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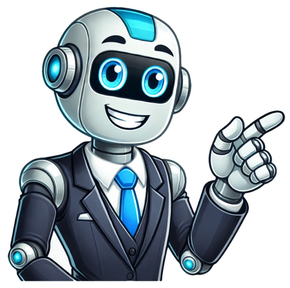

Skip to content In economics, utility can be defined as a measure of consumer satisfaction received on the consumption of a good or service. The level of satisfaction derived by a consumer after consuming a good or service is called utility. The concept of utility is used in neo classical Economics to explain the operation of the law of demand. A consumer is willing to buy a particular good to satisfy his/her various needs and wants. Thus, it can be said that the demand for a good is closely related to the level of satisfaction that the consumer derives from that good. For instance, if the level of consumer satisfaction after the consumption of a good is high, the demand for that good rises and vice versa. Also Read: What is Consumer Demand? Utility is the power of commodity to satisfy human wants.Prof. Waugh On the whole in recent years the wider definition is preferred and utility is identified, with desireness rather than with satisfyingness. Fraser Also Read: Law of Diminishing Marginal Utility The utility is want satisfying power of a good or service. It is also defined as the property of a good or service to satisfy the want of the consumer. The utility is subjective. It depends upon the mental assessment of the consumer and is determined by several factors which influence the consumers judgment. Also Read: What is Demand Forecasting Mathematically, utility can be expressed as a function of the quantities of different commodities consumed by an individual. If an individual consumes quantity m1 of a commodity M, quantity n1 of a commodity N, and quantity r1 of a commodity R, the utility U of the consumer can be measured as follows: U = f (m1, n1, r1) Also Read: What is Indifference Curve Utility analysis is a systematic process of measuring utility derived by a consumer after the consumption of a good. It involves analysing factors that influence consumer behaviour for a particular good. There are two approaches to the measurement of utility, namely cardinal utility approach and ordinal utility approach. Also Read: What is Demand? Utility is that invisible quality of anything which resorts to satisfying any human want. The utility may neither be seen, i.e. it is invisible, nor may it be touched. It is there in the things in abstract or invisible form.Utility is not concerned with the morality. Whether the consumption of a thing is useful or harmful, if it serves to fulfill the wants of anyone, it possesses utility.Utility emerges out of the human needs or wants. Thus it is Individual and relative in nature. It is a subjective concept, not objective or concrete which could be uniformly applicable in all cases. Also Read: What is Supply? There are four differenttypes of utility. Those are: FormutilityPlaceutilityTimeutilityPossessionutility Also Read: What is Market Power? Total UtilityMarginal Utility Concept of Utility Definition: Total utility is defined as the sum of the utility derived by a consumer from the different units of a commodity or service consumed at a given period of time. Assume that an individual consumes five units of a commodity X at a given period of time and derives utility out of the consumption of each unit as u1, u2, u3, u4, and u5. The total utility is measured as follows: TU = U1 + U2 + U3 + U4 + U5 If the individual consumes n number of commodities, his/her total utility, TUn, will be the sum of the utility derived from each commodity. For example, an individual consumes commodities X, Y, and Z and their respective utilities are Ux, Uy, and Uz, then total utility is expressed as follows: TUn = Ux + Uy + Uz Definition: Marginal utility is defined as the utility derived from the marginal or additional unit of a commodity consumed by an individual. It can also be defined as the addition to the total utility of a commodity resulting from the consumption of an additional unit. Therefore, marginal utility, MU of a commodity X, is the change in the total utility, TU, attained from the consumption of an additional unit of commodity X. Mathematically, it can be expressed as: MUx = TUx / Qx Where TUx = Total utility, Qx = Change in quantity consumed by one additional unit When total number of unit consumed is n, a marginal utility can also be expressed as: MU of nth unit = TUn TUn 1 Also Read: Laws of Economics D N Dwivedi, Managerial Economics, 8th ed, Vikas Publishing HousePetersen, Lewis & Jain, Managerial Economics, 4e, Pearson Education IndiaBrigham, & Pappas, (1972). Managerial economics, 13ed. Hinsdale, Ill.: Dryden Press.Dean, J. (1951). Managerial economics (1st ed.). New York: Prentice-Hall. 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Tags: B COM, B COM Notes, BBA, BBA Notes, Business Economics, Business Economics Notes, Economics, Economics Notes, M COM, Managerial Economics, Managerial Economics Notes, MBA, MBA Notes, What is Economics 17 January 2021 18 January 2021 17 January 2021 17 January 2021 17 January 2021 17 January 2021 17 January 2021 17 January 2021 17 January 2021 17 January 2021 17 January 2021 This Potential Policy Tweak Could Supercharge Your Health Savings in Retirement May 31, 2025 The Top 10 Places for Recent College Graduates to Move May 31, 2025 Markets News, May 30, 2025: S&P 500, Nasdaq Fell Slightly Friday Amid Tariff Uncertainty But Post Biggest Monthly Gains Since 2023 Updated May 30, 2025 SNAP Cuts Will Acutely Affect State Budgets and Older Beneficiaries, Experts Say May 30, 2025 Palantir Is Surging. The Stock Leads Nasdaq Gains So Far This Year as Federal Work Expands Updated May 30, 2025 Tesla Stock Logs Weekly Gains, Second Straight Winning Month as Musk Leaves DOGE Updated May 30, 2025 Deutsche Bank Goes Bullish on Luxury Brand Ralph Lauren's Stock May 30, 2025 S&P 500 Gains & Losses Today: Ulta Beauty Stock Soars; Regeneron Shares Plummet May 30, 2025 Top CDs Today, May 30, 2025 - 16 Offers Promise at Least 4.50% for 3 to 13 Months May 30, 2025 Trump vs. Economists: Will GDP Growth Surge to Historic 9% Rate? May 30, 2025 Inflation Is Weighing Heavily on Retirees May 30, 2025 Want a Small CD Before Rates Drop? These Have Low MinimumsBut Sky-High Rates May 30, 2025 Utility is a loose and sometimes controversial topic in microeconomics. Generally speaking, utility refers to the degree of pleasure or satisfaction (or removed discomfort) that an individual receives from an economic act. An example would be a consumer purchasing a hamburger to alleviate hunger pangs and to enjoy a tasty meal, providing her with some utility. All economists would agree that the consumer has gained utility by eating the hamburger. Most economists would agree that human beings are, by nature, utility-maximizing agents; human beings choose between one act or another based on each act's expected utility. The controversial part comes in the application and measurement of utility. Utility is a term in microeconomics that describes to the incremental satisfaction received from consuming a good or serviceCardinal utility attempts to assign a numeric value to the utility of an economic act, while ordinal utility simply provides a rank ordering.Marginal utility is an important concept in understanding how the addition of just one more unit changes overall satisfaction.Utility is a useful concept, but is controversial in that human beings are not necessarily rational utility maximizers in reality. The development of utility theory begins with a logical deduction. Voluntary transactions only occur because the trading parties anticipate a benefit (ex-ante); the transaction wouldn't happen otherwise. In economics, "benefit" means receiving more utility. Economists also say that human beings rank their activities based on utility. A laborer chooses to go to work rather than skip it because he anticipates his long-run utility to be greater as a result. A consumer who chooses to eat an apple rather than an orange must value the apple more highly, and thus anticipates more utility from it. Utility took hold in economics during the marginalist revolution, which tried to formalize and mathematize economics based on incremental changes. Because mainstream economists today have adopted a rational actor perspective, where their models assume that individuals are driven entirely by self-interest utility maximization, the concept of utility has been made prominent in microeconomics. The ranking of utility is known as an ordinal utility. It is not a controversial topic; however, most microeconomic models also use cardinal utility, which refers to measurable, directly comparable levels of utility. Cardinal utility is measured in units called "utils" to transform the logical into the empirical. The ordinal utility might say that ex-ante, the consumer prefers the apple to the orange. Cardinal utility might say that the apple provides 80 utils while the orange only provides 40 utils. Economists sometimes employ what is known as an indifference curve to elucidate the cardinal utility of two or more goods in graphical form. Remember the last time you had one too many bites and had a stomach ache? That's proof that you can have negative marginal utility. Marginal utility looks at the added satisfaction that somebody gains (or loses)from consuming just one additional unit of a good or service. It measures how much an individual's total utility (such as their satisfaction or happiness) changes when they consume a little more of a particular item. Economists use the concept of marginal utility to explain how consumers make choices to maximize their total utility, given their preferences and budget constraints. In theory, consumers will allocate their income to goods and services in a way that maximizes their overall satisfaction. For instance, if you have disposable income of $100 this month, it is most likely that you will allocate those funds to maximizing whatever increases your utility. A more robust example of marginal utility is usually done with food. For instance, imagine you take a seat at your favorite hamburger restaurant. Assuming you're hungry, eating one hamburger when hungry provides a lot of utility. You received utility as you're now less hungry than before.Eating a second hamburger perhaps gives a bit less satisfaction. You may have still been hungry, but you were not as hungry as before.Eating a third hamburger may even lower utility since now you're already quite full. The marginal utility of this third hamburger may be low.Eating a fourth hamburger may make you sick. You're full at this point and don't actually want to eat it, so you may actually have negative marginal utility with the fourth hamburger. In the example above, notice how the amount of utility you received for each additional unit of consumption went down. This is the law of diminishing marginal utility. The law of diminishing marginal utility describes this effect, where adding one more unit of something typically results in fewer and fewer gains in utility for the consumer. In the context of consumption, marginal utility represents the additional satisfaction or happiness a person gets from consuming one more unit of a good or service. Economists assume that individuals are rational and seek to maximize their overall satisfaction or utility from their consumption choices. Therefore, when faced with limited resources, individuals will allocate their resources (money) in such a way that the marginal utility per dollar spent is roughly equal for all goods and services. As consumption of one good increases, the utility of consuming that good again may decrease. The concept of diminishing marginal utility is central to the analysis of consumer equilibrium. To maximize their overall satisfaction within their budget constraints, consumers will allocate their spending so that the marginal utility of the last unit of each good consumed is equal to the price (or opportunity cost) of that good. Once the marginal utility drops below this level, it no longer makes sense for the consumer to pursue marginal units of the good. The law of diminishing marginal utility helps explain why people diversify their consumption across a variety of goods and services rather than consuming massive quantities of a single item. It also helps explain why prices are necessary in a market economy to allocate resources efficiently, as the price reflects the relative scarcity of a good and helps consumers make choices based on marginal utility. For example, after consuming one apple, a consumer may be more likely to elect to eat a different fruit next time as the utility across products may feel greater. Utility theory has been quite useful in understanding the economic action of individuals, households, and firmsbut only in broad strokes. In reality, people may eat a third hamburger for reasons that elude the rational actor assumption of standard economic models. For instance, a leftover hamburger may be considered wasteful food, and in order to prevent waste, it is eaten. This more ethical or qualitative evaluation of "utility" is difficult to capture in mathematical models or formulae. Behavioral economics has also revealed time and again how economic actors deviate from rational expectations in everyday life and fail to maximize utility. Moreover, empirical work shows that people have inconsistent preferences. While somebody may prefer apples to oranges this week, next week oranges may be what is craved. As a result of these and other factors, some have questioned the usefulness of utility in practice. Marginal utility can substantially drop for certain products. For example, if you need a new cell phone, the marginal utility of a brand new phone may be high. However, once you've already bought one new phone, the marginal utility of a second cell phone would most likely be incredibly low. There's different ways to depict utility, and one of those is an indifference curve. An indifference curve is a fundamental graphical tool in economics used to represent a consumer's preferences and choices regarding two goods or services. It shows all the combinations of these two items that provide the consumer with the same level of satisfaction or utility. Each curve represents a specific level of utility, and higher curves indicate greater satisfaction. The shape of an indifference curve is typically convex, sloping downward from left to right. This curve reflects the concept of diminishing marginal rate of substitution, which means that as a consumer moves along the curve, they are willing to trade off fewer units of one good for one more unit of the other because they already have a certain amount of each. This diminishing rate of substitution is a key characteristic of consumer preferences. The point of tangency between an indifference curve and the consumer's budget constraint represents the optimal consumption choice. At this point, the consumer allocates their income in a way that maximizes their utility, as the consumer considering both the prices of the goods and their budget constraints. Though consumers do not graphically plot their choices before choosing how they consume, economists can collect market data to better understand consumption decisions made especially in parallel with consumer income. Let's take a quick look at two very different examples of utility. First, as part of Microsoft's 2022 annual report, the company reports on inventory and how it values the goods it keeps on hand. In the company's annual report, it mentions that it "regularly review inventory quantities on hand, future purchase commitments with our suppliers, and the estimated utility of our inventory." The company continues by stating that "If our review indicates a reduction in utility below carrying value, we reduce our inventory to a new cost basis through a charge to cost of revenue". In this context, Microsoft is stating that they periodically review the aggregate utility or benefit consumers will receive from its goods and adjusts its financial statements accordingly. In a very different example, a study from China analyzed how the health of an individual affected that person's marginal utility of consumption. In this type of study, utility can be an indicator of not only consumer behavior but of broader trends that may influence consumer trends. Utility is often measured indirectly in economics because it is a subjective and unobservable concept. Economists use tools like total utility, marginal utility, and indifference curves to analyze and represent utility. These tools help in understanding how consumers make choices based on their preferences and the trade-offs they are willing to make, though the precise measurement for each may vary from person to person and good to good. Total utility is the cumulative satisfaction or happiness that a consumer derives from consuming a specific quantity of goods or services. It represents the sum of the satisfaction obtained from each unit of consumption. Total utility helps economists analyze overall consumer well-being and preferences. Total utility is the summation of the marginal utilities of all units consumed. When total utility is increasing, marginal utility is positive; when total utility is at its maximum, marginal utility is zero; and when total utility is decreasing, marginal utility is negative. Utility functions are mathematical representations that assign numerical values to levels of satisfaction derived from consuming different combinations of goods. These functions are used in economic models to analyze consumer choices and optimize utility given budget constraints. This information is useful to businesses when deciding how many goods to manufacture and government entities when deciding what public policy to enact. Even though no economist truly believes that utility can be measured this way, some still consider utility a useful tool in microeconomics. Cardinal utility places individuals on utility curves and can track declines in marginal utility across time. Microeconomics also performs interpersonal comparisons with cardinal utility. Other economists argue that no meaningful analysis can come out of imaginary numbers and that cardinal utilityand utilsis logically incoherent. A consumer usually decides his demand for a commodity based on the utility (or satisfaction) that he derives from it. What is utility? Utility is the capacity of a commodity to satisfy human wants. In other words, utility is the want satisfying power of a good. The more the need for a commodity or the stronger the desire to have it, the greater the utility derived from the commodity. The utility is subjective. Different individuals can get different levels of utility from the same commodity. For example, someone who likes chocolates will get a much higher utility from chocolate than someone who is not so fond of chocolates, Also, the utility that one individual gets from the commodity can change with change in place and time. For example, utility from the use of a room heater will depend upon whether the individual is in Ladakh or Chennai (place) or whether it is summer or winter (time). 1) Form utility: When utility is created due to a change in the shape or structure of existing material, it is called form utility.For example, toys made of clay, furniture from wood, etc. 2) Place utility :When the utility of a commodity increases due to a change in its place, it is called place utility. For example, woolen clothes have more utility in cold places than in warm places. Transport creates place utility. 3) Service utility: Service utility arises when personal services are rendered by various professionals. For example, the services of doctors, teachers, lawyers, etc. 4) Knowledge utility: When a consumer acquires knowledge about a particular product, it is called knowledge utility. For example, the utility of a mobile phone or a computer increases when a person knows about its various functions. 5) Possession utility: Possession utility arises when the ownership of goods is transferred from one person to another. For example,transfer of goods from the sellers to the buyers. 6) Time utility:When the utility of a commodity increases with a change in its time of utilization, it is called time utility. For example, a student has more utility for textbooks during examinations than in vacations. Time utility is also observed when goods are stored and used at a time of scarcity. For example, Blood bank. DefinitionUtility is an economic term used to measure the value a good or service brings to a consumer. Utility is the total satisfaction or benefit derived from consuming a good or service. Economic theories based on rational choice assume that consumers will strive to maximize their utility. The utility of a good or service directly influences an item's demand and its price. Economic models try to quantify or estimate utility to determine consumer decision-making. Measuring utility helps explain how and why consumers make their decisions."Ordinal" utility assumes one good is more useful or desirable than another."Cardinal" utility measures economic value through imaginary units known as "utils.""Marginal" utility is what is gained by consuming an additional unit of a service or good. Investopedia / Mira Norian The utility definition in economics relates to the concept of usefulness. An economic good yields utility to the extent to which it's useful for satisfying a consumers want or need. Various schools of thought differ as to how to model economic utility and measure the usefulness of a good or service. Early economists of the Spanish Scholastic tradition of the 1300s and 1400s described the economic value of goods as deriving directly from this property of usefulness and based their theories on prices and monetary exchanges. Utility in economics was first coined by the noted 18th-century Swiss mathematician Daniel Bernoulli. To Bernoulli and other economists, utility was modeled as a quantifiable or cardinal property of the economic goods that a person consumes. Economic utility can be estimated by observing a consumer's choice between similar products. However, measuring utility becomes challenging as more variables or differences are present between the choices. Ordinal Utility: Economists of the Austrian School developed the ordinal theory of utility, the idea that individuals order or rank the usefulness of various units of economic goods. Carl Menger used this framework to resolve the diamond-water paradox: the first available units of any economic good will be put to the most highly valued uses, and subsequent units go to lower-valued uses. The ordinal theory of utility explains the law of diminishing marginal utility and the fundamental laws of supply and demand.In ordinal utility terms, a person with three slices of pizza might eat the first, share the second slice with a friend, and waste the third. Cardinal Utility: Assumes a util represents the amount of satisfaction a specific good or service generates for a subset of people in various situations. The concept of a measurable "util" makes it possible to treat economic theory and relationships using mathematical symbols and calculations. However, utils cannot be observed, measured, or compared between different economic goods or between individuals. For example, if economists determine that a piece of pizza yields 10 utils and a bowl of pasta yields 12 utils, individuals will know that eating the pasta will be more satisfying. Producers of pizza and pasta will then price pasta higher than pizza. Total Utility: If utility in economics is cardinal and measurable, the total utility (TU) is the sum of the satisfaction that a person receives from the consumption of all units of a specific product or service. Using the example above, if a person can only consume three slices of pizza and the first slice of pizza consumed yields ten utils, the second slice of pizza consumed yields eight utils, and the third slice yields two utils, the total utility of pizza would be twenty utils. Marginal Utility: This is defined as the additional (cardinal) utility gained from the consumption of one additional unit of a good or service or the additional (ordinal) use that a person has for an additional unit. 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A first slice of pizza may yield 10 utils, but as more pizza is consumed, the utils may decrease as an individual becomes full. This process reveals that consumers may maximize their utility by allocating their money between multiple types of goods and services. Utility can be used to measure the usefulness of goods and services to consumers. While there are limitations when more variables and differences appear in the market, various types of economic utility are identified. Measuring utility helps companies structure pricing based on the laws of demand. Utility is a term also used to describe the services consumers receive from energy companies, such as electricity. A consumer usually decides his demand for a commodity based on the utility (or satisfaction) that he derives from it. What is utility? Utility is the capacity of a commodity to satisfy human wants. In other words, utility is the want satisfying power of a good. 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You do not have to comply with the license for elements of the material in the public domain or where your use is permitted by an applicable exception or limitation . No warranties are given. The license may not give you all of the permissions necessary for your intended use. For example, other rights such as publicity, privacy, or moral rights may limit how you use the material. Consequentialism vs Deontology Characteristics of a Polygon Inscribed in a Circle How to Square a Rectangle Is a Cube a Rectangular Prism? What is CPCTC in Geometry What Does NM Mean Conduction vs. Convection in Physics How to Prove a Rectangle What are Quarks Made of? How to Find Circumference When Given Radius How to Prove Triangles Similar Quick Guide How to Find the Missing Side Length of a Triangle Is a Kite a Parallelogram Properties of Specific Heat of Iron Hope vs Faith: Whats The Difference? DefinitionUtility is an economic term used to measure the value a good or service brings to a consumer. 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For a good to be economically relevant, it also needs to be limited in supply and consciously valued. Understanding Utility: The Essentials Utility is one of the core ideas in economics - but this simple word hides a world of meaning. Most importantly, utility is both subjective and relative. Utility is subjective Theres no one-size-fits-all measure. Whats useful or satisfying to one person might mean nothing to another. Utility is relative It depends on context, scarcity, and how much of the good has already been consumed. Think about an umbrella. Its incredibly useful when its raining - but not at all when the weathers clear. And even on a rainy day, owning a second umbrella doesnt really help. One is enough. A second one? Just extra baggage. We say a good has use utility when it directly satisfies a need - like an umbrella keeping you dry during a storm. But to have economic utility, it also has to be scarce. So even if something is useful and enjoyable, it only counts as economically valuable if its in limited supply. Thats why not everything useful has economic utility. Take air: we cant live without it, but because its (usually) abundant, it doesnt have economic utility. Bottled mineral water, on the other hand, does - its produced, packaged, and sold. Thats why it has a price tag. Unless, of course, you live right next to a natural spring and enjoy it for free. From here on, when we talk about utility, were referring specifically to economic utility. The Law of Diminishing Marginal Utility To really get how utility works, it helps to look at three different types: Initial utility: The satisfaction you get from the first unit of a good - its often the most intense, because it directly meets your need. Marginal utility: The extra satisfaction from each additional unit - like the second, third, and so on. Total utility: The total satisfaction from all the units youve consumed - its the sum of everything from the first to the last. Heres the key principle: as you consume more of something, the added satisfaction (marginal utility) decreases. In other words, the more you have, the less extra pleasure you get from having even more. At some point, it could even become unpleasant - thats called disutility. Think of pizza. The first slice? Amazing. The second? Still good. By the fourth or fifth, youre getting full. By the seventh, you might actually feel sick. Thats diminishing marginal utility in action. How Do We Measure Utility? Most economists today use the ordinal approach. It doesnt assign numbers - instead, it ranks goods based on personal preference. There used to be another method - the cardinal approach - which tried to assign actual numerical values to utility. But it fell out of favor because it was too theoretical and not very practical. Imagine someone who prefers apples to pears, and pears to grapefruits. With the ordinal approach, we simply rank their preferences: apple > pear > grapefruit. What we cant say is how much more they like apples than pears - only that they do. The cardinal approach tried to go further, assigning values like: apples = 10, pears = 5, grapefruits = 2. But here's the problem: theres no objective way to measure how much satisfaction each fruit really gives. And thats the basic idea. What is Economic Utility?Economic utility refers to the amount of fulfillment or satisfaction a person receives from consuming a particular product or service at a specific time. In other words, it is the satisfying power of any good or commodity.Daniel Bernoulli, an 18th-century Swiss mathematician, first proposed this concept. According to the economic utility theory, a rational consumer wants to get maximum satisfaction from spending the least amount of money. Since then, economists have used this concept to explain how consumers choose what to buy and how much to spend. Economic utility is an entirely subjective concept. People can derive different levels of utility from the same product based on various factors. For instance, the satisfaction of a cold glass of water after spending 8 hours in the sun would be drastically different from consuming the same glass of water while lounging in your home. Economic Utility Types (with Examples)We can divide economic utility into four main types:FormTimePlacePossessionWe will now discuss each form of economic utility in detail:1. Form UtilityForm utility is the value that the customer sees in a finished product. It means that the utility comes from a products physical form, such as functionality, features, design, shape, etc. Thus, companies focus on increasing the benefits that the finished product provides the consumer.Example #1: A company uses wood (raw material) to make a finished wooden cabinet. This way, the company adds significant value to the wood that has less utility for the customer by making it into a product (cabinet) that has greater utility.Example #2: Lets consider a bakery selling cakes. The economic utility of a customized three-tier wedding cake would be far more than a simple chocolate cake. Therefore, with each cake layer, the bakery adds more utility to the cake. That is, the more ingredients, decorations, and efforts go into the product, the more its utility increases.2. Place UtilityPlace utility comes from the location where the product or service is available. The accessibility of the product increases its attractiveness to consumers. Therefore, a product that is easily accessible and available in various locations may give consumers a higher level of place utility.Example #1: Suppose you sell popular high-tech AI gadgets. However, you only have a few physical stores and no online presence. As most of the younger generation buys online, the place utility of your gadgets is less as they are not easily accessible. However, if you decide to sell your gadgets online, the products place utility will increase.Example #2: If you want to start a pharmacy, picking a spot close to a hospital or clinic is a good idea. Thats because people are more likely to buy medicine right after seeing a doctor. However, opening the pharmacy in the middle of a shopping area might not be as convenient for customers, reducing the shops place utility.3. Time UtilityTime utility is the utility that the consumer gets from the timing of a product or services availability. If the products and services are available when the customer needs them, the time utility of the product will be the highest. For instance, a customer may need a specific good depending on the season or festival.Example #1: As we know, the demand for warm clothes increases during the winter. Thus, if you decide to sell products as per the season, you provide maximum time utility to the customers.Example #2: Suppose you run an online apparel brand, and a customer orders a prom dress she needs in a week. Now, the earlier you deliver the dress, the higher will be the time utility. Suppose you fail to deliver the dress within the week; it will have no utility for the customer as she needs the dress in that specific time frame.4. Possession UtilityPossession utility is the amount of satisfaction a person derives from owning a specific product or service. If a product is useful for multiple purposes, the possession utility of the product increases. Example #1: Suppose you want to purchase a high-end gaming laptop, which is quite expensive, and you cant afford to pay the money at once. However, the company offers easy EMI options, which makes it easier for you to buy the laptop, increasing its possession utility.Example #2: Imagine you used to sell items like video games, typewriters, and calculators separately, and customers only bought them when they needed them. But now, you are selling computers that can replace all those products. This means customers can do many things with just one product, making it more valuable. This increases the benefit of owning the computer, increasing the possession utility.How to Measure Economic Utility?Measuring economic utility is not easy, as how much satisfaction a person receives from consuming a product is subjective. However, economists widely use the following two measurement methods:1. Ordinal UtilityModern economists like John Hicks and R.J. Allen introduced the concept of ordinal utility. They believed that people could not express the utility derived in numbers. As per them, ranking products based on the preference of one product over another is more realistic and practical. Therefore, the ordinal utility uses ranks to measure a consumers preference for one product over another.2. Cardinal UtilityTraditional and neo-classical economists are more in favor of this method. As per cardinal utility, a person can assign a numerical value to the satisfaction they derive from a product. Utils is the measuring term for a cardinal utility where one util refers to one unit of satisfaction.When you measure economic utility this way, you can use two concepts: Total and Marginal Utility.Total Utility: It is the total satisfaction a consumer derives from consuming all units of a product. For example, a child eating a bag of chips will get more satisfaction from eating the whole packet compared to satisfaction from one piece of chip in the bag.Marginal Utility: It is the amount of satisfaction a consumer gets from consuming one extra unit of a product. However, the Law of Diminishing Marginal Utility says that when you have more units of a product, each extra unit may not make you as happy as the first. For example, with chips, if a child eats more and more packets, they wont enjoy each new packet as much as the first one.Total and Marginal Utility ExampleHere is how you can calculate total and marginal utility.Question:Suppose you are hungry and you buy 6 bananas. When you eat the first banana, you achieve a certain level of satisfaction, lets say 30 utils. As you eat more bananas, your total utility keeps increasing until you are full. Lets say you are full by the 4th banana. After this point, the total utility will decrease with each banana you eat.Given:Suppose you assign the following utils to each quantity consumed. Here, Q is the quantity consumed, and TU is the total utility.Quantity Consumed (Q)Total Utility (TU)00130240345445542637Now, lets calculate marginal utility and see how satisfaction changes with each additional banana consumption. Marginal Utility = Change in Total Utility (TU) / Change in No. Of Units Consumed (Q)The table below shows the different values of total and marginal utility. We have applied the above formula to calculate the marginal utility (in column 3) and added calculations in the last column.Quantity Consumed (Q)Total Utility (TU)Marginal Utility (MU)Calculation of Marginal Utility00013030(30-0)/(1-0) = 3024010(40-30)/(2-1) = 103455(45-40)/(3-2) = 54450(45-45)/(4-3) = 0542-3(42-45)/(5-4) = -3637-5(37-42)/(6-5) = -5Result:The total utility (TU) gradually reaches its maximum point and then starts decreasing.The marginal utility (MU) decreases with every additional unit of quantity consumed.When TU is at its maximum (45) at the 4th unit, MU is 0. It is the saturation point where consuming one more unit of a product no longer adds to the total satisfaction.ImportanceUnderstanding the economic utility of a product or service enables businesses to:Improve the value of the products and services: When a business knows the type of utility consumers derive from a product, they can develop their marketing strategies to highlight those features. This will attract consumers toward those products and increase the perceived value of those products.Determine the best production and pricing levels: This theory helps businesses determine how many items they can sell and what the optimal price should be.Improve customer satisfaction: By offering products or services that offer various types of utility, businesses can increase customer satisfaction and loyalty, ultimately leading to more sales.Innovate and differentiate their products and services: Businesses can innovate and differentiate their products and services from their competitors by focusing on different types of utility. This helps them stay ahead of the competition.Final ThoughtsEconomic utility is an important economic idea because it helps us understand why people buy things and what makes products popular. It not only helps in understanding consumer behavior but can also help in influencing it. Companies can launch marketing campaigns to create utility for a new product before introducing it into the market.Frequently Asked Questions (FAQs)Q1. How does economic utility affect an individuals decisions?Answer: The economic utility concept helps you decide which products to purchase given your budget. According to utility theory, most people want to achieve maximum utility by spending minimum money. So, you will end up buying products that make you happier at less cost.Q2. How does economic utility affect pricing?Answer: Understanding the economic utility of products can help companies determine the price of the products. Goods and services with higher utility are more in demand; therefore, companies can set a higher price point for those products and vice-versa.Q3. Are utility and demand the same thing?Answer: No, they are two different concepts. Utility refers to how you feel after consuming a product at a specific price. Conversely, demand is the ability and willingness of a person to buy a product at a particular price.Q4. What is the difference between economic utility and market value?Answer: Economic utility is the satisfaction or utility a consumer derives from a product or service. On the other hand, market value is the amount a customer is willing to pay for the product or service.There is a direct relationship between economic utility and the market value of a product or service, as the higher the economic utility of a product or service, the higher its market value will be.Recommended ArticlesWe hope you enjoyed reading this article about economic utility. You may also take a look at some of the useful articles here:Economic ExamplesMarginal UtilityNormative EconomicsUtilities ExpensesConcept in economics and decision theoryThis article is about the economic concept. For other uses, see Utility (disambiguation).Part of a series onUtilitarianismPredecessorsMoziShantidevaDavid HumeClaude Adrien HelvtiusCesare BeccariaWilliam GodwinFrancis HutchesonWilliam PaleyKey proponentsJeremy BenthamJohn Stuart MillHenry SidgwickR. M. HarePeter SingerTypes of utilitarianismNegativeRuleActTwo-levelTotalAveragePreferenceClassicalKey conceptsPainSufferingPleasureUtilityHappinessEudaimoniaConsequentialismEqual considerationFelicific calculusUtilitarian social choice ruleProblemsDemandingness objectionMere addition paradoxParadox of hedonismReplaceability argumentUtility monsterWorksAn Introduction to the Principles of Morals and Legislation (1780)On Liberty (1859)Utilitarianism (1861)Related topicsRational choice theoryGame theoryNeoclassical economicsPopulation ethicsEffective altruismPhilosophy portalvteIn economics, utility is a measure of a certain person's satisfaction from a certain state of the world. Over time, the term has been used with at least two meanings.In a normative context, utility refers to a goal or objective that we wish to maximize, i.e., an objective function. This kind of utility bears a closer resemblance to the original utilitarian concept, developed by moral philosophers such as Jeremy Bentham and John Stuart Mill.In a descriptive context, the term refers to an apparent objective function; such a function is revealed by a person's behavior, and specifically by their preferences over lotteries, which can be any quantified choice.The relationship between these two kinds of utility functions has been a source of controversy among both economists and ethicists, with most maintaining that the two are distinct but generally related.Consider a set of alternatives among which a person has a preference ordering. A utility function represents that ordering if it is possible to assign a real number to each alternative in such a manner that alternative a is assigned a number greater than alternative b if and only if the individual prefers alternative a to alternative b. In this situation, someone who selects the most preferred alternative must also choose one that maximizes the associated utility function. Suppose James has utility function U = x y {\displaystyle U={\sqrt {xy}}} such that x {\displaystyle x} is the number of apples and y {\displaystyle y} is the number of chocolates. Alternative A has x = 9 {\displaystyle x=9} apples and y = 16 {\displaystyle y=16} chocolates; alternative B has x = 13 {\displaystyle x=13} apples and y = 13 {\displaystyle y=13} chocolates. Putting the values x , y {\displaystyle x,y} into the utility function yields 9 16 = 12 {\displaystyle {\sqrt {9\times 16}}=12} for alternative A and 13 13 = 13 {\displaystyle {\sqrt {13\times 13}}=13} for B, so James prefers alternative B. In general economic terms, a utility function ranks preferences concerning a set of goods and services.Grard Debreu derived the conditions required for a preference ordering to be representable by a utility function.[1] For a finite set of alternatives, these require only that the preference ordering is complete (so the individual can determine which of any two alternatives is preferred or that they are indifferent), and that the preference order is transitive.Suppose the set of alternatives is not finite (for example, even if the number of goods is finite, the quantity chosen can be any real number on an interval). In that case, a continuous utility function exists representing a consumer's preferences if and only if the consumer's preferences are complete, transitive, and continuous.[2]Utility can be represented through sets of indifference curve, which are level curves of the function itself and which plot the combination of commodities that an individual would accept to maintain a given level of satisfaction. Combining indifference curves with budget constraints allows for individual demand curves derivation.A diagram of a general indifference curve is shown below (Figure 1). The vertical and horizontal axes represent an individual's consumption of commodity Y and X respectively. All the combinations of commodity X and Y along the same indifference curve are regarded indifferently by individuals, which means all the combinations along an indifference curve result in the same utility value. Figure 1Individual and social utility can be construed as the value of a utility function and a social welfare function, respectively. When coupled with production or commodity constraints, by some assumptions, these functions can be used to analyze Pareto efficiency, such as illustrated by Edgeworth boxes in contract curves. Such efficiency is a major concept in welfare economics.While preferences are the conventional foundation of choice theory in microeconomics, it is often convenient to represent preferences with a utility function. Let X be the consumption set, the set of all mutually exclusive baskets the consumer could consume. The consumer's utility function u : X R {\displaystyle u\colon X\to \mathbb {R} } ranks each possible outcome in the consumption set. If the consumer strictly prefers x to y or is indifferent between them, then u (x) u (y) {\displaystyle u(x)\geq u(y)} .For example, suppose a consumer's consumption set is X ={nothing, 1apple,1orange, 1apple and 1orange, 2apples, 2oranges}, and his utility function is u(nothing)=0, u(1apple)=1, u(1orange)=2, u(1apple and 1orange)=5, u(2apples)=2 and u(2oranges)=4. Then this consumer prefers 1 orange to 1 apple but prefers one of each to 2 oranges.In micro-economic models, there is usually a finite set of L commodities, and a consumer may consume an arbitrary amount of each commodity. This gives a consumption set of R + L {\displaystyle \mathbb {R} _{+}^{L}} , and each package x R + L {\displaystyle x\in \mathbb {R} _{+}^{L}} is a vector containing the amounts of each commodity. For the example, there are two commodities: apples and oranges. If we say apples are the first commodity, and oranges the second, then the consumption set is X = R + 2 {\displaystyle X=\mathbb {R} _{+}^{2}} and u(0,0)=0, u(1,0)=1, u(0,1)=2, u(1,1)=5, u(2,0)=2, u(0,2)=4 as before. For u to be a utility function onX, however, it must be defined for every package inX, so now the function must be defined for fractional apples and oranges too. One function that would fit these numbers is u (x apples , x oranges) = x apples + 2 x oranges + 2 x apples x oranges . {\displaystyle u(x_{\text{apples}},x_{\text{oranges}})=x_{\text{apples}}+2x_{\text{oranges}}+2x_{\text{apples}}x_{\text{oranges}}.} Preferences have three main properties:CompletenessAssume an individual has two choices, A and B. By ranking the two choices, one and only one of the following relationships is true: an individual strictly prefers A (A>B); an individual strictly prefers B (B>A); an individual is indifferent between A and B (A=B).Either a b OR b a (OR both) for all (a,b)TransitivityIndividuals' preferences are consistent over bundles. If an individual prefers bundle A to bundle B and bundle B to bundle C, then it can be assumed that the individual prefers bundle A to bundle C.(If a b and b c, then a c for all (a,b,c)).Non-satiation or monotonicityIf bundle A contains all the goods that a bundle B contains, but A also includes more of at least one good than B. The individual prefers A over B.[3] If, for example, bundle A={1apple,2oranges}, and bundle B={1apple,1orange}, then A is preferred over B.It was recognized that utility could not be measured or observed directly, so instead economists devised a way to infer relative utilities from observed choice. These 'revealed preferences', as termed by Paul Samuelson, were revealed e.g. in people's willingness to pay: Utility is assumed to be correlative to Desire or Want. It has been argued already that desires cannot be measured directly, but only indirectly, by the outward phenomena which they cause: and that in those cases with which economics is mainly concerned the measure is found by the price which a person is willing to pay for the fulfillment or satisfaction of his desire.[4]:78Utility functions, expressing utility as a function of the amounts of the various goods consumed, are treated as either cardinal or ordinal, depending on whether they are or are not interpreted as providing more information than simply the rank ordering of preferences among bundles of goods, such as information concerning the strength of preferences.Main article: Cardinal utilityCardinal utility states that the utilities obtained from consumption can be measured and ranked objectively and are representable by numbers.[5] There are fundamental assumptions of cardinal utility. Economic agents should be able to rank different bundles of goods based on their preferences or utilities and sort different transitions between two bundles of goods.[6]A cardinal utility function can be transformed to another utility function by a positive linear transformation (multiplying by a positive number, and adding some other number); however, both utility functions represent the same preferences.[7]When cardinal utility is assumed, the magnitude of utility differences is treated as an ethically or behaviorally significant quantity. For example, suppose a cup of orange juice has utility of 120 "utils", a cup of tea has a utility of 80 utils, and a cup of water has a utility of 40 utils. With cardinal utility, it can be concluded that the cup of orange juice is better than the cup of tea by the same amount by which the cup of tea is better than the cup of water. This means that if a person has a cup of tea, they would be willing to take any bet with a probability, p, greater than .5 of getting a cup of juice, with a risk of getting a cup of water equal to 1-p. One cannot conclude, however, that the cup of tea is two-thirds of the goodness of the cup of juice because this conclusion would depend not only on magnitudes of utility differences but also on the "zero" of utility. For example, if the "zero" of utility were located at -40, then a cup of orange juice would be 160 utils more than zero, a cup of tea 120 utils more than zero. Cardinal utility can be considered as the assumption that quantifiable characteristics, such as height, weight, temperature, etc can measure utility.Neoclassical economics has largely retreated from using cardinal utility functions as the basis of economic behavior. A notable exception is in the context of analyzing choice with conditions of risk (see below).Sometimes cardinal utility is used to aggregate utilities across persons, to create a social welfare function.Main article: Ordinal utilityInstead of giving actual numbers over different bundles, ordinal utilities are only the rankings of utilities received from different bundles of goods or services.[5] For example, ordinal utility could tell that having two ice creams provide a greater utility to individuals in comparison to one ice cream but could not tell exactly how much extra utility received by the individual. Ordinal utility, it does not require individuals to specify how much extra utility they received from the preferred bundle of goods or services in comparison to other bundles. They are only needed to tell which bundles they prefer. When ordinal utilities are used, differences in utils (values assumed by the utility function) are treated as ethically or behaviorally meaningless: the utility index encodes a full behavioral ordering between members of a choice set, but tells nothing about the related strength of preferences. For the above example, it would only be possible to say that juice is preferred to tea to water. Thus, ordinal utility utilizes comparisons, such as "preferred to", "no more", "less than", etc.If a function u (x) {\displaystyle u(x)} is ordinal and non-negative, it is equivalent to the function u (x) 2 {\displaystyle u(x)^{2}} , because taking the

square is an increasing monotone (or monotonic) transformation. This means that the ordinal preference induced by these functions is the same (although they are two different functions). In contrast, if u (x) {\displaystyle u(x)} is cardinal, it is not equivalent to u (x) 2 {\displaystyle u(x)^{2}} .In order to simplify calculations, various alternative assumptions have been made concerning details of human preferences, and these imply various alternative utility functions such as:CES (constant elasticity of substitution).Isoelastic utilityExponential utilityQuasilinear utilityHomothetic preferencesStoneGeary utility functionGorman polar formGreenwoodHercowitzHuffman preferencesKingPlosserRebelo preferencesHyperbolic absolute risk aversionMost utility functions used for modeling or theory are well-behaved. They are usually monotonic and quasi-concave. However, it is possible for rational preferences not to be representable by a utility function. An example is lexicographic preferences which are not continuous and cannot be represented by a continuous utility function.[8]Economists distinguish between total utility and marginal utility. Total utility is the utility of an alternative, an entire consumption bundle or situation in life. The rate of change of utility from changing the quantity of one good consumed is termed the marginal utility of that good. Marginal utility therefore measures the slope of the utility function with respect to the changes of one good.[9] Marginal utility usually decreases with consumption of the good, the idea of "diminishing marginal utility". In calculus notation, the marginal utility of good X is M U x = U X {\displaystyle MU_{x}={\frac {\partial U}{\partial X}}} . When a good's marginal utility is positive, additional consumption of it increases utility; if zero, the consumer is satiated and indifferent about consuming more; if negative, the consumer would pay to reduce his consumption.[10] Rational individuals only consume additional units of goods if it increases the marginal utility. However, the law of diminishing marginal utility means an additional unit consumed brings a lower marginal utility than that carried by the previous unit consumed. For example, drinking one bottle of water makes a thirsty person satisfied; as the consumption of water increases, he may feel begin to feel bad which causes the marginal utility to decrease to zero or even become negative. Furthermore, this is also used to analyze progressive taxes as the greater taxes can result in the loss of utility.Marginal rate of substitution is the absolute value of the slope of the indifference curve, which measures how much an individual is willing to switch from one good to another. Using a mathematic equation, M R S = d x 2 / d x 1 {\displaystyle MRS=-\operatorname {d} \!x_{2}/\operatorname {d} \!x_{1}} keeping U(x1,x2) constant. Thus, MRS is how much an individual is willing to pay for consuming a greater amount of x1. MRS is related to marginal utility. The relationship between marginal utility and MRS is:[9] M R S = M U 1 M U 2 {\displaystyle MRS={\frac {MU_{1}}{MU_{2}}}} Main article: Expected utility hypothesisExpected utility theory deals with the analysis of choices among risky projects with multiple (possibly multidimensional) outcomes.The St. Petersburg paradox was first proposed by Nicholas Bernoulli in 1713 and solved by Daniel Bernoulli in 1738, although the Swiss mathematician Gabriel Cramer proposed taking the expectation of a square-root utility function of money in an 1728 letter to N. Bernoulli. D. Bernoulli argued that the paradox could be resolved if decision-makers displayed risk aversion and argued for a logarithmic cardinal utility function. (Analysis of international survey data during the 21st century has shown that insofar as utility represents happiness, as for utilitarianism, it is indeed proportional to log of income.)The first important use of the expected utility theory was that of John von Neumann and Oskar Morgenstern, who used the assumption of expected utility maximization in their formulation of game theory.In finding the probability-weighted average of the utility from each possible outcome: EU = Pr (z) u (Value (z)) + Pr (y) u (Value (y)) {\displaystyle {\text{EU}}=\Pr(z)\cdot u({\text{Value}}(z))+\Pr(y)\cdot u({\text{Value}}(y))} Main article: Von NeumannMorgenstern utility theoremVon Neumann and Morgenstern addressed situations in which the outcomes of choices are not known with certainty, but have probabilities associated with them.A notation for a lottery is as follows: if options A and B have probability p and 1p in the lottery, we write it as a linear combination: L = p A + (1 p) B {\displaystyle L=pA+(1-p)B} More generally, for a lottery with many possible options: L = i p i A i , {\displaystyle L=\sum _{i}p_{i}A_{i},} where i p i = 1 {\displaystyle \sum _{i}p_{i}=1} .By making some reasonable assumptions about the way choices behave, von Neumann and Morgenstern showed that if an agent can choose between the lotteries, then this agent has a utility function such that the desirability of an arbitrary lottery can be computed as a linear combination of the utilities of its parts, with the weights being their probabilities of occurring.This is termed the expected utility theorem. The required assumptions are four axioms about the properties of the agent's preference relation over 'simple lotteries', which are lotteries with just two options. Writing B A {\displaystyle B\preceq A} to mean 'A is weakly preferred to B' ('A is preferred at least as much as B'), the axioms are:completeness: For any two simple lotteries L {\displaystyle L} and M {\displaystyle M} , either L M {\displaystyle L\preceq M} or M L {\displaystyle M\preceq L} (or both, in which case they are viewed as equally desirable).transitivity: for any three lotteries L , M , N {\displaystyle L,M,N} , if L M {\displaystyle L\preceq M} and M N {\displaystyle M\preceq N} , then L N {\displaystyle L\preceq N} .convexity/continuity (Archimedean property): If L M N {\displaystyle L\preceq M\preceq N} , then there is a p {\displaystyle p} between 0 and 1 such that the lottery p L + (1 p) N {\displaystyle pL+(1-p)N} is equally desirable as M {\displaystyle M} .independence: for any three lotteries L , M , N {\displaystyle L,M,N} and any probability p, L M {\displaystyle L\preceq M} if and only if p L + (1 p) N p M + (1 p) N {\displaystyle pL+(1-p)N\preceq pM+(1-p)N} . Intuitively, if the lottery formed by the probabilistic combination of L {\displaystyle L} and N {\displaystyle N} is no more preferable than the lottery formed by the same probabilistic combination of M {\displaystyle M} and N , {\displaystyle N,} then and only then L M {\displaystyle L\preceq M} .Axioms 3 and 4 enable us to decide about the relative utilities of two assets or lotteries.In more formal language: A von NeumannMorgenstern utility function is a function from choices to the real numbers: u : X R {\displaystyle u\colon X\to \mathbb {R} } which assigns a real number to every outcome in a way that represents the agent's preferences over simple lotteries. Using the four assumptions mentioned above, the agent will prefer a lottery L 2 {\displaystyle L_{2}} to a lottery L 1 {\displaystyle L_{1}} if and only if, for the utility function characterizing that agent, the expected utility of L 2 {\displaystyle L_{2}} is greater than the expected utility of L 1 {\displaystyle L_{1}} : L 1 L 2 iff u (L 1) u (L 2) {\displaystyle L_{1}\preceq L_{2}{\text{ iff }}u(L_{1})\leq u(L_{2})} .Of all the axioms, independence is the most often discarded. A variety of generalized expected utility theories have arisen, most of which omit or relax the independence axiom.Main article: Indirect utilityAn indirect utility function gives the optimal attainable value of a given utility function, which depends on the prices of the goods and the income or wealth level that the individual possesses.One use of the indirect utility concept is the notion of the utility of money. The (indirect) utility function for money is a nonlinear function that is bounded and asymmetric about the origin. The utility function is concave in the positive region, representing the phenomenon of diminishing marginal utility. The boundedness represents the fact that beyond a certain amount money ceases being useful at all, as the size of any economy at that time is itself bounded. The asymmetry about the origin represents the fact that gaining and losing money can have radically different implications both for individuals and businesses. The non-linearity of the utility function for money has profound implications in decision-making processes: in situations where outcomes of choices influence utility by gains or losses of money, which are the norm for most business settings, the optimal choice for a given decision depends on the possible outcomes of all other decisions in the same time-period.[11]Individuals' consumptions are constrained by their budget allowance. The graph of budget line is a linear, downward-sloping line between X and Y axes. All the bundles of consumption under the budget line allow individuals to consume without using the whole budget as the total budget is greater than the total cost of bundles (Figure 2). If only considers prices and quantities of two goods in one bundle, a budget constraint could be formulated as p 1 X 1 + p 2 X 2 = Y {\displaystyle p_{1}X_{1}+p_{2}X_{2}=Y} , where p 1 {\displaystyle p_{1}} and p 2 {\displaystyle p_{2}} are prices of the two goods, X 1 {\displaystyle X_{1}} and X 2 {\displaystyle X_{2}} are quantities of the two goods.Figure 2 slope = P (x) P (y) {\displaystyle {\text{slope}}={\frac {-P(x)}{P(y)}}} Rational consumers wish to maximise their utility. However, as they have budget constraints, a change of price would affect the quantity of demand. There are two factors could explain this situation:Purchasing power. Individuals obtain greater purchasing power when the price of a good decreases. The reduction of the price allows individuals to increase their savings so they could afford to buy other products.Substitution effect. If the price of good A decreases, then the good becomes relatively cheaper with respect to its substitutes. Thus, individuals would consume more of good A as the utility would increase by doing so.Cambridge economist Joan Robinson famously criticized utility for being a circular concept: "Utility is the quality in commodities that makes individuals want to buy them, and the fact that individuals want to buy commodities shows that they have utility".[12]:48 Robinson also stated that because the theory assumes that preferences are fixed this means that utility is not a testable assumption. This is so because if we observe changes of peoples' behavior in relation to a change in prices or a change in budget constraint we can never be sure to what extent the change in behavior was due to the change of price or budget constraint and how much was due to a change of preference.[13][unreliable source] This criticism is similar to that of the philosopher Hans Albert who argued that the ceteris paribus (all else equal) conditions on which the marginalist theory of demand rested rendered the theory itself a meaningless tautology, incapable of being tested experimentally.[14][unreliable source] In essence, a curve of demand and supply (a theoretical line of quantity of a product which would have been offered or requested for given price) is purely ontological and could never have been demonstrated empirically[dubious discuss].Other questions of what arguments ought to be included in a utility function are difficult to answer, yet seem necessary to understanding utility. Whether people gain utility from coherence of wants, beliefs or a sense of duty is important to understanding their behavior in the utility organon.[15] Likewise, choosing between alternatives is itself a process of determining what to consider as alternatives, a question of choice within uncertainty.[16]An evolutionary psychology theory is that utility may be better considered as due to preferences that maximized evolutionary fitness in the ancestral environment but not necessarily in the current one.[17]There are many empirical works trying to estimate the form of utility functions of agents with respect to money.[18]Business and Economics portalHappiness economicsLaw of demandMarginal utilityUtility maximization problem - a problem faced by consumers in a market: how to maximize their utility given their budget.Utility assessment - processes for estimating the utility functions of human subjects.^ Debreu, Grard (1954), "Representation of a preference ordering by a numerical function", in Thrall, Robert M.; Coombs, Clyde H.; Raiffa, Howard (eds.), Decision processes, New York: Wiley, pp.159167, OCLC639321.^ Jehle, Geoffrey; Reny, Philipp (2011), Advanced Microeconomic Theory, Prentice Hall, Financial Times, pp.1316, ISBN978-0-273-73191-7.^ "nonsatiation". 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