

Law of Diminishing Marginal Utility | Graph | Table | Assumptions | Limitations | Importance

The Law of Diminishing Marginal Utility is one of the fundamental principles in economics, specifically in the realm of microeconomics. It shows how individuals derive satisfaction from consuming additional units of a good or service. In this post, we'll explore this law, understand its significance, and consider real-world applications.

What is Law of Diminishing Marginal Utility?

At its essence, the Law of Diminishing Marginal Utility posits that as an individual consumes more units of a particular product or service during a given period, the additional satisfaction or utility (benefit) derived from each successive unit diminishes. In simpler terms, the more you consume of something, the less satisfaction you gain from each additional unit.

Marshall says "The additional advantage which a person derives from a particular increase of his stock of a commodity diminishes with every increase in stock that he already has".

We can briefly explain Marshall's theory with the example of the six apples consumed. The first apple that we consume gives us (say) 20 units.

When we consume the second or third apple the marginal utility of each additional apple will be less because with each increase in the consumption of apples, our desire to consume more apples falls.

Therefore, this proves the point that with every increase in stock that we already have, the additional benefit or marginal utility that we derive diminishes.

Example of Law of Diminishing Marginal Utility

Law of Diminishing Marginal Utility can be illustrated with a common example: ice cream. Imagine you're indulging in your favorite ice cream flavor. The first scoop is incredibly satisfying. As you continue to enjoy the ice cream, your satisfaction level remains high but gradually starts to wane. By the time you reach the last few bites, the satisfaction you derive from each spoonful is significantly lower than when you first started.

Components of Law of Diminishing Marginal Utility

Understanding the key components of this law is crucial:

Total Utility: This is the cumulative satisfaction or pleasure derived from consuming a specific quantity of a good or service. It typically increases as consumption rises but not at a constant rate.

Marginal Utility: Marginal utility is the additional satisfaction gained from consuming one more unit of a good or service. It's the rate of change in total utility concerning changes in quantity.

Price and Law of Diminishing Marginal Utility

Marshallian law "the additional benefit which a person derives from a given increase-in his stock of a commodity diminishes with every increase in stock that he already has"

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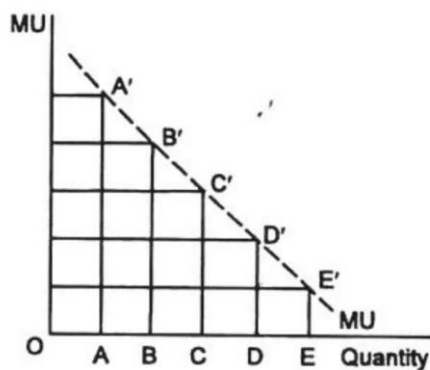
In simple words what this law means is that the more of a commodity that a person has with him, the less of use it is to him, hence its marginal utility decreases (diminishes)'.

Therefore, a consumer purchases a product up to the extent where it's marginal utility (MU) becomes equal to the price (P) being paid for i.e. $MU = P$. Thus, with a fall in price he will purchase more and vice-versa.

Law of Diminishing Marginal Utility Graph & Table

Law of Diminishing Marginal Utility can be explained with help of graph and table.

Law of diminishing Marginal Utility



As the quantity of a consumed good or service increases, the total utility also increases, but at a decreasing rate. Here's how it works:

Initially, the total utility curve ascends steeply, signifying that each additional unit increases satisfaction significantly.

As more units are consumed, the curve still rises, but less steeply. The incremental increase in satisfaction with each added unit starts to decline.

Eventually, the total utility curve begins to plateau or even decline. This signals that the law of diminishing marginal utility has taken effect, and the additional units no longer provide the same level of satisfaction as before.

Slices of Pizza	Total Utility	Marginal Utility
01	20	-
02	35	15
03	45	10
04	52	07
05	56	04
06	58	02

In this table, we'll examine the marginal utility (additional satisfaction) derived from consuming slices of pizza.

Slices of Pizza: This column represents the number of pizza slices consumed.

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Total Utility (utils): Total utility is the overall satisfaction derived from consuming a certain quantity of a good. It increases as more units of the good are consumed, reflecting the cumulative satisfaction.

Marginal Utility (utils): Marginal utility is the additional satisfaction gained from consuming one more unit of a good. It can be calculated as the difference in total utility between two consecutive levels of consumption.

Explanation

1. When the individual consumes the first slice of pizza, the total utility is 20 utils. Since this is the first slice, there is no previous level of consumption to compare with, so there is no marginal utility to calculate at this stage.
2. As the individual eats the second slice, the total utility increases to 35 utils. The marginal utility of the second slice is 15 utils, which means the person gained 15 utils of additional satisfaction compared to having only one slice. This indicates that the second slice added significantly to their overall satisfaction.
3. As the individual continues to eat more slices, you can observe that the total utility still increases, but the marginal utility starts to decrease. For example, when consuming the third slice, the total utility becomes 45 utils, with a marginal utility of 10 utils. While the person is still gaining satisfaction, the additional satisfaction from each slice is diminishing compared to the previous one.
4. By the time the individual consumes the sixth slice, the total utility reaches 58 utils, but the marginal utility has declined to 2 utils. The decreasing marginal utility indicates that each additional slice contributes less and less to the person's overall satisfaction. In other words, the consumer is approaching a point of satiety where the desire for more pizza decreases.

This table and explanation demonstrate the Law of Diminishing Marginal Utility, which is a fundamental concept used to explain consumer behavior and choices.

It illustrates that as individuals consume more of a particular good or service, the additional satisfaction they gain (marginal utility) tends to decrease. Consumers make choices based on maximizing their overall utility, considering the diminishing returns associated with each additional unit consumed.

Assumptions of the Law Diminishing Marginal Utility

The main assumptions of Law of diminishing Marginal utility are as under:

1. Suitable Units of Consumption

If this law is to stand then there has to be a suitable unit of consumption, e.g. when you are thirsty, and you just take a spoonful of water naturally.

Your second consumption will not indicate a decrease in marginal utility, because thirst has been stimulated, therefore, at first it will rise instead of falling.

So, after a certain point the utility will begin to diminish. However, if the unit was of a suitable size, say a glass, and then the law would hold well from the very beginning.

2. Continuous Use of the Product

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This means that the product should be consumed in a suitable period of time. That is it should be done continuously if the law is to hold.

For example, if you consume two glasses of water with five hours apart, there is no reason why the marginal utility of the second glass may decrease.

3. Nature of Product

For this law to hold, the same quality of the product must be consumed. There cannot be a change in it, because a change of a product would mean a change in taste and desire.

Thus, it would result in different amounts of marginal and cranial utility, e.g. if you are thirsty, you will drink a few glasses of water, but if you change the product of satisfying your thirst.

Such as replace water with a glass of Coca-Cola, you are changed. Thus, it will result in more utility of Coca-Cola than just plain water!

4. Stability of Character of the Consumer

The stability of it must not commodity, change in order then to with make the additional law to hold.

Commodity For example, the marginal if a person utility develops will increase a desire therefore; for certain the consumer must not be psychologically abused.

5. Constant Income

The income must net rise or fall. For if its doe's either Y", then law does not hold e.g., if a man's income rises.

He will develop a more powerful consuming power and therefore, the utility of each additional unit of (say) durable consumer good may increase, and vice-versa.

Limitations of the Law of Diminishing Marginal Utility

The law of diminishing marginal utility is a universal law as modern economists hold that there are no exceptions to the law. The main exceptions and limitations of Law of diminishing Marginal utility are as under:

1. Knowledge

Where knowledge is concerned modern economists say that after some extent one is bound to get bored.

For example, the first hour of study is enjoyable but the utility that you get out of their study decreases with every hour increased.

2. Money

The value of \$10 is a great value for a person whose income is just \$100 but the value of that particular \$10 is not of a greatly value for a person whose income is \$1000.

Therefore, marginal utility of money decreases with an increase in income.

3. Music

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For Elvis Presley's fans, his one particular song will not bore them, however; some economists accept the fact that after some long period the utility will decrease.

4. Hobbies

For stamp collecting, the more we collect, the better is, (hence rise in marginal utility). However, after something we shall get bored of it and its marginal will fall.

5. Use of a Product

A pen for instance, when we don't use it has no utility for us even though the pen itself has utility.

However, when we want to, write letter, then there will be great utility for us until we reach our saturation point i.e. when we complete the letter. Hence, utility of pen increases instead of decreasing when we start using it. However, it does decrease later on.

Importance of the Law of Diminishing Marginal Utility

The Law of Diminishing Marginal Utility is a foundational concept in economics with significant implications for various economic decisions, public policy, and the understanding of consumer behavior. Its importance extends to several key areas:

1. Consumer Behavior:

The Law of Diminishing Marginal Utility underscores the rationality of consumer choices. It explains why individuals allocate their resources based on utility. Consumers seek to maximize their overall satisfaction, taking into account the diminishing additional satisfaction from each unit consumed.

Consumers apply this law when making everyday decisions about consumption. They tend to spend more on goods and services that provide higher marginal utility and less on those with diminishing returns. This behavior guides how they allocate their budget.

2. Pricing Strategies:

Businesses use the understanding of diminishing marginal utility to implement price discrimination. By offering different prices to various customer segments, firms can capture consumer surplus more efficiently. This allows companies to optimize their pricing strategies.

The law also informs businesses about the effectiveness of product bundling and discounts. For example, a buy-one-get-one-free promotion or bulk discounts exploit the fact that consumers perceive higher utility in the first unit, making them more likely to buy in larger quantities.

3. Resource Allocation:

In the production process, firms apply the law to determine the optimal quantity to produce. It helps them balance costs and revenue by considering the diminishing marginal returns of production inputs.

From a broader perspective, governments and policymakers rely on the Law of Diminishing Marginal Utility to allocate resources efficiently. It guides decisions about resource allocation in public projects and services to maximize overall well-being.

4. Investment and Financial Decisions:

Investors use the concept to make decisions about portfolio diversification. Diversifying a portfolio involves spreading investments across various assets. It is based on the recognition that the marginal utility of additional investments decreases as the portfolio becomes more extensive.

Diminishing marginal utility is integral to assessing risk in investment decisions. It influences the trade-off between risk and return, as investors consider the decreasing utility of additional gains against the risk of potential losses.

5. Public Policy:

The concept of diminishing marginal utility informs social welfare policies. It advocates for redistributive policies that aim to reduce income inequality by transferring resources to individuals who derive higher utility from them. This can lead to more equitable wealth distribution.

Policymakers consider this law when designing tax policies. For instance, progressive taxation systems, which tax higher incomes at a higher rate, take into account the diminishing marginal utility of income. They aim to minimize the welfare loss associated with taxation.

6. Sustainable Resource Management:

Environmental Economics: In the context of environmental economics, the law plays a role in resource management. It guides the allocation of resources in a way that seeks to maximize overall well-being while considering the diminishing returns from resource utilization. This is particularly relevant in natural resource management and sustainable development.

The Law of Diminishing Marginal Utility is of paramount importance in economics. It provides insights into consumer behavior, pricing strategies, resource allocation, investment decisions, public policy, and sustainable resource management. Understanding and applying this law is crucial for individuals, businesses, and governments to make informed economic choices and optimize overall welfare.

Conclusion

The Law of Diminishing Marginal Utility is a fundamental concept in economics that explores how individuals' satisfaction decreases as they consume more of a good or service. Understanding this law is crucial for consumers, businesses, and policymakers, as it influences various economic decisions and resource allocation.