

Towards a microeconomic theory for intangibles

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Abstract

- Conventional microeconomic theory treats all goods as being tangible or assumes tangibles and intangibles are conceptually interchangeable.
- When applied to intangibles, the logic supporting conventional microeconomic theory invalidates key concepts, including diminishing marginal utility, indifference curves and equimarginal choice.
- Conventional microeconomic theories of the firm and of production, costs and profits also founder when applied to intangibles.
- In intangibles, the market not only doesn't work: it actually doesn't exist.
- A new theory of microeconomics is required to deal with intangibles, now accounting for a growing majority of production in all advanced economies.

Background

Conventional microeconomic theory makes no distinction between tangibles and intangibles, even though the difference could not be greater. Economists from Alfred Marshall have held the view that if something can be traded, it can be treated as if it were a tangible. This focus on tangibility is understandable. It is the way that economists have translated the subjective concept of utility, which cannot be measured and for which interpersonal comparisons are impossible, into a scientifically testable relationship between price, on the one hand, and aggregate supply and aggregate demand on the other. The core argument of this paper is that microeconomic theory needs to be adapted to take into account the implications of applying theories of consumer choice and production and supply to goods that are intangible.

The conflation of tangibility and intangibility in microeconomic theory

Microeconomic textbooks invariably either treat intangibles (services) as identical to tangibles or they exclusively refer to tangibles and imply that the theoretical conclusions apply equally to intangibles. This is reflected in every book on microeconomics that a student might refer to.

This paper will refer mainly to one text book: *Economics* by David Lipsey and Alex Chrystal. But the approach to intangibles is shared by others used by students of economics.

Economics devotes Chapter 5 to Consumer Choice: Indifference Theory. The following are passages taken from that chapter to demonstrate the way that economists tend to refer almost exclusively to goods with tangible characteristics.

“All the units of the same product are identical; for example, one tin of Heinz baked beans is the same as another tin of Heinz baked beans.”

Paragraph 1, page 87.

“For example, the total utility of consuming 14 cups of coffee a week is the sum total satisfaction provided by all 14 cups of coffee. The marginal utility¹ of the fourteenth cup of coffee consumed is the addition to total satisfaction provided by consuming that extra cup. Put another way, the marginal utility of the fourteenth cup is the addition to total utility gained from consuming 14 cups of coffee per week rather than 13.”

Paragraph 3, page 87.

“Early thinkers about the economy struggled with the problem of what determines the relative prices of products. They encountered the paradox value: essential products without which we could not live, such as water, have relatively low prices. On the other hand, some luxury products, such as diamonds, have relatively high prices, even though we could easily survive without them. Does it not seem odd that water, which is so important to us, has such a low market value, while diamonds, which are much less important, have a much higher market value?”

Box 5.1, page 89.

“This concept is important, and deserves further elaboration. The table gives hypothetical data for the weekly consumption of milk by one consumer, Ms Green.”

Box 5.2, pages 91-92.

“We start by deriving a single indifference curve. To do this, we give an imaginary consumer, Kevin, some quantity of each of two products, say 18 units of clothing (C) and 10 units of food (F).”

Pages 92-95.

“Drawing pins that came in red packages of 100 would be perfect substitutes for identical pins that came in green packages of 100 for a colour-blind consumer.”

Box 5.3, page 96. The box also refers to: left- and right-hand gloves; water; food and beverages; cars, TV sets, dishwashers, tennis rackets and green peas.

“The table shows combinations of food and clothing available to Jane...”

Table 5.3 and pages 97-99.

“This line shows how Karen’s purchases (of food and clothing) react to changes in income with relative prices held constant.”

Figure 5.7 and pages 99-100.

“In part (i) of Figure 5.9, a new type of indifference map is plotted in which the horizontal axis measures litres of petrol and the vertical axis measures the value of all other goods consumed.”

Paragraph 2 and pages 101-02.

Chapter 5 in Economics does refer occasionally to intangibles (services): going to football and going to the cinema (page 88); films, plays, cricket matches (Box 5.3, page 96) and hairdressing (footnote, page 104). Intangibles are, however, referred to much less frequently than tangibles and all examples involving geometric presentations focus on tangibles. Throughout the chapter, it is implied that the reader could substitute intangibles for tangibles without altering the conclusions reached.

The focus on tangibles continues throughout the text book. Chapter 6, which deals with the cost structure of firms, almost exclusively refers to tangible production (car production, sheet steel, rubber, spark plugs, electricity). The chapter refers to units and unit costs. This is terminology drawn from the practices of tangible manufacture. Further examples of the focus on

tangibles can be found throughout the text. There is no reference to the words “services” or “tangibles” in Economics’ 13-page index.

Other basic text books used by undergraduate and graduate students of economics maintain the focus on tangibles. Here are two examples among many:

Fundamental Methods of Mathematical Economics by Alpha C Chaing and Kevin Wainwright avoids referring to specific products and uses mathematical notation to explain the theories addressed by Lipsey and Chrystal. But whenever the goods are referred to, no distinction is made between tangibles and intangibles:

“...we shall still allow our hypothetical consumer the choice of only two goods, both of which have continuous, positive marginal-utility functions.”

Chapter 12, page 374.

Microeconomic Analysis by Hal R Varian, a basic text for graduate students of economics, also makes no distinction between tangibles and intangibles and treats them as interchangeable.

The focus of microeconomic analysis on tangibles has a pedigree. Alfred Marshall’s **Principles of Economics** (1890), regarded as the first economics text book, refers mainly to tangibles: tobacco and cigars (page 19); eggs (page 35); cotton (page 35) and match-boxes (page 35). In chapter 2, Marshall classifies goods in a way that includes intangibles (services) but makes them interchangeable as “economic goods”. The ground-breaking depiction of demand and supply curves intersecting at the market-clearing price is based on the demand and supply of knives and knife handles.

Marshall’s intellectual approach was explained in the book’s Chapter 2.

“(Economists) deal with man as he is: but being concerned chiefly with those aspects of life in which the action of motive is so regular that it can be predicted, and the estimate of the motor-

forces can be verified by the results, they have established their work on a scientific basis...For in the first place, they deal with facts which can be observed, and quantities which can be measured and recorded...”

This definition seems to exclude intangibles: they are rarely regular; they can't be observed by human senses and they, consequently, can't be measured.

The final reference is to *Price Theory*, the classic microeconomic text by Milton Friedman. It refers to tennis rackets and balls; shoes, pianos, houses, cars, car tyres, butter, oleo, water, and diamonds. There is not a single example of a product that could be deemed to be intangible.

The tendency for economists to ignore the possibility that microeconomic theory may need to be adapted to deal with intangibles is colliding with the reality that more than 80 per cent of the UK labour force, according to the Office National Statistics (ONS), was working in service industries in 2008 compared with 62 per cent in 1978². The growth of services as a proportion of GDP is the most powerful single trend in the UK economy in the past three decades³.

The relative decline of industries making tangibles has been a matter of concern in the UK for almost two centuries. In 1815, parliament passed Corn Laws to protect British farmers from foreign competition. These were repealed in 1849 and Britain was a bastion of free trade for more than half a century. After losing the 1906 parliamentary elections, the Conservative Party adopted the policy of Empire Free Trade. This was a policy that involved protectionism for tangible goods producers within the British Empire. Resistance to pressure for protection of British tangible goods-makers was finally broken following the end of World War I. The *Safeguarding of Industries Act* of 1921 imposed import duties equivalent to 33 per cent on the value of imports of goods (all tangible) deemed to have been essential to Britain's victory. It was the first in a series of measures designed to protect manufacturing that were to be cornerstones of

British government policy for more than 50 years. A comprehensive programme of protection was introduced by the coalition government dominated by the Conservative Party that was elected in 1931 to counter the impact of the world depression which that year had raised British unemployment to more than 20 per cent.

World War II prompted the introduction of an even more extensive system of protectionism for primary and secondary manufacturing sectors. Direct controls on imports and spending were dismantled after the war ended, but British governments continued to act to protect agriculture and industry. In an effort to lift growth, the Conservatives, in power from 1951 to 1964, set up the National Economic Development Office (NEDO), a body designed to accelerate economic growth through indicative planning. The Labour government of 1964-70 made further attempts to promote manufacturing output and displace manufactured goods imports. After temporarily attempting to deregulate the economy, the Conservative government elected in 1970 restored controls and planning to stop increases in job losses in tangible industries. These were expanded after Labour returned to office in 1974. The election of a Conservative government under Margaret Thatcher in 1979 was a turning point in policy thinking. It declared attempts to prevent the decline of primary and secondary manufacturing industries to be ineffective and often counterproductive. If manufacturing was contracting, that was the judgment of the market expressed through price and should not be resisted. Whether it was replaced by services became a matter of indifference. The policies pursued since 1921 were deemed to have failed.

The rise of industries making intangibles, despite many years of government action to promote domestic tangible production, is a satisfying confirmation that you can't buck the idea of the market-clearing price. But anxieties about Britain's dependence upon imported tangibles have increased since the 2007-09 credit crunch, the crisis in financial services and the ensuing

rise in UK unemployment. Policy-makers are now focusing attention on finance sector structural and regulatory reforms.

Service industries are receiving growing attention. But this has not been accompanied by a review of microeconomic theory to take into account the special characteristics of intangible products. The following is a preliminary attempt to define a possible approach to this challenge.

Towards a microeconomic theory for intangibles.

The critique of conventional microeconomic theory presented in this paper is based on the application of logic. It seeks to explore the implications of intangibility and it starts with the question: what is an intangible good?

Calling it an intangible defines what it isn't. It can't be seen, touched, smelt, tasted or heard. If it can be, then it must have a physical or tangible characteristic, which would mean it's not an intangible. An intangible's invisible and, consequently, not quantifiable in the way that a tangible is. Put a cup in the palm of your hand and you can sense its weight and texture. You know how to use and maintain it. There are other tangibles to store them in. A consumer can discern the variations in the design of cups. Their colour, shape and size are obvious after a few seconds' examination. Companies know how to make them, the cost of the materials used in their production and the amount of labour needed at every stage of manufacturing. Each tangible is differentiable in the eyes of buyers and, normally, replicable by other producers after a bit of study.

But can that be said about intangibles? They share with tangibles the capacity to create a powerful impression and they are exchanged for money, just like things you can see. But the essential characteristics of intangibles are invariably mysterious. They are, by definition, difficult

to describe. If they can be identified by a human sense, then they must be a tangible or have a tangible origin. The fundamental problem that economics has with intangibles is this: can intangibles be said to exist at all? Popperian epistemology suggests that they can only be accepted if they are open to falsification. But how can you test whether something that has no physical properties does not exist? It's impossible. Popperian thinking, therefore, tends to dismiss an intangible as a meaningful category.

But even if this issue is ignored, conventional economics fails to deal coherently with intangibility. In economics, aggregate demand for a product is equal to the total demand for that product expressed by individual consumers. To understand aggregate demand, you have to understand demand at the level of the consumer. The demand curve for tangibles is based on the idea that an individual is able to make coherent judgments about distributing his or her income among a wide range of options. This entails envisaging rational consumers organising their consumption of goods in such a way that no other arrangement of what they consume will make them happier (or less dissatisfied). This in turn is based on the idea that individuals are subject to diminishing marginal utility: that they derive less enjoyment from consuming an additional unit of a particular product than they did from the previous one.

“The marginal utility generated by additional units of any product diminishes as an individual consumes more of it, holding constant the consumption of all other products.”

Page 87, Lipsey & Chrystal, ibid.

No command of economics is required to recognise that this argument makes sense. Owning a third pair of identical shoes increases your happiness by less than owning the first pair. But how can that idea be translated into a concept that has scientifically-measurable validity? Utility, as it is understood by economists, is a subjective category. It can't be measured and you can't

compare the utility enjoyed by one person by their consuming a product with that of another person consuming an identical one. If economics was based on attempting to measure and compare utility, it would stand accused of being an exercise in metaphysics or psychology. It escapes that charge by creating a bridge between a person's subjective preferences and the real world through the concept of equimarginal choice, a brilliant insight distilled in the second half of the 19th century. Again, you need refer to only one of the many basic economics text books on offer to see that it still lives and breathes.

“To maximise utility, consumers allocate spending between products so that equal utility is derived from the last unit of money spent.”

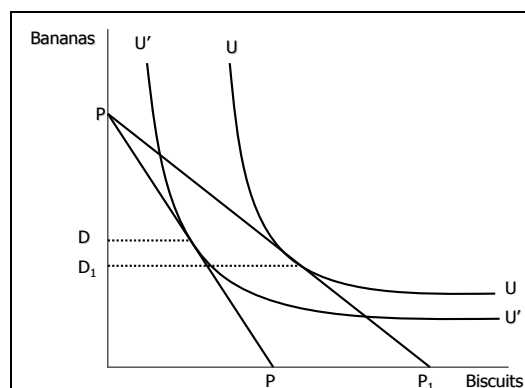
Page 88, Lipsey & Chrystal, ibid

This is most simply understood by examining how a rational consumer might allocate his or her consumption between two products: say bananas and biscuits which are assumed to be things that the consumer desires. For example, if he or she had bananas and no biscuits, he or she might be prepared to sacrifice three bananas for one biscuit without becoming more or less happy. If 17 bananas and one biscuit are possessed, the idea of diminishing marginal utility suggests that he or she might be prepared, for example, to give up two bananas for one more biscuit. At the other extreme, if all the consumer had was 10 biscuits, the idea of diminishing marginal utility suggests that he or she might give up two of them, or more, to get one banana without any change in his or her happiness. So there is a trade-off, or preference curve, between biscuits and bananas, but this trade-off changes according to the relative quantity of the things already possessed.

Economists originally expressed this concept by devising a two-dimensional relationship between two products which tracked the combinations where happiness was constant. This was

finally named an indifference curve at the start of the 20th century. It is generally presented as being convex to the origin. Modern economics has long abandoned this approach and uses mathematical symbols instead. But the idea has remained intact though undergraduate students of economics have to master algebra to grasp it.

Having plotted an individual's indifference curve -- the bridge between the subjective on the one hand and, on the other, the objective and the material -- the next step is also entirely logical. This involves inserting a price ratio between the two products being studied. The price ratio is taken as being given and cannot be influenced by the consumer. It is expressed in the form of a ratio, in this case between bananas and biscuits. So if the price of one biscuit is twice the price of one banana, a straight line can be drawn between the axis showing the number of bananas and the axis showing the number of biscuits. It can be demonstrated logically and mathematically that a consumer will allocate his or her spending on bananas and biscuits in such a way as to equalise the price ratio and the ratio between the marginal utility of a biscuit and the marginal utility of a banana. With these assumptions, a rise in the relative price of something will often lead to a fall in consumption of it, regardless of which pair of products is used.



Foundations of microeconomics: The chart illustrates the application of the idea of diminishing marginal utility and equimarginal choice in a situation where a consumer is choosing between bananas and biscuits and there is a given price ratio.

Economists are uncomfortable with the idea that the demand curve, without which economics cannot exist, is based on the concepts of utility and marginal utility. Most basic economics text books start with a discussion of aggregate demand and supply and only examine the utility foundations of that idea later. Some thinkers within the marginalist tradition have been prepared to denounce indifference as being an impossible concept.

“Every action necessarily signifies a choice, and every choice signifies a definite preference. Action specifically implies the contrary of indifference....If a person is really indifferent between two alternatives, then he cannot and will not choose between them. Indifference is therefore never relevant for action and cannot be demonstrated in action.”

Page 225-226, Towards a Reconstruction of Utility and Welfare Economics by Murray Rothbard⁴ in The Logic of Action, Volume 1, Cheltenham, UK

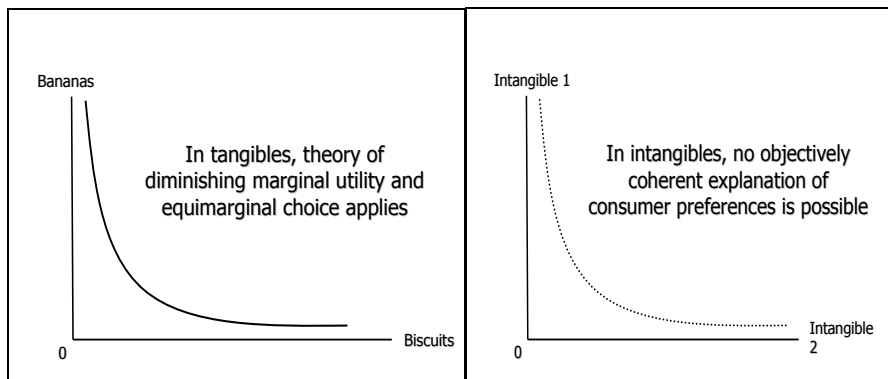
This is an elaboration of the fable of Buridan’s Ass which died of starvation because it couldn’t decide which of two equally desirable bales of hay to eat. Rothbard³, an American anarcho-libertarian, defined himself as being an adherent of the Austrian tradition of economics which originated with Karl Menger and was passed on through Eugene Boehm-Bawerk, Ludwig Von Mises and Friederich Hayek. The Austrian challenge to indifference is, however, a debate within neoclassical economics, not an attempt to demolish it. Austrian thinkers also disagree with conventional neoclassical economists by arguing that value is utility. Conventional neoclassical economists regard value as being a concept of passing interest. They focus on price which they believe is the product of subjective and objective factors.

The logical defect of conventional theories of consumer choice when applied to intangibles is easily identified. For a consumer to choose between bananas and biscuits, he or she must be capable of distinguishing between them. But how is this done? Obviously, by sight, touch, smell,

taste and, if you drop one, sound. But for these to be discerned, the thing in question must have at least one physical characteristic. Intangibles, by definition, don't even have that. Not only is it impossible for a consumer to define a coherent trade-off between intangibles. It is impossible for him or her actually to distinguish between them in any objective way or in a manner that might be expressed to another person. There is, consequently, no logical reason to accept the existence, let alone the shape, of the utility curve when applying basic consumer theory to intangibles. Without a utility curve, there can be no individual demand curve. And without that, there can be no market demand curve.

To illustrate this point, consider the following example. An individual is offered a choice between two intangibles. They could be being taught French or being taught to play the guitar. The individual has an income constraint which fixes the maximum number of hours of French tuition he or she could afford at the given price ratio and, at the other extreme, the maximum number of hours of guitar lessons. From this perspective, it seems the choice is the same as if the consumer were choosing between bananas and biscuits. But the lack of tangibility in the music and French lessons complicates the decision to a degree that makes it qualitatively different to choosing between the fruit and the cookie. The decisive factor is the feelings he or she might have about the teacher, which can change in the course of a lesson. And the quality of what is being imparted depends critically on the attitude of the teacher, or the supplier of the service, to the person he or she is teaching. To what extent can it be said that the student actually consumes an hour of French lessons in the way he or she might ingest a banana and a biscuit? In tangibles, something is produced, exchanged and consumed. But in intangibles, production, exchange and consumption are subsumed into an interaction between the supplier of the service and its consumer.

The value that a consumer might attach to a particular service might also not diminish as the amount of it consumed increases, as logic suggests it ultimately must in tangibles. A student, impressed by the quality of the French teaching, might even decide to consume more of it as he or she progresses through a teaching programme. Demand for guitar tuition might disappear as a result. The logic of diminishing marginal returns, the cornerstone of equimarginal choice and the demand curve in tangibles, begins to founder. Economists have dealt with the phenomenon of desire for a product growing as more of it is consumed by defining it as addictive, like nicotine and alcohol. Such items are considered to have characteristics that undermine a consumer's capacity to make rational choices and, by definition, are exceptional. In services, practically everything exchanged has this capacity.



Death of the indifference curve The theory of consumer choice, which underpins the concept of a market demand curve, depends upon the tangibility of products.

If the idea of diminishing marginal utility collapses when it comes to intangibles, then it can make no more sense at an aggregate level. There is no reason why the consumption of a particular service by a collection of rational individuals will take a predictable pattern when plotted against price. A demand curve showing what the quantity of a service might be at any particular price is an impossibility. Identical service transactions might involve wildly different

prices. Varying the price of a particular service, consequently, has unpredictable consequences. People might buy the same amount, less or more for no apparent reason that others could recognise or they might themselves explain. Changes in income levels will have a foreseeable effect on service consumption. The richer you are, the more likely you are to use an expensive restaurant. But the income impact on intangible consumption only suggests that individuals tend to spend more on desirable services. It provides no help in understanding how much of a particular type.

This paper is essentially about the failure of conventional microeconomic analysis to explain consumer choice in intangibles. But it will conclude with a short meditation on the implications for conventional theories of supply.

With the demand curve invalidated, can analysis of supply side factors help us in deciding what the right price of a service should be? Microeconomists approach the relationship between price and supply in two ways: one is subjective and the other is objective. The objective cost tradition, which echoes the arguments of classical economic thinkers from Adam Smith to Karl Marx, defines the value of what is produced as being equal to its cost of production. Costs can be seen as either the price paid for an input or the value, measured objectively, of what has been foregone by buying that input, or the opportunity cost. This approach is followed by most economic text books.

“Three major determinants of the quality supplied in a particular market are: 1 The price of the product 2 the prices of inputs to production 3 The state of technology.”

Page 45, Chapter 3 Demand, Supply and Price, by Lipsey & Chrystal

The subjective tradition regards supply as being an entirely subjective category. Regardless of what the objective costs of production might be, someone is only going to sell something if he or

she will be made happier by doing so. Something won't be offered to the market unless this action increases the utility at the margin of the person supplying it. The essence of this line of thinking was neatly expressed in recent article in the Quarterly Journal of Austrian Economics

“The ‘opportunity cost’ perspective, thankfully, finds a home in both perspectives. But even neoclassical economists who insist on the subjective nature of value often stick to the ‘classical’ part of ‘neoclassical’ by treating cost as objective...A consistently Austrian perspective interprets cost as a value, not a thing, foregone, as it has the same nature as value.”

An Austrian Foundation for Microeconomic Principles by John Egger⁵, Quarterly Journal of Austrian Economics, 2008

The logic of both approaches is coherent when applied to tangibles. But it collapses when it is applied to intangibles. As has already been demonstrated, a marginal utility-based theory for choices can't work when a thing is intangible. It's consequently impossible, therefore, for a supplier -- using the Austrian or subjective, line of thinking -- to make coherent choices about what he or she is supplying to a market.

Intangibility also invalidates the objective, cost-based approach to supply. How can you work out the cost of producing a particular service when there is no way of measuring its constituent parts as you can with tangibles? A cup is made with clay, paint, ceramics, heat, machines and labour. But what is good service at a restaurant made of? Should the amount invested in a chef's education be calculated? And what exactly was the opportunity cost of the waiter's charming smile that helped you enjoy your meal so much? Was it the tiny amount of additional energy involved that could have been used for other purposes or the lengthy parenting that made the waiter such a nice person? Or is it in the waiter's genes? How do you price that, exactly?

With an intangible, unlike for a tangible, there can be no logically-coherent or objective way of working out the cost of each unit of production. And if it is impossible to devise a coherent production function for an individual service producer, then it is impossible empirically to prove a stable relationship exists between services and prices at an aggregate level. As with the subjective approach to supply, objective thinking cannot prevent the disappearance of the concept of the supply curve when it is applied to intangibles.

What then determines the choices consumers and producers make in intangibles? An answer is indicated by an examination of the behaviour of an individual seeking to make a choice between two intangibles. For the purposes of this example, let them be called intangible bananas and intangible biscuits. As with their tangible equivalents, there is a price ratio between the two products on offer. The consumer has preferences and an income constraint. The consumer will consider the merits and the relative price of intangible bananas and of intangible biscuits. This, logically, will entail interaction with the suppliers. How will the consumer, otherwise, know what he or she is buying? The consumer will form a view of what is on offer and compare the happiness (or reduced dissatisfaction) he or she might enjoy by buying a particular amount of each. A decision will be made. An amount of money will be paid for the intangible bananas and for the intangible biscuits. So far, the approach confirms the validity of conventional microeconomic theory.

But consider what would happen if the consumer decides not to make the decision at the moment and defers it for, say, a day. He or she returns to the market for intangible bananas and intangible biscuits with the intention of buying some of each. The first question would be whether the intangible bananas and the intangible biscuits the consumer is considering are the same as the ones he or she was considering the previous day. After all, there are no physical characteristics to confirm that they are. This might involve a further round of questions being put

to the producers to satisfy the consumer that what is on offer today is identical to what was on offer the previous day. But even if every question is satisfactorily answered, how confident can the buyer and supplier be that today's intangible bananas and intangible biscuits will be identical to the ones that were on offer yesterday? What is on offer has no material composition. So it is not like looking for the second time at a shirt which has physical characteristics to substantiate the belief of both buyer and seller that it is effectively identical to the one previously seen. The buyer and seller are obliged to make an act of faith if a transaction is to occur.

Confidence in the mind of the buyer that what is being bought is what has been promised -- and in the mind of the supplier that what is being provided is what the consumer wants -- will increase as the number of satisfactory transactions between them increases. This will increase the willingness of the buyer to pay the price asked and the confidence of the supplier that the price asked will be accepted.

The fundamental point made by this parable is that the critical factor motivating a service transaction is not price. It is the state of the relationship between the buyer and the supplier. If the parties to a service transaction do not believe that what is being offered reasonably corresponds with the enjoyment likely to be derived from actually consuming it, then an impediment might develop that will prevent the transaction being completed. From the buyer's perspective, fear that the service will be below the standard promised will discourage purchase. From the supplier's point of view, doubts that a consumer is honestly expressing the desirability of what is being offered might have the same impact.

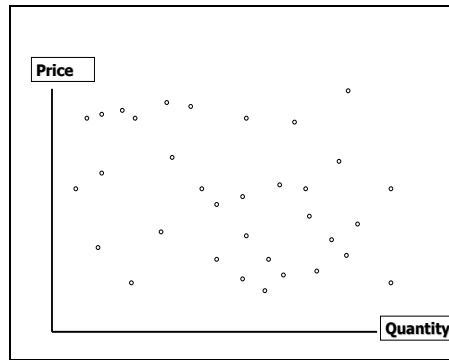
At its simplest, people won't buy a service, no matter what the price, if they dislike or have doubts about the honesty of the service supplier. And people will be reluctant to supply a service if they dislike -- or have doubts about the honesty of -- the service consumer.

Further examples can be developed to illustrate the way that the relationship at the level of the individual service supplier and the individual service provider will both determine the price that might be paid for a service and whether a transaction occurs at all.

- Would a person with a toothache pay a dentist for dentistry if he or she fears the person is incompetent and won't relieve the pain?
- Would a restaurateur be prepared to serve a customer who falsely complains there's a fly in his or her soup in order to get a discount? Or seek compensation for falsely claiming he or she has suffered food poisoning from a meal consumed in the restaurateur's premises?

These observations place a bomb under the conceptual foundations supporting our idea of what price is and how the market works. In tangibles, price is the result of the interaction, at an aggregate level, between demand for a particular product and the costs, objectively-measured or subjectively-perceived, involved in producing it. Consumers make choices between goods in a coherent manner. Producers compete with each other using price for a share of the market for those goods.

But with intangibles, there is no demand curve connecting the levels in the price of a service and the quantity of it consumed. There is no supply curve between price and the quantity supplied. There are, instead, a multitude of individual transactions, each involving a particular consumer and a particular producer at a particular moment that cannot be systematically compared. When it comes to intangibles, the market not only doesn't work. It actually doesn't exist. It's the reason why it is so hard for people supplying services to devise a coherent pricing strategy and for consumers to work out what they should in fact be paying for them.



End of the market In intangibles, transactions constitute a mass of incommensurable interactions over which price has no traction.

Towards a theory of value for intangibles

Tangibles are invariably produced through a value chain. For example, iron ore is found and extracted. It's then shipped to a pelletising plant, often close by, that concentrates the ore to make it cheaper to transport. At a steel smelter, machines and people work together to transform pellets into ingots. The ingots are turned into billets and bars or rolled flat. These are then shaped into finished products like cooking utensils, car bodies and the wings of aircraft. They are sold to consumers who use them as they see fit. Production of tangibles is linear; going from raw material to finished product in stages. And at each point, value is added. At every stage of production, something is bought for less than it is sold for in its more processed form. This is the iron law of all tangible production, and not just steel. It goes one way.

Now let us consider value-creation in services. Think of a hotel. A person arrives to check in. He or she is greeted by a receptionist. The guest responds, pleasantly you would hope. The receptionist then asks for the guest's name and booking details. This might involve handing over supporting documents, even passports. At each point, the receptionist says thank you and smiles. After a couple of minutes, a door key is handed over, the guest's luggage is collected and the receptionist wishes him or her an enjoyable stay.

Think of a doctor. A patient arrives at a clinic and is greeted by a receptionist. The booking is checked and the patient is asked to take a seat for a few minutes. Magazines are provided to pass the time. The patient is ushered into the surgery. The doctor greets the patient, asks some preliminary questions and begins the physical examination. At each point, the physician will be looking for a response from the patient. At the conclusion, the doctor makes some decisions based upon what he or she has heard and seen and the patient leaves with advice and, usually, a prescription.

These examples show how value-creation in services differs from value-creation in tangibles. Time has been spent, which involves an opportunity cost. The hotel receptionist could have been answering the phone or using the clinic's computer. The doctor could have been playing golf. Something has been produced to deliver a happy guest and a satisfied patient. Money has been exchanged. From this perspective, there is no difference between what has happened in these two cases and the final outcome of a tangible transaction. There are inputs with a cost, an output with a value and a price paid. But in services, value is created interactively between the consumer and the producer over time rather than in an act of production. Without the reaction of the guest, could the receptionist be able to make the small judgments about preferences that are vital to a guest's enjoyment of a hotel stay? Without the response of the patient, could the doctor make a decent diagnosis? Could any value be created in any service transaction without the direct involvement of the consumer in the service production process?

As these examples suggest, value creation in a service transaction is interactive, and usually repetitively so, with information being exchanged between consumer and producer to the increased satisfaction of both. The hotel receptionist has a better understanding of what he or she needs to do to improve the experience the guest has at the hotel. The doctor is helped in his or

her capacity to make a sound judgment. This is not a linear process, as it is with tangibles where value-added flows one way and money the other in a predictable and linear direction.

Value creation in services can look like ergonomic chaos, production as a form of anarchy or, perhaps, anarchy as a form of production. But that's why it's a service. If it wasn't, then a machine could make it. It would be a thing; a tangible.

With tangibles, manufacturing uses up materials and labour power. Once a unit of production is sold, all the value embedded in it is transferred to the buyer. It's been sold for money or the promise of money. What is left is remembered competence — technology stored in the minds of the person and the machines that made it.

In services, in contrast, value is shared rather than exchanged. The transfer of the embodied value in a tangible between producer and consumer does not take place in intangibles. The idea of the precise division between producer and consumer itself breaks down in services. The rational producer will seek to maximise the constructive interaction with each consumer since this will increase the total value it creates. And the rational consumer will seek to do the same, because the more value created in a service transaction, the more there is to share.

There is a process of mutual reinforcement and encouragement in services which is impossible with tangibles. Value is created by people interacting because they encourage each other to create more value than they would if they were acting individually. A sports trainer succeeds only if he or she encourages an athlete to do more than he or she would do on his or her own. The elastic nature of the human capacity to create value is central to value-creating in services. This characteristic of human behaviour is pervasive and inescapable.

Value is created in intangibles, just as it is in tangibles. Money is paid, just as with tangibles. And there are, as in the production of tangibles, costs involved. But how value is created is

completely different. With intangibles, it is the result of a constructive interaction between human beings. The interaction is unique and cannot be scientifically compared with any other interaction, even if it involves the same hotel and clinic and the same receptionist and doctor. A sequence of interactions develop into a relationship where the market-clearing price affects the supporting tangibles but not the value-creating component of services. We have stepped through the looking glass into a world of production and consumption that tangible economics cannot explain.

Notes on Chapter 2

1 Utility theory remains, despite the great advances in economics as a science since 1890, at the heart of the theory of demand. Chapter 5 of Economics by Richard Lipsey and Alex Chrystal, published by Oxford University Press in 2007 and a recommended first text for many economics students, devotes no less than 22 pages to the theory of indifference without examining how the theory would be affected by applying it to intangibles. Milton Friedman's classic Price Theory, (AldineTransaction (2008)) has 31 pages on the utility analysis of demand and supply but also does not distinguish between tangibles and intangibles. Microeconomic Analysis by Hal R Varian, published by WW Norton & Company (3rd Edition 1992), is considered to be the best text book for masters students of microeconomics. It devotes an entire chapter to the theory of utility maximisation which is based on the concept of possible consumption bundles which are implicitly of tangible goods.

2 The ONS defines service companies as falling into one of five categories: government and other service providers which include the National Health Service and education; distribution and retailing, which includes the output of shops business and financial service providers like

media companies and banks; transport and communications (road, rail, sea and air service providers and telecommunications) and hotels and restaurants.

3 The reported size of the UK service sector significantly overstates the value of pure intangible production because it is based on the value of the output of industries that are classified as being service producers. It is obvious that some service industries, restaurants for example, manufacture tangibles as well as services: cooked food for example. The tangible capital costs incurred by service firms also go into the calculation: a cinema will pass on the cost of servicing debts incurred for the purpose of building a theatre. A thorough classification of the output of service industries could reduce the service component by at least half. The important issue is the trend, which seems to be for intangible production to grow as a proportion of GDP over time.

4 Murray Rothbard (1926-95) was a libertarian writer and champion of the ideas of Ludwig von Mises. He was briefly involved with the New York Objectivist group, an association of thinkers connected with Ayn Rand, author of the anti-collectivist novel *The Fountainhead*. Objectivism argued that objective knowledge, or the objective world, could only be secured through the proper deployment of subjective human competencies, including the capacity for deductive and inductive logical thought. Objectivists argue that the only way the world can be changed to the better is through individual actions, an argument in line Ludwig Von Mises' praxeology. The idea that value-creation depends on interaction does not appear to have been seriously considered. Members of the Rand's Objectivist group included the young Alan Greenspan.

5 John Egger, who teaches at Towson University, Maryland, also provides a clear definition of the Austrian argument for supply to be subjectively determined. "...the supply of one good is determined by the demand for the best (highest-valued) other good that could be produced instead. Consistent with Say's Law and a utility foundation of supply, this ties the supply of one

good to the demand for other goods, emphasizing that it is really the consumer who determines a business's costs.”

About the author

After graduating in monetary economics from the LSE, Edmund O’Sullivan worked as at Reuters Economic Services and then as an economist at The Price Commission, a UK government agency. He joined MEED where he specialised in writing about finance and oil. He was successively editor and publisher and a member of the board of directors of EMAP Business International, part of EMAP Plc. O’Sullivan was named Business Publisher of the Year in 2003 by the Periodical Publishers Association, the UK magazine industry body. Since September 2003, he has been based in Dubai where he is now chairman of the MEED Events business which organises conferences across the Middle East region. O’Sullivan also writes The Last Word for MEED.com. He is the author of several books, most recently The New Gulf and The End of the Market: the rise of the service economy and the death of the market-clearing price.