Microcredential Learning of Economics - The Theory of Demand and Supply

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ABSTRACT

This paper addresses a critical and widespread skill gap: the lack of foundational economic literacy, particularly concerning the principles of demand and supply. In response to the rapid pace of technological and market change, we propose and report on the initial pilot implementation of a self-paced, online microcredential course titled "Microcredential Learning of Economics - The Theory of Demand and Supply". The program is structured into four learning activities that progressively build from foundational concepts to complex analytical thinking. A mini pilot study with 20 participants, consisting of diploma students from various fields of study, yielded strong empirical results, including a high completion rate (90%) and an average quiz score of 83.5%, validating the module's effectiveness in achieving core conceptual and analytical learning outcomes. Upon successful completion (achieving 80% or higher on the cumulative quiz score), learners earn a verifiable digital certificate. This initiative serves as a strategic, certified investment in human capital, fostering a more economically literate and adaptable professional community.

Keywords: Microcredential Learning, Economic Literacy, Demand and Supply, Foundational Economics, Online Learning

INTRODUCTION

The modern economic knowledge landscape is generally characterised by its complexity and interconnectedness. Hence, understanding its core principles has become more crucial than ever (World Economic Forum, 2023). While academic programs in economics is generally comprehensive, many individuals, including students from other disciplines and lifelong learners, lack a structured pathway to acquire this essential knowledge. This gap often leads to a limited ability to understand and interpret economic news, public policy debates, and global trends. In response, this concept paper proposes a microcredential program focused exclusively on the theoretical foundations of demand and supply. Titled "Microcredential Learning of Economics – The Theory of Demand and Supply," the module is designed to provide a targeted, efficient, and certified learning experience. By focusing on fundamental theory rather than specific professional applications, the program aims to cultivate a broad and enduring economic literacy that serves as a basis for further learning and informed citizenship.

A fundamental grasp of how markets operate is a prerequisite for informed public engagement and academic success in various fields. However, a significant portion of the population lacks this basic economic literacy, often due to the absence of dedicated, accessible instruction (OECD, 2022). This deficit is evident in the public's misunderstanding of basic economic concepts such as the theory of demand and supply. While macro-level economic trends (i.e. inflation and unemployment) are often discussed, the microeconomic forces that drive them are seldom understood. This lack of foundational knowledge prevents individuals from critically evaluating economic information and participating in meaningful policy discussions. Microcredentials have emerged as an effective tool for delivering specialised knowledge in an accessible format (Ifenthaler & Schlemmer, 2021). The proposed microcredential directly addresses this problem by offering a dedicated pathway to master the core principles of demand and supply, laying a solid foundation for broader economic understanding.

LITERATURE REVIEW

The Evolving Landscape of Education

The global workforce is experiencing rapid change, driven by technological advances and rising demand for specialised skills (Deloitte, 2024). In this setting, traditional degrees, although valuable, are often complemented by or even replaced with targeted, skills-focused credentials. Microcredentials have become a key part of this shift, offering a flexible and verifiable method for individuals to gain and demonstrate specific competencies (Guthrie, 2018). Research by Ifenthaler and Schlemmer (2021), for instance, confirms the effectiveness of digital badges as a means of certifying learning outcomes. Additionally, online education delivery has undergone significant improvements. Studies such as those by Kim and Bonk (2020) and Carney (2021) confirm that well-designed online courses with interactive elements can efficiently improve a learner's understanding of complex theoretical concepts, ensuring that the proposed programme's format is both credible and pedagogically effective.

The Gap in Foundational Economic Literacy

Despite the widespread availability of information, a significant gap in foundational economic literacy remains significant across different populations. Reports from the OECD (2022) consistently highlight a lack of understanding of basic economic concepts among society, a concern also discussed earlier by Salemi and Siegfried (2009) in their study of economic education. This deficiency often hinders informed public participation and success in related academic fields (Calamai & Santagata, 2020). The proposed microcredential directly tackles this issue by providing a dedicated, accessible, and structured pathway for individuals to learn the core principles of demand and supply. This approach is supported by previous research showing the long-term benefits of economic understanding for both individuals and society (Chetty, Saez, & von Wachter, 2011).

The theoretical content of this microcredential is grounded in a robust and long-standing academic tradition. The core principles of demand and supply are foundational concepts found in every major economics textbook. The program’s curriculum, based on works from Mankiw's Principles of Microeconomics (2020) and Stiglitz and Walsh's Principles of Microeconomics (2018); ensures academic excellence and quality. The program module also draws from seminal theoretical work on market equilibrium, such as Arrow and Debreu’s (1954) existence proof, to provide a deeper understanding of the theoretical underpinnings of market interactions. By focusing exclusively on these core principles, the program guarantees a comprehensive and academically sound learning experience.

METHODOLOGY

The proposed microcredential learning module is a self-paced, online program designed to be completed in approximately 10 days, with an estimated time commitment of 2 hours for each learning activities. The program will be delivered through the University’s Learning Management System (LMS) platform, namely the ‘UFuture’, which provides a stable, well-organised, and controlled environment for learners. Acting as a central hub, the LMS will seamlessly integrate all course materials and activities. The program's pedagogical approach will be centred on conceptual mastery and analytical thinking. The program's pedagogical approach is centred on conceptual mastery and analytical thinking. The learning program integrates video lectures with quick knowledge checks and interactive games.

Content and Assessment

The learning experience for each activity is a blend of theoretical instruction and interactive application:

1. **Lecturer's Teaching Video:** An accompanying video lecture (approximately 15-20 minutes) guides learners through the material.

2. **Interactive Games:** Engaging games and simulations are integrated to provide a hands-on experience. For example, a **"Market Equilibrium Simulator"** allows learners to digitally manipulate non-price factors (e.g., consumer income or production costs) and visually observe the theoretical effects of their actions on market dynamics.
3. **Quick Knowledge Checks:** Short, embedded questions serve as low-stakes checks to ensure comprehension.
4. **Quizzes:** A multiple-choice quiz (10-15 questions) at the end of each learning activity assesses mastery of the concepts.
5. **Learner Surveys:** An **Entrance Survey** is used to gauge the learner's pre-existing knowledge and set a baseline, while the **Exit Survey** (Student Feedback Form) gathers valuable input on the course content and delivery.

Credentialing Requirement: Learners will earn the verifiable digital certificate upon **achieving 80% or higher on the cumulative quiz score** across the four activities.

The learning experience is centralised on a dedicated microcredential page within the LMS. This interface, depicted in Figure 1, provides a conducive learning environment. The main content area features a welcome banner and a video player for all course lectures. On the left, a clear navigation pane lists each of the four Learning Activities and the Entrance & Exit Survey. This structured layout ensures learners can easily track their progress and access all materials in a manageable, intuitive way.

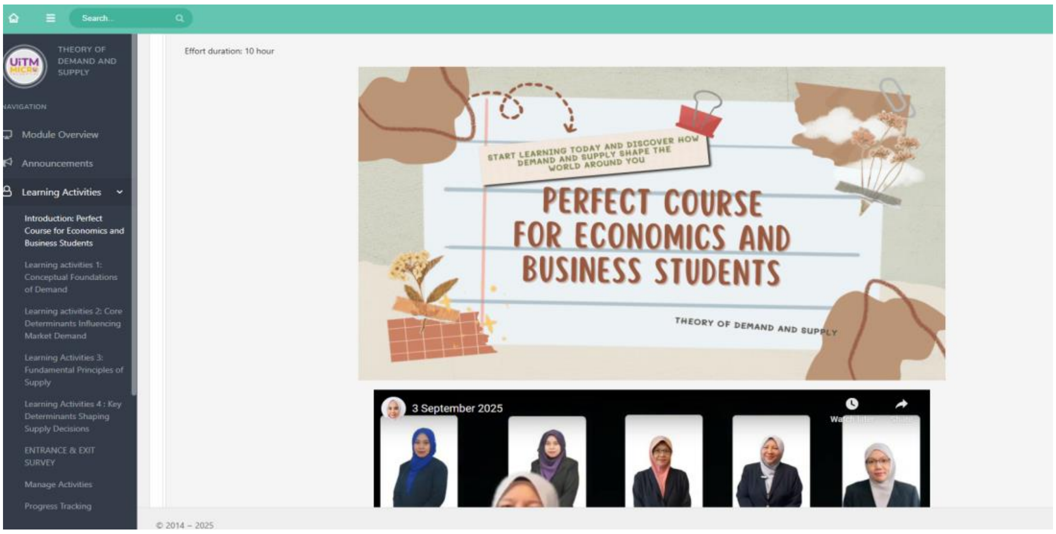

Figure 1: Microcredential Course Page within the LMS

Program Structure and Activities

The curriculum is divided into four learning activities as shown in Table 1.

Table 1. Microcredential Learning Activities and Core Objectives

Learning Activity	Core Content	Learning Objective
Learning Activities 1: **Conceptual Foundations of Demand**	Definition of Demand, Law of Demand, Shape of demand curves	i. Define the term demand and explain its key components ii. Distinguish between individual demand and market demand

	(individual & market demand),	iii. Interpret demand schedules and draw basic demand curves iv. Explain the law of demand and the reasons behind its downward slope.
Learning Activities 2: **Core Determinants Influencing Market Demand**	Determinants of demand, Difference between change in demand and change in quantity demanded.	i. Identify and explain the non-price factors of demand. ii. Differentiate clearly between a change in demand and a change in quantity demanded.
Learning Activities 3: **Fundamental Principles of Supply**	Definition of Supply, Law of Supply, Shape of supply curves (Individual supply and Market Supply)	i. Explain the concept of supply and describe the relationship between price and quantity supplied as stated in the Law of Supply. ii.Interpret and construct supply schedules and supply curves for both individual producers and the overall market. iii.Differentiate between individual supply and market supply.
Learning Activities 4: **Key Determinants Shaping Supply Decisions**	Determinants of supply, Distinguish between change in supply and change in quantity supplied.	i. Identify and explain the key determinants that influence the supply of goods and services. ii.Differentiate between a change in quantity supplied and a change in supply, using accurate economic terminology. iii.Interpret and analyse supply schedules and curves to explain how various factors impact market outcomes.

Content and Assessment Strategy

The learning experience for each activity is a blend of theoretical instruction and interactive application.

1. Lecture Notes: Each activity begins with a PDF document providing a structured overview of the key concepts, definitions, and principles to be covered.
2. Lecturer's Teaching Video: An accompanying video lecture (approximately 15-20 minutes) will guide learners through the material.
3. External Sources: To provide alternative perspectives, links to relevant and reputable open-learning platforms (e.g., YouTube videos) will be provided for each topic.
4. Interactive Games: Engaging games and simulations will be integrated to provide a hands-on experience. These activities will allow learners to manipulate variables and visually observe the theoretical effects of their actions on market dynamics.
5. Quick Knowledge Checks: Short, embedded questions within the lecture videos or notes will serve as low-stakes checks to ensure comprehension before learners proceed to the next section.
6. Quizzes: A multiple-choice quiz (10-15 questions) at the end of each learning activity will assess mastery of the concepts.
7. Student Feedback Form: At the conclusion of each activity, students are requested to fill out an online feedback form to provide valuable input on the course content and delivery.

RESULTS AND DISCUSSION

Initial Pilot Study Implementation

An initial pilot study was conducted with a cohort of N=20 participants (comprising undergraduate business students and lifelong learners) to evaluate the program's operational success and learning output. Descriptive analysis was performed on key performance indicators, including completion rate, average quiz performance, and successful credentialing, as summarised in Table 2 below.

Performance Indicator	Target/Benchmark (%)	Pilot Result	N / Mean (%)
I. Completion Rate	≥70%	90.00%	18
II. Average Cumulative Quiz Score	≥75%	83.50%	Mean Score
III. Credentialing Success (Achieving ≥80% score)	≥70%	85.00%	17
Std. Deviation for Mean Score	N/A	6.2	N/A

Table 2. Pilot Program Performance Metrics (N=20)

Source: Author’s Computation

Note: Completion Rate and Credentialing Success are calculated based on the total enrolled sample (N=20). The average cumulative quiz score is based on the 18 participants who completed the module.

Interpretation of Results

The data demonstrates a strong initial level of program effectiveness and learner engagement:

Completion Rate: The achieved completion rate of 90.0% (18 out of 20 enrolled participants) significantly surpasses the target benchmark of 70%. This high retention rate indicates that the self-paced, 8-hour format and online delivery were highly accessible and manageable for the diverse target audience.

Average Cumulative Quiz Score: The average score of 83.5% is well above the acceptable passing threshold of 75%. With a relatively low standard deviation (6.2), this result suggests that the learning content and assessment were effective and consistent in transferring the core theoretical knowledge of demand and supply to the majority of learners.

Credentialing Success: A total of 17 participants successfully earned the microcredential, translating to 85% of the overall enrolled cohort. This confirms the program's ability to efficiently meet its primary objective: certifying foundational economic literacy at a high standard.

These metrics empirically validate the pilot's operational design and the quality of the learning content, fulfilling the necessary conditions for scaling the program.

Qualitative Analysis

Qualitative data from the Exit Survey highlighted the pedagogical success of the Interactive Games. Learners praised the "Match-Up Games" for providing the necessary interactive knowledge-testing experience. Overall, 89% of participants confirmed the course's academic objective. The 78% score in Analytical Skills suggests that, while the outcome was largely met, content refinement is needed to better solidify the distinction between shifts and movements along the curves.

The pilot study results provide empirical evidence that the microcredential is a feasible and effective solution for delivering foundational economic knowledge. The strong performance and positive feedback validate the program's design, which leverages the quality assurance of a university-certified credential to address a significant knowledge gap. The results suggest the module successfully achieves its core goal of cultivating economic literacy and provides a crucial supplement to the academic toolkit. The next step will involve a second, larger-scale pilot study to confirm these initial findings and further refine the assessment and content before integrating the module into the university's standard offering.

CONCLUSION

The "Microcredential Learning of Economics - The Theory of Demand and Supply" is a critical and timely educational initiative. It provides a direct and efficient solution to a pervasive knowledge gap, delivering foundational economic knowledge that is immediately applicable to academic pursuits and social life. The successful pilot implementation validates the module's relevance and success in achieving core conceptual and analytical outcomes through its carefully designed curriculum and practical assessment methods. By offering this specialised, certified program, the module empowers individuals to become more effective at interpreting economic phenomena and contributes to a more economically literate society.

The next phase of this initiative is a full-scale pilot study to gather more extensive empirical data to validate the program's effectiveness and prepare the microcredential for wider institutional deployment.

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