Learning Journal Unit 3

Department of Computer Science, UoPeople

ECON 1580-01 Introduction to Economics - AY2025-T1

Instructor Neven Valev

**26th September 2024**

### Learning Journal: The Law of Diminishing Returns in the Short-Term Period

#### Introduction

The law of diminishing returns, also known as the principle of diminishing marginal returns, is a fundamental concept in economics that states that as one factor of production is incrementally increased while other factors are held constant, there comes a point where the incremental output gained from that additional input will begin to decline. This phenomenon is most evident in the short-term period when the time frame is too brief for adjustments in production inputs or processes. This journal entry explores the reasons why the law of diminishing returns applies primarily in the short-term period.

#### Understanding the Law of Diminishing Returns

The law of diminishing returns is best illustrated through agricultural production. For instance, consider a farmer who increases the number of workers in a fixed-size field. Initially, as more workers are hired, the total output (e.g., crops harvested) increases significantly. However, after reaching a certain point, each additional worker contributes less to the overall harvest than the previous one, as the land becomes overcrowded and each worker has less space to operate efficiently (Mankiw, 2021).

#### Reasons for Short-Term Applicability

1. **Fixed Inputs**: In the short term, certain inputs, such as land, machinery, or factory space, are fixed. While labor can be varied, the fixed inputs do not allow for greater efficiency beyond a certain level. As more labor is added to a constant amount of capital, the effectiveness of that labor diminishes, as workers have less capital to work with (Samuelson & Nordhaus, 2010).
2. **Time Constraints**: The short-term period is defined by the inability to make significant changes to production capacity. Decisions regarding capital investment, technological upgrades, or expanding physical facilities require time and resources. Thus, in the short term, production is constrained by existing facilities and technology, making it impossible to achieve continuous increases in output with additional labor (Parkin, 2014).
3. **Adjustment Lag**: The time it takes for firms to adjust to changes in the input of production is crucial. In the short term, firms may not have the flexibility to adjust all factors of production simultaneously. For example, a firm may hire more workers but cannot immediately acquire additional machinery or workspace, leading to inefficiencies (Brealey et al., 2020).
4. **Behavioral Limitations**: In the short term, decision-making is often based on immediate outputs and returns, rather than long-term strategy. As a result, firms may focus on maximizing immediate production, leading to overcrowding of labor and resources, which exacerbates diminishing returns (Varian, 2014).

#### Conclusion

In summary, the law of diminishing returns is primarily observed in the short-term period due to fixed inputs, time constraints, adjustment lags, and behavioral limitations. Understanding this principle is crucial for businesses and economists alike, as it underscores the importance of strategic planning and resource allocation in production processes. By recognizing the limitations imposed by short-term production capabilities, firms can make informed decisions that optimize productivity while preparing for longer-term adjustments.

#### References

Brealey, R. A., Myers, S. C., & Allen, F. (2020). Principles of Corporate Finance (13th ed.). McGraw-Hill Education.

Mankiw, N. G. (2021). Principles of Economics (9th ed.). Cengage Learning.

Parkin, M. (2014). Microeconomics (12th ed.). Addison-Wesley.

Samuelson, P. A., & Nordhaus, W. D. (2010). Economics (19th ed.). McGraw-Hill Education.

Varian, H. R. (2014). Intermediate Microeconomics: A Modern Approach (9th ed.). W. W. Norton & Company.