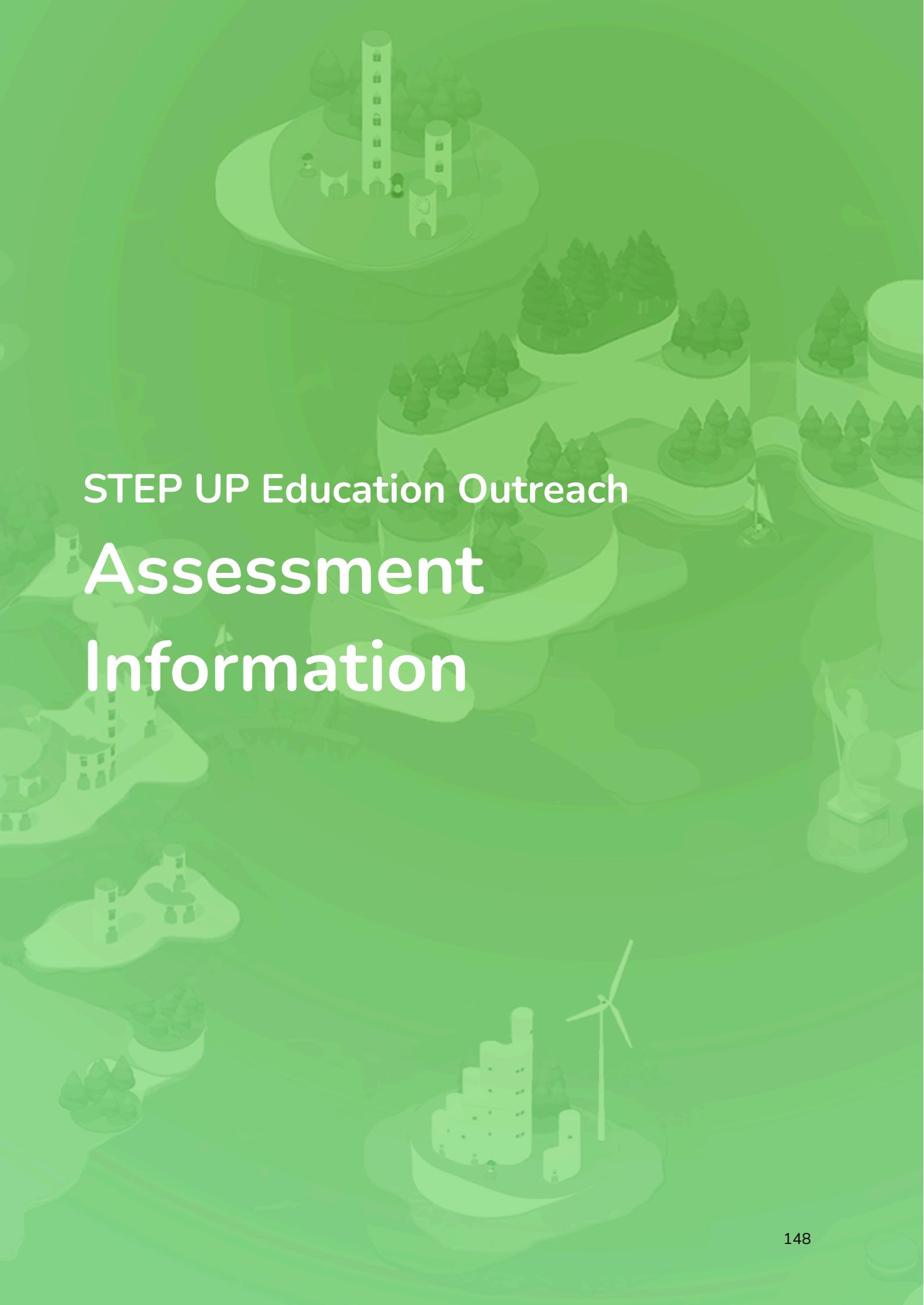
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#### Review Questions

#### Review Question Solutions

#### Additional Questions

#### Additional Question Solutions



# STEP UP Education Outreach Assessment Information

# Assessment Information

## SCORING GUIDELINES

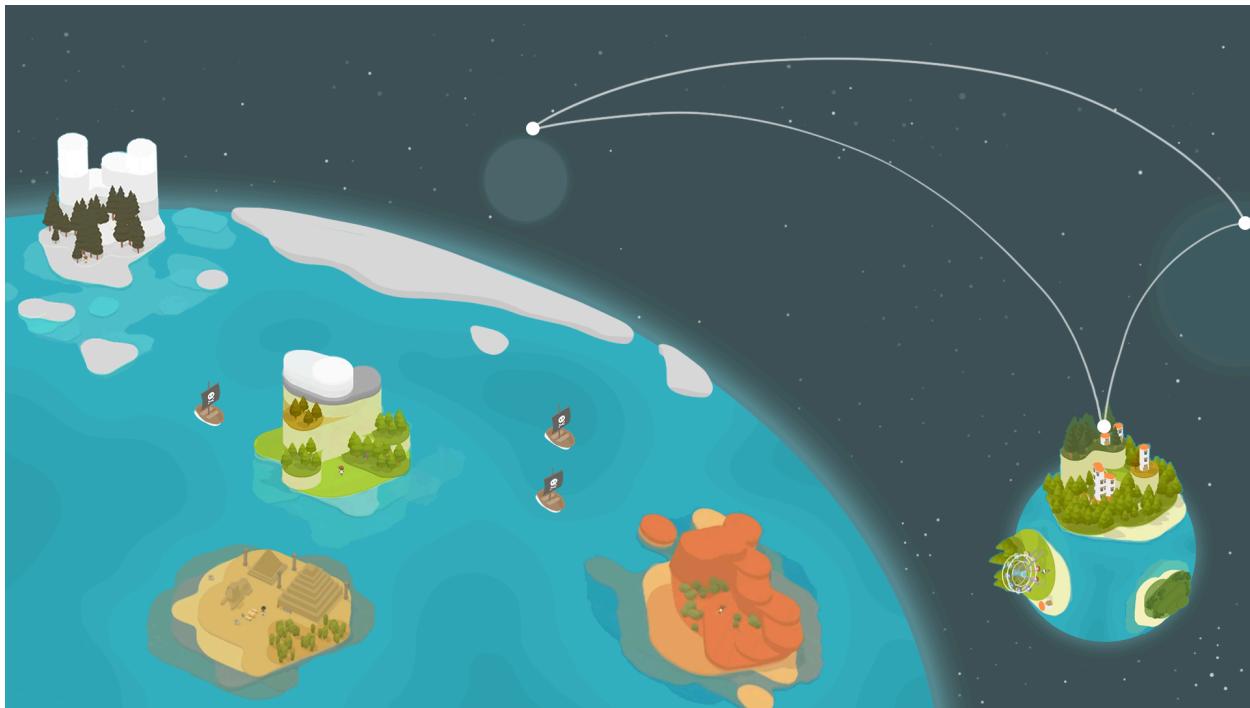
The STEP UP Education Outreach Program gauges students' progress through both formative and summative assessments. Academia focuses on formative assessments through checkpoints at the end of each chapter to evaluate students' understanding. The Playeconomics game utilises summative assessments, and at the end of the program provides a summary of the milestones achieved through the amount of Play Coins earned.

Both assessments check and evaluate the  
Key Concepts and Competencies

Key Concepts	Competencies
Resource Limitation and Market Dynamics	Principles and Theories
Trade-offs and Marginal Decision-Making	Economic Interpretations
Production Strategies and Firm Behaviour	Situation Assessments
Market Failures and Policy Interventions	Modelling Visualisation

Program	Assessment	Source
Playeconomics Game	Number of Play Coins accumulated through the duration of the program.	Progress is accessible at any time during the program, but the total of Play Coins is finalised at the end of gameplay.
Academia	MCQs and SAQs	11 MCQs and SAQs questions per chapter.
	Review questions	5-10 Review questions (depending on chapter content)

## Playconomics – Play Coins



Within Playconomics, students' progress during the game is determined by the leaderboard. As the in-game world progresses, PlayCoins are paid out according to how well a student is ranked in the leaderboard. A student at the top of the leaderboard will amass more PlayCoins over time, and a student at the bottom of the leaderboard will be given all the tools they require to 'climb' the ranks and earn more PlayCoins per market cycle.

- In the end, we've found that students that apply themselves and understand the topic generate more PlayCoins than ones that don't.

At the end of the program, a summative assessment is completed based on the accumulated Play Coins. Usually, this means that a student will get marks according to their total number of PlayCoins divided by the

PlayCoins goal and multiplied by the marks allocated to the Playconomics game.

The universe of Playconomics is split into many planets.

- Standard planets are a sandbox-style free-for-all. No Play Coins can be earned, but they serve as a for-fun practice mode for students awaiting the chance to earn marks.
- Assessment planets are where students put their knowledge and skills to the test. These planets are only open for a limited time and often present a unique challenge that player's need to adapt to. In Assessment planets, players will earn Play Coins for how well they play.

All these results can be viewed within the 'Your Progress' tab of Academia.

## Academia – Checkpoints



Throughout Academia, students (and their teachers) can review their formative assessment progress through MCQs and SAQs spread across the chapters. The main purpose of these questions is to become a ‘checkpoint’ for students and teachers to evaluate their understanding and tackle the economic concepts that are lacking in comprehension. Summative assessment occurs at the end of the program, where students will undergo a final exam to test their understanding of skills and concepts learnt throughout the program.

Administrators of the Academia have access to a wide variety of tools, including chapter management, scenario management, surveys, MCQs, SAQs and more.

The combination of both Academia and the Playconomics game’s summative assessments will determine the eligibility of university course credits or awards that the students will earn at the end of the program.

# Assessment Information

## ASSESSMENT PLANETS

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One of the most intriguing questions in both science and economics is "what if." What if the world were different?

### What if?

What if we lived in a society without markets, where cooperation was the norm? Or where everyone received the same allocation, regardless of their work? Such a society would be highly equal. To explore these questions, scientists have been using randomised control trials (RCTs). In an RCT, for example, a pharmaceutical company tests a drug by giving it to a randomly selected group of people, while another randomly selected group receives a placebo, like a sugar pill. This method creates two groups that are essentially identical except for the treatment, allowing researchers to isolate the drug's effects from other variables. This is the gold standard in scientific research.

In economics, we aspire to do something similar. We would like to transform societies overnight, giving them entirely new structures, directions, and freedoms, and then observe the outcomes. If the changes improve people's lives, we keep them. However, this is challenging to implement in real life. Economists sometimes take advantage of natural experiments, which occur by accident, such as when governments randomly apply certain policies to specific regions. These natural experiments provide valuable data. Additionally, economists conduct laboratory experiments, similar to psychologists, in controlled environments where they can assign participants to treatment and control groups to observe differences.

Playeconomics offers a unique opportunity for this type of trial. We can create a simulated planet and modify it to reflect interesting variations of our current system. We can then compare this modded planet with a control

planet that has standard characteristics. These "planet trials" allow us to see how changes might affect societal outcomes. For instance, we could design a society with closed economies, where trade only occurs within communities and not internationally. Would such a society be better? Some politicians believe so, and it is fascinating to explore this in a model.

Another scenario could involve comparing a society with high equality and numerous small firms to one with concentrated resources and fewer, larger firms. What would be the social impact? In economics, our goal is to create a world where people can express their talents, contribute meaningfully, and feel as free as possible. These trials help us study whether and to what extent this happens under various conditions in the simulation.

In practice, we will open these modded planets, and students will participate in short assessment competitions on each planet. At the end, they can download the data from these modded planets and use AI to build a report. This report will help examine differences between various versions of society, including the impact of different market types or distribution systems on outcomes like population wellbeing and SDGs.

This also means one does not have to actively play the game to be part of these experiments. They can simply observe the planets' activities. If interested in the academic aspect, one can use the data to observe different societal features. This approach enables you to earn course marks that you can claim at universities that support the Playeconomics package, giving you the flexibility to tailor the assessment to your

preferences. It's not just a video game; it's a model, and active gameplay is not required.

## Example of Assessment Planets for Block 1

Playconomics Universe	
Block	Targeted gameplay
<b>Block 1</b> Basic Economic Theories	<p><b>Topic 1.1: Scarcity</b></p> <p>Scarcity is a core concept that is demonstrated throughout the entire gameplay experience. Every action in the game illustrates the principle of scarcity. The first task for the player is to click on a terrain tile, which has specific features. For example, a beautiful beach is a non-rival resource - everyone on the island can enjoy it without preventing others from doing so. However, the number of available land tiles is limited, making them scarce. While the beach can benefit the whole community, we cannot have an infinite variety of terrain types in the economy, highlighting the importance of decision-making.</p> <p>Players face trade-offs in selecting terrain types. Options include beautiful sea terrain, agricultural land, forests, or mountains, each offering different benefits to the population. Resources like labour and industry placements are also limited. Deciding whether to place a house for a worker or retiree, or a factory, impacts society differently. These decisions are constrained by the finite land space, making every choice an exercise in scarcity and trade-offs.</p> <p>Every click in the game represents a decision that involves opportunity cost - what is the best alternative to the chosen option in terms of societal welfare? One of the Planet Trials uses a very limited number of tiles to emphasise this concept. In this trial, players can place only one unit of labour, one firm, or one piece of land, forcing them to consider the alternative options clearly.</p> <p>In a variation of this trial, more options and less scarcity are provided to observe how people's decisions and interactions change with different levels of scarcity. Some theories suggest that fewer choices lead to more optimal decisions. This chapter explores this idea while delving into the concept of scarcity.</p> <p><b>Topic 1.2: Resource Allocation and Economic Systems</b></p> <p>Resource allocation can be approached in various ways. Key questions include: What goods should we produce? Who should decide what to produce, who should produce them, and who should consume them? Different societies have tackled these issues in different ways, shaping how we interact with each other. Markets have been described as the pinnacle of human interaction because they allow us to enjoy countless benefits from others' work, from electricity and food to medicine and beyond. But who makes these decisions?</p>

Economies can be structured in various ways. Command Economy: Decisions are made by a central authority. Market Economy: Individuals have the freedom to make economic decisions. Mixed Economy: Combines elements of both command and market economies.

Using our Planet Trials, we will explore different types of market structures:

Market Economy Trial: In this scenario, players are placed in a market economy where they can decide what to produce without limitations. They can also largely determine who will consume their products, as they will be allowed to place houses of retirees whose occupants choose their consumption freely. This represents a free market economy where players can specialise and consume whatever they want.

Command Economy Trial: In this scenario, decisions are made by a central authority. A designated player occupies a specific plot of land and has the power to control productive activities in the market and set prices for goods as they see fit. This limits the market's ability to function freely. However, players in individual regions can still make smaller decisions, such as terraforming and other ancillary activities, but they cannot decide which industries or activities to pursue on their island. Additionally, the central authority can impose taxes at the planet level.

We will compare various indicators of wellbeing and engagement in centralised versus controlled economies and examine the potential trade-offs involved.

### **Topic 1.3 and 1.4 Understanding the Production Possibility Curve and Comparative advantage**

Understanding what a production possibility curve (PPC) is crucial in economics because it illustrates how we can utilise our resources, time, ingenuity, skills, and talents throughout our lives to maximise our potential - not just individually, but as a society. How can we best use our talents? This is a fundamental question.

When deciding what you should focus on, consider what you're good at. For instance, you might have a strong design instinct, a talent for manual work and fixing things, or be exceptionally skilled at writing or reading. These are the skills you can contribute to society. However, even if you're good at multiple things, you need to decide how to best allocate your time. For example, Michael Jordan excelled in both basketball and baseball, but his greatest success was in basketball. Even someone as talented as him had to make a decision.

In our game, we feature a "Planet Heat Map," that shows how different regions excel in specific activities. This could be due to natural talent, cultural predisposition, or environmental factors like climate. On the surface, one might read the heat map by comparing productivity across different activities and regions. However, understanding the PPC goes deeper than comparing absolute advantages (how productive you are relative to others in a certain activity). It's about comparative advantage.

Consider this: you might be excellent at both fishing and agriculture, but

should you specialise in one? The answer lies in calculating your opportunity cost. For example, if you place a farm on a piece of land, you forgo the opportunity to use that land for fishing. The true cost of placing the farm is the lost potential income from fishing. By thinking in terms of opportunity costs, you'll find your comparative advantage - what you should specialise in relative to others, even if you have an absolute advantage in multiple activities.

In our Planet Trials, we demonstrate this concept by creating two scenarios. One planet has equal productivity across all regions, while the other has significant variations in productivity, similar to the real world. We will compare the output, trade levels, and societal benefits of these two scenarios. We'll also examine how the heat map changes as resources in a region increase, and how this affects production capabilities.

Through these trials, we'll explore the impact of specialisation and differential productivity on trade and societal welfare, providing a clear illustration of the principles behind the production possibility curve.

### **Topic 1.5: Cost-Benefit Analysis**

Making decisions is a crucial part of our daily lives. Every decision we make often means we cannot do something else due to limited time, resources, energy, or motivation. This concept is known as opportunity cost. For instance, when deciding to go to the movie theatre, we must consider what else we could do instead. Without knowing our next best alternative, it's challenging to determine if going to the movie theatre is the right choice.

In the game, we feature a comic book section that illustrates the inner conflicts of our agents as they make decisions. These decisions range from running a firm, choosing what food to eat, deciding whether to work or relax on the beach, and more. The game allows for interactivity, enabling players to guide agents toward the best choices by comparing the additional benefits of an activity to the additional costs - the opportunities forfeited.

In one Planet Trial, agents make rational, marginal decisions, consistently maximising their utilities. In another Planet Trial, agents may fall victim to fallacies, such as the sunk cost fallacy, leading to suboptimal decisions. In a third Planet Trial, players can actively help agents make decisions through the comic book design feature, assessing how accurate people are in their decision-making and the broader impacts on society.

These trials explore the effects of rational and irrational decision-making on societal development goals and overall well being, emphasising the importance of understanding cost-benefit analysis in economic behaviour.

### **Topic 1.6: Marginal Analysis and Consumer Choice**

Even in a world with infinite resources, time, money, intellect, motivation, and passion, we would still need to make choices if our tastes are limited. For example, the first time you eat an ice cream or engage in a social activity with friends, the experience is incredible. However, as you repeat the activity, it becomes less exciting. This phenomenon is a key aspect of human psychology that drives us to seek new experiences and find meaning, joy,

happiness, and satisfaction in life.

One important decision people make is how to spend their money. Cost-benefit analysis provides a straightforward model for this, comparing the benefit of consuming something with the opportunity cost of forgoing another option. For instance, if you choose between buying bananas and apples, purchasing a banana means you forgo the apple, considering their respective market prices. This decision is influenced by the limited budget and the principle of scarcity.

As you consume more of the same good, such as bananas, the additional benefit (or marginal utility) decreases, which might lead you to switch to a different good for more variety and satisfaction. Consumers typically compare the marginal benefit of consuming a good with the marginal cost - the value of the best alternative forgone. This comparison helps them make decisions that maximise their utility.

It's crucial to understand that fixed costs should not influence current consumption decisions. For example, if you bought a fridge yesterday, it shouldn't affect today's food choices. Instead, focus on the marginal benefit and marginal cost, ignoring the fixed cost of the fridge.

In the Planet Trials component, we will explore how decision-making varies when consumers are subject to fallacies or follow the cost-benefit principle. We'll examine the impact on overall wellbeing and economic surplus when consumers make efficient decisions that maximise their benefits compared to when they make less optimal choices.

## Block 2-6

**Descriptions Coming Soon!**