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MONEY, PRICE, VALUE, AND EXCHANGE

It is difficult to overemphasize the relevance in today's world of the subjective concept of value, especially with regard to price establishment. Prices sometimes, to some extent and in specific industries or business situations, are based on a summation of cost elements plus margin, but in most cases are based on subjective perceptions of value which then form the basis for price establishment where this price establishment process can either be a complex, protracted and multi-layered negotiation or an intuitive 'buy / no-buy' decision in a retail outlet.

As concepts, the first three words in the title are linked by the concept of exchange. Money has no intrinsic value unless it is used as an enabler for a process of exchange of ownership (or use) of physical goods or services or as a loan or credit (where someone else uses the money for a physical transfer then pays a premium e.g. in the form of interest, for using the owner's money). Price likewise has no purpose unless it becomes the basis for an exchange to take place. Value forms the foundation on which price determination is based defining the parameters enabling (or not) a specific exchange to happen. The exchange process thus links money with price and through price with value. If the need for exchange did not exist there would be no need for money or for price, or for attempts to quantify value as the foundation underpinning price.

Transfer of ownership certainly also takes place as a gift. However, gifts as a framework for ownership transfer can give rise to three problems. First, an 'appropriate' allocation cannot be assured in situations where demand is greater than supply (leading to dissatisfied parties). Second, unless there is a return gift (in which case this is an exchange and not a gift) there is no mechanism for compensating the provider for the effort involved in preparing, producing or sharing the 'gift' (which may result in a sense of 'injustice' on the part of the provider as for instance, King Lear in Shakespeare's play of the same name). Third, if the provider is not interested in making a gift, there is no mechanism to induce the provider to do so. From this perspective, in a very simple albeit sometimes ruthless manner these situations are resolved using a mechanism called price.

Common experience is that the price of a good or service increases the greater the demand (and vice-versa) making the good or service accessible only to those potential buyers who are able or willing to pay the higher price. In this way price functions both as a mechanism for balancing supply with demand and as a selection mechanism defining potential owners. As part of this supply / demand balancing role, price, especially in the case of rare goods or services, can ensure

an appropriate level of compensation to the provider for their efforts in preparing, producing or delivering the good or service (it provides the mechanism—whether the level is appropriate is a different judgement). Additionally, the price increase mechanism which operates when demand increases but supply is restricted (e.g. when house prices are rising and they increase faster in certain locations than in others) provides a dynamic which restricts the number of potential buyers to those able and willing to pay the increased prices whilst also (potentially) providing encouragement to new sellers and / or encouraging existing sellers to increase sales volumes.

As mentioned earlier, the concept that underpins price is value. Value is in turn related to three other concepts: need, desire and compensation, all three of which are closer to the field of ethics. Buyers have a need or a desire to own or make use of something. This motivates them to place a value on what they need or desire. This value is then (often) translated into the money spent on the purchase. Sellers place a value on what they are ready to sell. They wish to be compensated for the value invested in a good / service but also to have sufficient inducement to part with them. This need for value is thus mutual and an exchange will not take place unless both the buyer and seller value perspectives are aligned with each other. Thus, this value alignment process is a critical factor for the exchange to actually take place.

The concept of value is largely however subjective, both from the perspective of the buyer as well as the seller, being based on what both parties think (or feel) is appropriate plus / or on what they think or feel should be accepted by the other party at any given moment of time. Arguments for justifying a specific value may be based on 'objective sounding' ideas such as 'what the market will bear' but 'the market' (in these terms) is really the sum of individual buying and selling decisions taking place at a specific time and in a specific forum and thus, of itself, 'the market' would not exist if these individual buy / sell decisions did not take place.

In many societies, in relationships between merchants and consumers, value alignment takes place in a bargaining process in which parties come to a balance point which then becomes the transaction price. In business to business transactions, this value balancing process is based on a negotiation (most often depending on the relative strengths of the parties) which takes place in a mutually accepted framework and results, if successful, in a final agreed package which is rarely the same as the package discussed at the start of the process. Even in societies where retail transactions are based on fixed prices presented in stores or outlets there is still a process of value alignment. For the retailer, this is based around assessing their own price levels compared to the competition and encouraging consumers to use their own retail outlets and not a competitor's (or even just to persuade consumers to part with their

money in the first place!). The ways in which retailers encourage their (potential) customers to 'part with their money' are well known and can include: publicity, special offers, attentiveness or expertise of personnel, product range or alignment to specific consumer 'target groups,' location or opening hour convenience, etc. and in this situation, from a consumer perspective the selection process is based on two main decisions: firstly, on the actual need for the purchase (or to defer or cancel it) and secondly, on identifying the retail outlet which is most suitable for the purchase.

Looking at exchange as an alignment process of perceived value resulting in an agreed price for a certain totality for which ownership (or use) is transferred for a specific amount of money plus related terms and conditions is probably the most realistic approach from a purchasing practice perspective and is the approach that will be applied in this paper. Although it draws on both economics and marketing theory this paper's perspective will not necessarily reflect contemporary thinking in either of these two disciplines as it is based mainly on the author's own experience as a commercial purchaser.

VALUE

From an economic perspective, there were two main schools of thought with regard to the concept of value. The earlier school (whose origins go back to the mid 17th century), tries to define value in an 'objective' manner treating it as the sum of component costs and one of the original perspectives was on labour content where the higher the number of person-hours the higher the value. Price was thus assumed to be related to the sum of the labour value. This, in an era of relatively self-sufficient and mainly agricultural economies with low cross border trade consisting mainly of luxury goods for wealthier citizens, provided an approach that seemed a reasonable method to quantify value. This approach however, did not provide a satisfactory explanation of price level differences so the difference between value calculated in this manner and price was regarded as profit. This thinking was further developed in the 19th century by economists such as Ricardo[1] and Marx[2] where for Ricardo product value as the sum of labour cost provided a mechanism for quantifying and comparing profitability across countries, whereas for Marx it provided a mechanism for developing formulae relating product prices with labour costs

[1] See David R i c a r d o, *On the Principles of Political Economy and Taxation* (1821) (Cambridge: Cambridge University Press, 1951).

[2] See Karl M a r x, *Capital*, vol. 1 (1867) (Moscow: Foreign Languages Publishing House, 1961); Karl M a r x, *Capital*, vol. 3 (1895) (Moscow: Foreign Languages Publishing House, 1962).

so they could then be applied for developing pricing standards and structures for planned economies.

There probably is a certain 'inherent sense of justice' in treating value as the sum of labour content (i.e., the more human effort, the more this effort should be rewarded). In addition, looking at value as the sum of component cost provides a straightforward method for value quantification. However, in the late 19th and early 20th centuries, the suitability of this approach for increasingly complex, interrelated and service oriented economies was becoming an increasingly open question. Thus, a second school of thought arose which tried to look at value in the context of these new developments.

This school initially saw the value of goods as "the utility that an individual derives from the consumption of a quantity of a particular good,"[3] where this "utility" is based on: "his or her subjective assessment of the pleasure, or satisfaction, derived from consumption."[4] Over time, this concept evolved to include not just "pleasure or satisfaction derived from consumption" but also 'need,' 'technical requirement,' 'potential for future profit,' etc.

In today's interconnected and technology driven world, whether value can be seen as the sum of component cost is something even more debatable than it was in the 19th century. For digital companies such as Google, Facebook or Twitter, their value seen as the sum of design, development and production costs bears no relationship to their total stock value[5] let alone to the value a potential purchaser may be ready to pay for them. The value of digital companies with this profile is bound up with specific ideas based on specific technologies where the idea / technology combination has the potential to create an entirely new market or to redefine existing ones. However, if an external factor appears (e.g., another technology change) which is outside the control of these companies, but which redefines the market around a new product or technology, then in an extremely short time the value of these companies goes from 'extremely high' to 'almost zero' irrespective of the labour content of their products (which is either unchanged or actually increases because the company tries to defend itself).

In this context, it is difficult to overemphasize the relevance in today's world of the subjective concept of value, especially with regard to price es-

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[3] J.E. K i n g, Michael McLure, "History of the Concept of Value" (Discussion Paper 14.06) (Perth: The University of Western Australia, 2014): 6 (https://ecompapers.biz.uwa.edu.au/paper/PDF%20of%20Discussion%20Papers/2014/14-06%20History%20of%20the%20Concept%20of%20Value.pdf).

[4] Ibidem.

[5] General Motors, the world's largest automotive company, has a total share value of US$ 65,5 Bn. and 225 thousand employees (US$ 291.000 per employee). Google's parent company (Alphabet) has 61 thousand employees and a total share value of US$ 679,5 Bn. (US$ 1.114.508.000 per employee, i.e., 3.800 times higher than GM).

tablishment. Prices sometimes, to some extent and in specific industries or business situations,[6] are based on a summation of cost elements plus margin, but in most cases are based on subjective perceptions of value which then form the basis for price establishment where, as presented earlier, this price establishment process can either be a complex, protracted and multi-layered negotiation or an intuitive 'buy / no-buy' decision in a retail outlet.

An important aspect of the subjective perception of value which is also relevant for a discussion of the concept of price is the idea of scarcity, specifically what is known as the 'paradox of value'. Both Plato and Copernicus discussed this in their writings, however, the classic presentation was by the 18th century economist and writer Adam Smith, who defined the paradox as follows: "Nothing is more useful than water; but it will purchase scarce any thing; scarce any thing can be had in exchange for it. A diamond, on the contrary, has scarce any value in use; but a very great quantity of other goods may frequently be had in exchange for it."[7] In this context, two aspects define the price of diamonds: scarcity and desire. Scarcity is an objective criterion (especially in Smith's time, when diamonds were rarer than today), however, desire brings one back to the subjective perception of value presented earlier in this section ("his or her subjective assessment of the pleasure, or satisfaction, derived from consumption"), and it is this subjective perception of value combined with an objective scarcity that is the main factor 'driving' the prices of scarce goods or services.

Perceived utility is an aspect of the subjective concept of value which is related to scarcity and also very relevant for a discussion of price. As with scarcity, it also has a (more) objective and a subjective element. The more objective element can be seen as 'need in specific situations.' Reviewing Smith's water / diamond paradox in this context, for a traveller accompanying a transport of diamonds across a desert who has no water and is suffering severe dehydration, the value of water is very much higher than the value of the diamonds. This person will probably be very willing to exchange any quantity of diamonds for the scantiest amount of water because, for this person in this specific situation, diamonds with "scarce any value in use" are in abundance and essential water is scarce. However, this utility changes once initial thirst is satisfied as the traveller's need for water decreases and continues to do so when more water becomes available. This change in utility is what is known as marginal utility. The initial quantity is critical but as this critical need (or desire) is increasingly

[6] Examples of 'specific industries or business situations' where prices are based on a summation of cost elements plus margin are capital investment projects and some component supply industries such as automotive or to a lesser extent, electronics and home appliances.

[7] Adam Smith, *An Inquiry into the Nature and Causes of the Wealth of Nations* (1776) (Hazleton: Pennsylvania State University Electronic Classic Series, 2005).

satisfied it decreases the value to the consumer of each additional quantity. This idea was graphically expressed in the second half of the 19th century by the Austrian economist Eugen Böhm von Bawerk, who presented an example of a farmer who after the harvest has five sacks of corn: "One sack he absolutely requires for the sustenance of his life till the next harvest. A second he requires to supplement this bare living to the extent of keeping himself hale and vigorous. More corn than this, in the shape of bread and farinaceous food generally, he has no desire for. On the other hand, it would be very desirable to have some animal food, and he sets aside, therefore, a third sack to feed poultry. A fourth sack he destines for the making of coarse spirits. Suppose ... that he cannot think of anything better to do with the fifth sack than feed a number of parrots, whose antics amuse him. Naturally these various methods of employing the corn are not equal in importance.... And now, putting ourselves in imagination at the standpoint of the farmer, we ask, What in these circumstances will be the importance, as regards his well-being, of one sack of corn?"[8] Obviously, the utility of the fifth sack of corn (used to feed the parrots) is much lower for the farmer than that of the first sack (needed by the farmer to survive). Thus the value of the last sack for the farmer is much lower and in a situation where sacks are damaged the farmer will not reduce quantities by equal amounts across all the five uses but will firstly stop feeding the parrots, then stop producing "coarse spirits," etc.

To conclude the above discussion, it provides three value generation elements: (1) desire (seen as "a subjective assessment of the pleasure, or satisfaction, derived from consumption"); (2) scarcity (which can result in a something having very high value that has little relationship to a concrete physical need, as in Smith's water / diamond discussion); (3) marginal utility (where the value of 'one' can be critical but the value of 'two,' 'three,' or 'four' diminishes very rapidly).

The perspective on value presented above is product and situation focussed. Products which are desired and are scarce have high value (which can diminish very rapidly if they become generally available), and the value of (even) common products is dependent on their availability in specific situations.

It is, however, an open question whether this view of value applies in today's world, where for many people basic needs are satisfied, and consumers are faced by a complex and dynamic environment of multiple products and services with diverse features all competing for the their attention (and money). This question arises because of the ever increasing richness and diversity of products where the value of these products or services is assessed

[8] Eugen von Böhm-Bawerk, *The Positive Theory of Capital*, translated by William A. Smart (London: Macmillan and Co., 1891), 150.

by consumers based on their perception of the usability, attractiveness, relevance and price compared to competitive or alternative products or services. Thus products which are inherently common (e.g. plastics) can be converted into products which are also commonly available (e.g. toys, building blocks or other plastics products) but have a far higher price than their component value resulting from the specific features of the converted products. These converted products are not scarce, have significant competition and a huge range of alternative products which potential consumers can purchase, as well as prices which are much higher than their total production and logistics cost. Yet, even so, consumers are willing to pay these high prices because of their value perception of these products.

Similar situations can be identified with regard to marginal utility. Many products or services which have become a part of consumers' everyday life have built in compatibility barriers (especially electronics or technological products such as certain smartphones, tablets, computer games, a lot of software, etc.). These result in them activating a full range of use functions only when interconnected with other products (or services) from the same company. Thus, to achieve an optimal solution the user or consumer is obliged to purchase products or services from the same company often paying a significant premium as compared to competitive products. In this case, for a specific consumer, the value perception of the functions available with integration is much higher than the cost of each specific component and, therefore, the potential consumer is willing to pay a much higher total price to achieve this integration.

Clearly, the consumer behaviour described above does not 'fit' into the theories presented earlier in this section, which (obviously) raises questions as to the mechanisms behind this behaviour, and for answers to them one should perhaps look to a younger relative of economics, namely, marketing.[9] Marketing looks at value in terms of 'customer perceived value," i.e., a relationship between the customer and the product which is "strongly related to the utility or benefits the customer gets in return for the money or any other cost they spend including both cognitive and affective aspects."[10] Thus, the higher the customer perceived value, the more the customer is prepared to invest in purchasing or using a product. Understanding value from this perspective may help explain the paradoxes described earlier, where consumers are prepared to pay significantly

[9] According to the UK Economic and Social Research Council, marketing is a branch of the social science discipline of 'management and business studies.' See Economic and Social Research Council, "Social Science Disciplines," http://www.esrc.ac.uk/about-us/what-is-social-science/social-science-disciplines/.

[10] See Septa Akbar A u l i a, Inda S u k a t i, Zuraidah S u l a i m a n, "A Review: Customer Perceived Value and Its Dimension," *Asian Journal of Social Sciences and Management Studies* 3, no. 2 (2016): 150-162.

higher prices for products or services either because of the value they perceive in the products themselves or because of the benefits they anticipate in integrating them with other products. However, whilst, from a marketing perspective, there may be a consensus on the definition of perceived value, this consensus is absent with regard to the determinants as well as to methods of measuring value perception.[11] This lack of consensus may be a result of the enormous diversity of products and services competing with each other in one or many different markets, as these products and services are targeted at different market segments defined by different expectations of (very) different (potential) customers. On top of this diversity, many value assessment criteria are either subjective (e.g. colour, touch or smell—as in fabric softeners for instance) or qualitative (e.g. appearance, design, 'feel', etc.), thus looking for a 'one size fits all' solution, when perceived value can be both (potential) customer specific as well as product or service specific, may be an unrealistic goal. This range complexity combined with focus specificity may be the reasons why marketers use multiple criteria approaches for analysing value,[12] as these can be adapted to enable comparison of the (potential) customer perceived value of specific products / services against complementary or competing products / services within specific customer segments.

The marketing approach has two implications for the concept of value which both complement and expand the economic perspective. The first implication is that whilst value can have (fairly) objective aspects in situations of scarcity or marginal utility, this is not the case with very many of the consumer or business products or services available today in societies where, as mentioned earlier, for most citizens, basic needs are satisfied, and, thus, where value is often based on 'wants' or 'desire,' so to understand value today one is obliged to research the criteria which individuals or groups (i.e., segments) of (potential) customers apply to the selection process for specific products or services. These criteria can be very different for different types of product or service and, even for the same product or service, they can be very different for different individuals or customer segments. They also (very often) include criteria which are very difficult to measure because they are subjective or qualitative (such as 'I like the feel…' 'I prefer the smell…,' etc.). The second implication is that (potential) customers normally define the value of a product or service in comparison against other products or services which from their perspective are alternatives. This can also apply to very innovative products or services where it is difficult to identify competitive products. Even in this case,

[11] See Raquel S á n c h e z - F e r n á n d e z, M. Ángeles I n I e s t a - B o n i l l o, "The Concept of Perceived Value: A Systematic Review of the Research," *Marketing Theory* 7, no. 4 (2007): 427-451.

[12] An example of a multiple criteria approach can be found in E. A l m q u i s t, J. S e n i o r, N. B l o c h, "The Elements of Value," *Harvard Business Review*, 2016, September: 46-53.

the (potential) customer realistically does have an alternative being (simply) not to purchase (either because they feel that the value presented by the innovation is not 'worth' the purchase price or because the (potential) customer identifies alternative products / services which provide sufficient value and are cheaper and / or better suited to their needs or expectations).

Summing up this discussion of the concept of value one can state that the two elements which can be added from a marketing perspective are: firstly, a focus on a specific (potential) customer / (potential) customer segment and their specific needs or desires reflecting the reality (well understood by marketers) that product and / or service aspects which provide or increase perceived value for one (potential) customer are not necessarily relevant for other (potential) customers; secondly, a focus on a product / service in comparison with other products / services which do not necessarily have to be competitive. This second element reflects another reality (equally well understood by marketers) that the value assessments of (potential) customers are based not just on products or services in themselves but on comparing the features and characteristics of a specific product or service with those which from their perspective provide alternative solutions or are competitors (and where the 'ultimate competitor' is a decision not to purchase). Thus, value is not necessarily perceived as an intrinsic characteristic of a specific product or service but as something which specific (potential) customers identify in a process comparing the features and characteristics of specific and various products / services.

This marketing perspective thus 'rounds-out' the three elements drawn from an economics perspective (desire, scarcity and marginal utility) by providing two additional ones. The first one is that perceived value should be understood from the perspective of a specific (potential) customer (i.e., 'value for who'). The second element is that perceived value is based on a comparison of features and characteristics across several or multiple products or services (i.e., 'value of what') reflecting the range and diversity of alternative products and services which are available to today's consumers.

In today's business and consumer environment these two marketing perspective elements add wider relevance, meaning and applicability to an understanding of perceived value and modelling this concept will be discussed further in the next section.

PRICE

As discussed in the introduction, price as a concept is only useful if it applies to an interaction between a (potential) buyer and a (potential) seller in which they try to identify a common level of perceived value to then (po-

tentially) form the basis for a transfer of ownership or of use. A model of this search for a common perceived value is shown in fig. 1 below.

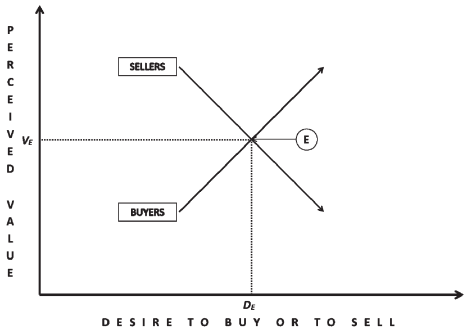

Fig. 1. Theoretical model of 'desire to buy or to sell' against perceived value from the perspective of buyers and sellers (source: author).

Figure 1 illustrates the relationship between the perceived value of buyers and sellers where, for the sellers, the higher the perceived value, the lower the 'desire to sell' and, for the buyers, the higher the perceived value the higher the 'desire to buy.' The 'shift' from 'desire' to actual transfer of ownership or use (if it happens) would occur at an equilibrium point ('E' on the graph) when perceived value and 'desire to sell or to buy' is equivalent for both parties. At this point perceived value ('V_E') and 'desire to sell or to buy' ('D_E') of both the parties are aligned with each other. Without this alignment, transfer of ownership (or use) will simply not take place. The point where this equilibrium point will appear (or 'be discovered' in purchasing language) depends on a number of factors many of which are related to the relative 'strengths' (or power) of sellers and the buyers.

If there are shortages (e.g., as in 2017 with butter and eggs in Poland[13]), or an increase in the risk of supply disruption (as can happen with oil due to unstable relationships between major producers), sellers are in a stronger position and buyers will have to accept a higher value perception if ownership or use is to be transferred. This will also be the case when buyers face a seller oligopoly (or cartel) where, depending on the degree to which a monopoly exists, the buyers can be placed in a situation with no choice but to accept the seller value perception or to resign completely from the ownership transfer (an

[13] In 2017 butter and egg prices in Poland (and in the whole of the European Union) increased dramatically. For more information see Tomasz M i c h a l s k i, "Historycznie drogie masło. Kiedy będą obniżki cen?," http://biznes.onet.pl/wiadomosci/handel/ceny-masla-w-lipcu-2017-przyczyny-kiedy-obnizki/3esn06; Barbara K o c i a k o w s k a, "Rekordowo wysokie ceny jajek," http://www.wspolczesna.pl/strefa-agro/ceny/a/rekordowo-wysokie-ceny-jajek-a-beda-jeszcze-wyzsze,12648539/.

example of this is consumers facing energy or utility monopolies where the consumers have little choice but to accept the provider's price and terms and conditions). How this could be presented in the perceived value / 'desire to sell or to buy' model is shown in fig. 2 below.

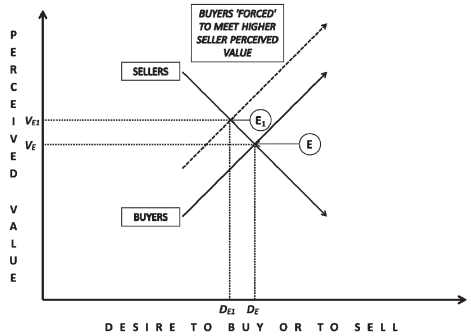

Fig. 2. Theoretical model of 'desire to buy or to sell' against perceived value from a buyer and seller perspective where buyers are 'forced' to accept a higher perceived value (source: author).

Without shortages, supply risks or oligopolies / monopolies the situation would be identical to that shown in figure 1 with perceived value and 'desire to sell or to buy' equivalence represented by equilibrium point 'E,' but in situations where buyers are 'forced' to accept a higher perceived value they may do this because realistically they have no other choice (i.e., the seller is in a much stronger power position). This results in a new equilibrium point 'E_1,' however, as can be seen in figure 2, there is an accompanying reduction in 'desire to buy or to sell' (shown on figure 2 as 'D_{El}'). For sellers, this could be reflected in a 'take it or leave it' approach to potential customers whereas buyers may buy less (e.g., reduce electricity bills by reducing consumption) or switch to cheaper substitutes (such as margarine or various spreads) or simply resign from the purchase.

There can, however, be situations where the relative 'strengths' of the parties are equivalent and buyers will still be ready (and very willing) to accept a higher value perception. One example of this is in technical or technology purchases when parties can mutually agree to a higher value perception by including specific guarantees in the delivery (e.g., extension of a two year retail guarantee period to five years or agreement to provide 24 hour / 7 day per week emergency service). They can also include additional components, product enhancements and / or additional provisions (e.g. inclusion of additional features, inclusion of service parts or providing access rights to upgrades). This can enhance the value of the product or service for both parties, enabling an increase in overall perceived value. It can also take place when buyers and sellers enter co-design or development agreements to provide additional product / service

functions and thus enable a wider range of (potential) buyer needs to be met. This cooperative situation where both parties agree on a higher value perception is shown in figure 3 below.

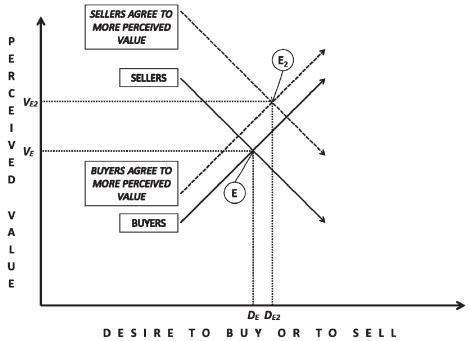

Fig. 3. Theoretical model of 'desire to buy or to sell' against perceived value from a buyer and seller perspective where buyers and sellers agree to increase perceived value (source: author).

Figure 3 presents an increase of perceived value of both buyers and sellers resulting in a new equilibrium point ('E_2') with both a higher perceived value level ('V_{E2}') and a higher 'desire to buy or to sell' ('D_{E2}'). Two aspects are evident from this figure. The first one is that perceived value for both parties can be significantly enhanced through a cooperation of this nature. This is thus a very prevalent model in industry where just two examples are chemical companies cooperating with specialist catalyst providers to develop catalysts for specific applications or chemical processes, or major foods and detergent companies, or automotive component suppliers cooperating with very small software houses to develop advanced supply-chain applications (which then go on general product release as the client companies wish to improve logistics management throughout the whole supply-chain of specific business sectors). The second aspect which is evident is the increased 'desire to buy or sell.' This is both for buyer and for seller because for the sellers it can enhance their product or service, thus making it a more complete offering (which also builds their reputation and improves their potential to reach a wider group of customers), whereas for buyers it can add specific 'uniqueness' either in their products or in their operations, giving the potential to significantly improve internal production or distribution processes or additional competitive advantage. In industrial purchasing an additional source of value for the seller in this situation is that co-design work with a client provides opportunities for 'lock-in' when buyers construct their product or service around a sellers product / service, resulting in the sellers product / service becoming more 'irreplaceable' from a buyer perspective.

One more aspect still needs to be discussed with regard to buyer acceptance of a higher perceived value. This is the case where initial purchases trigger a 'snow-ball effect' and, as a result, items become more popular or fashionable or (simply 'fads'). In this case the degree of 'want' increases, resulting in an increase in value perception by buyers with no real change in sellers' value perception. The scenario for this is shown as figure 4 below.

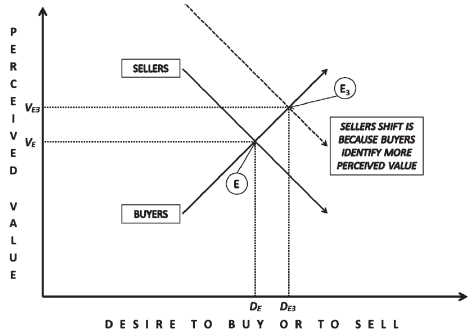

Fig. 4. Theoretical model of 'desire to buy or to sell' against perceived value from a buyer and seller perspective where buyers identify a higher perceived value (source: author).

Figure 4 shows how an increase in value perception by buyers (because an item has become popular, fashionable or a 'fad') results in their readiness (or, because of the implied 'sense of exclusivity,' even their willingness) to accept an increased perceived value on the part of sellers. This can be driven less by the buyers' perceived value, but (far) more by an increased 'desire to buy' to which sellers respond by, for instance, increasing prices (which, if sellers are lucky, sometimes drives buyers' 'desire to buy' even higher). The effect of this is presented by a shift of the sellers line with a resultant increase in perceived value ('V_{e3}') and a higher 'desire to buy or to sell' ('D_{e3}') giving a new equilibrium point ('E_3'). This is a scenario that can not only apply to the fashion conscious or to 'fad' buyers. Very experienced professional buyers can also succumb to fashions or 'fads' (which is something that becomes very evident on the basis of the extensive academic research on (for instance) speculative investment bubbles[14]).

In an analogous manner to the above discussion, value perceptions can also decrease as, for instance, when there is a 'glut' of a particular product (e.g. a very abundant strawberry season) or a surplus (e.g. construction materials and services during a business downturn causing reduced capital investments). A decrease in value perceptions can also occur when items become less popular,

[14] As an example of research in this area see Bartosz S z u m n y, "Bąble spekulacyjne jako anomalia współczesnych rynków finansowych," *Equilibrium* 2, no. 1 (2009): 39-47.

go out of fashion or there is a technological change resulting in obsolescence for those with 'older' technologies. It can also happen when concentrated groups of buyers 'force' their value perception on fragmented groups of sellers obliging them to reduce wholesale prices. This last situation can be especially prevalent in agriculture (for example fresh fruit or vegetables) where multiple producers sell limited shelf-life products with short post-harvest periods in a market often dominated by consolidated buyer networks or major purchasers.[15]

In this context, figure 5 below presents a model of decreasing value perception by buyers.

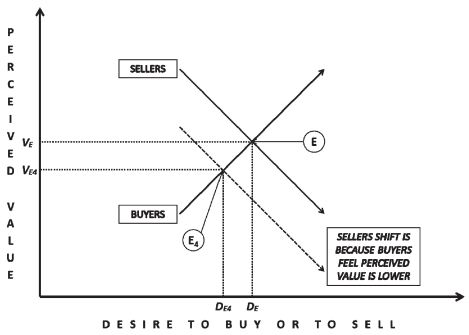

Fig. 5. Theoretical model of 'desire to sell or to buy' against perceived value from a buyer and seller perspective where buyers identify a lower perceived value (source: author).

Figure 5 shows a decrease in value perception results in buyers putting pressure on sellers to reduce perceived value. The model is shown from the perspective of buyers because this is probably more common than sellers deciding to decrease their own perceived value.[16] The effect of this pressure is presented by a shift of the sellers line to meet buyers' expectations at a new equilibrium point ('E_4'), resulting in a decrease in perceived value ('V_{e4}') and a lower 'desire to buy or to sell' ('D_{e4}').

The scenario portrayed above can easily be very adversarial, so the question must be raised whether there are realistic ways for buyers and sellers to cooperate on reducing perceived value in a non-adversarial manner. This approach may be useful for instance to provide funding for product development or business

[15] For some background information on situations like the ones described see Polska Agencja Prasowa, "Niskie ceny skupu owoców miękkich," http://www.farmer.pl/produkcja-roslinna/inne-uprawy/niskie-ceny-skupu-owocow-miekkich,51791.html; Polska Agencja Prasowa, "Rozpoczął się skup truskawek. Rolnicy: Ceny są za niskie," http://www.pap.pl/z-zycia-pap/news,537556,rozpoczal-sie-skup-truskawek-rolnicy-ceny-sa-za-niskie.html.

[16] Situations where sellers reduce perceived value are, however, quite common. Examples of this are when sellers organise sell-offs of old stock for reduced prices (sales) to free store selling or storage space for 'latest collection' items.

expansion, or simply to increase margin. This type of cooperation takes place in many global industries and in automotive and electronics has become the dominant cooperation model. In these industries sellers and buyers often work together on what are known as Value Analysis / Value Engineering (VA/VE) programmes which have as a goal the elimination of all activities (or non-activities) which generate waste (i.e., cost) but which do not add value. In this way these companies seek to remove unnecessary cost whist preserving essential value. Clearly, a major result of this type of programme (if done 'according to standards') is that for serial components, buyer purchase cost is systemically reduced (normally on a year-by-year basis) but without diminishing seller margins.[17]

A model of this approach would be analogous to that presented in figure 3 and is presented below as figure 6.

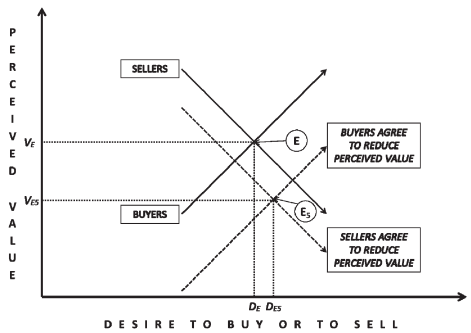

Fig. 6. Theoretical model of 'desire to buy or to sell' against perceived value from a buyer and seller perspective where buyers and sellers agree to decrease perceived value (source: author).

The figure 6 scenario presents decreasing perceived value of both buyers and sellers which results in a new equilibrium point ('E_5') with a lower perceived value level ('V_{E5}') and a higher 'desire to buy or to sell' ('D_{E5}'). Perceived value for both parties can be significantly reduced through this type of cooperation where the funds liberated can then be applied to other business goals. The increase in 'desire to buy or to sell' is because, as long as it is done 'according to standards,' this type of cooperation generates additional operational (and financial) advantages for both sides. For the seller it integrates the buyer into the sellers' operation whilst reducing their own non-value add (with all the risks and opportunities this integration entails), whereas, for the buyer, better integration with sellers, provides production and service cost reductions as well as greater delivery flexibility.

[17] For a very useful discussion of this see J. W o m a c k, D. J o n e s, D. R o o s, *The Machine that changed the World* (London: Simon & Schuster, 1990).

As is possibly evident from the above model, the discussion about value from a buyer and seller perspective is largely driven by perceptions (also in 'business to business' environment). These also include (for instance) perceptions of what is available on 'the market' at a given time (in terms of competitive or complementary products / services), consideration of what steps other 'players' or potential players might take, the quality of the research carried out into possible solutions, perceived chances of success of negotiation processes (and thus realistic chances of arriving at a satisfactory value equilibrium) plus other similar or related factors. Fundamentally, these are all areas of what, in economic terms, one can regard as the actual or potential market.

In this context, economists have a simple and powerful model (often attributed to Alfred Marshall[18]) explaining how prices evolve in a market environment. This is shown below as figure 7.

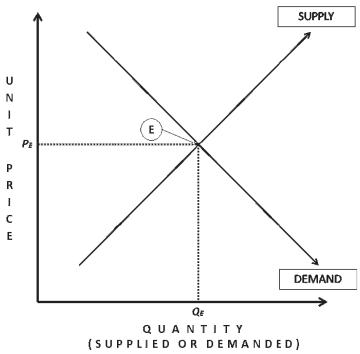

Fig. 7. Supply / demand quantities against unit price (source: author; David Colander, *Economics*[19]).

The model presented in figure 7 shows cumulative quantities supplied or demanded on a specific market for specific unit price levels which are relative to the unit prices of other products or services.[20] The supply and demand quantity / price lines are known respectively, as the supply curve and the demand curve and they apply "other things constant"[21] meaning that the only parameters considered on a specific curve are price and quantity at the conditions under which a specific curve is plotted. Factors which could have an impact on a specific price / quantity relationship (such as changes of taste or preferences, prices of other goods, general wealth and disposable income, etc.) result in the

[18] See Alfred Marshall, *Principles of Economics* (London: Macmillan and Co., 1890).
[19] See also David Colander, *Economics* (Boston: Irwin–McGraw-Hill, 1998), 59-104.
[20] See ibidem.
[21] Ibidem.

curves moving (or shifting) to the left or the right, but not in movement up or down along a specific curve which shows the "effect of a change of price on the quantity"[22] (demanded or supplied). With regard to the supply curve, above a certain threshold (normally total production and logistics cost plus fixed cost and / or eventual profit contribution), the higher the unit price, the more willing suppliers are to supply increasing volumes. However, the higher the unit price, then as a norm, the more unwilling purchasers are to actually purchase and, thus, the demand volume diminishes.[23] For this reason the demand curve seems to 'mirror' the supply curve. Combining the two curves on one graph, an equilibrium point (shown as 'E') is normally found where for a specific price ('P_E') a specific quantity can be both sold ('Q_E') and purchased. This process is clearly visible with perishables (e.g. strawberries) sold in-season during a trading day through multiple suppliers. Prices often start fairly high, then diminish as more product enters the market, and then, at the end of the trading day, suppliers who still have product try to dispose of it as fast as possible (because of perishability) selling for large discounts to 'tempt' the last remaining customers because otherwise their product deteriorates and they incur high disposal costs.

Figure 8 below illustrates a change in the determinants of demand (for instance, changes in tastes or preferences, consumers with more disposable income, disappearance of a competitor product, etc.) which results in an overall demand increase (shown as 'demand determinant increase'), whilst there is no change in supply determinants (for instance no new suppliers enter the market).

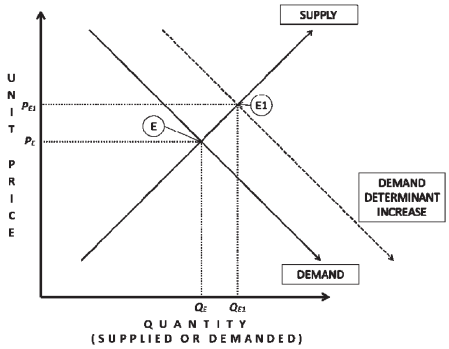

Fig. 8. Theoretical model of supply and demand quantities against unit price showing the impact of an increase in demand determinants but no increase in supply determinants (source: author, David Colander, *Economics* [24]).

[22] Ibidem.

[23] This is in the case with most products, exceptions are certain fashion or speciality products where a price premium can actually boost sales because it can position a product in a different market segment.

[24] See also C o l a n d e r, *Economics*, 59-104.

Figure 8 presents how existing suppliers may be willing to supply an increased quantity to meet the increased demand volume ('Q_{E1}') but, with no increase in supply determinants, this will not be for the same price. The result will be a new equilibrium point ('E1') at which the original supply curve meets the increased demand curve and the model indicates the (expected) price increase ('P_{E1}').

A reverse situation occurs with changes in the supply determinants but with no change in demand determinants. This is shown in figure 8 below.

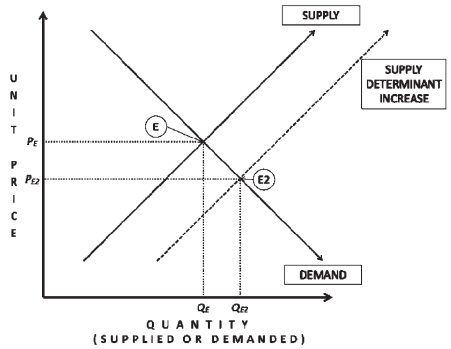

Fig. 9. Theoretical model of supply and demand quantities against unit price showing the impact of an increase in supply determinants but no increase in demand determinants (source: author; David Colander, *Economics* [25]).

In this case, the new supply will result in increased total volumes ('supply determinant increase'), shifting the supply curve and resulting in a new equilibrium. This can be found ('E2') but results in a lower overall price ('P_{E2}') which can lead to the product being available to a wider market (e.g. because more people can afford it and are willing to buy it), thus consuming the increased supply ('Q_{E2}').

Figure 9 below shows what happens if both supply and demand determinants result in increased volumes.

In the case shown in figure 9, the increased supply determinants (e.g. increase in number of suppliers, technology changes lowering unit production cost in an environment of multiple suppliers, lower prices of substitute products, etc.) have a price reduction impact (shifting the supply curve in one direction), which balances the increased demand determinants[26] shifting the demand

[25] See also ibidem.

[26] As presented earlier, some examples of demand determinants are: price increases or lower availability of substitute products, changes of preferences generating additional demand, increased disposable income, new applications for the product resulting in an increase in the numbers of purchasers, etc.

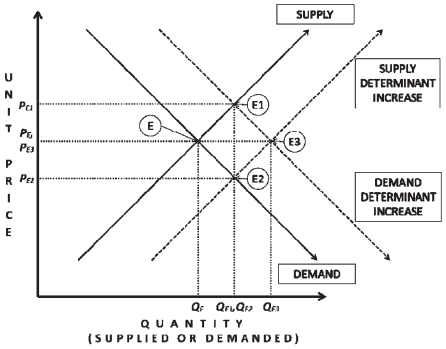

Fig. 10. Theoretical model of supply and demand quantities against unit price showing the impact of an increase in supply determinants with an equivalent increase in demand determinants (source: author; David Colander, *Economics* [27]).

curve in the same direction and by the same quantity / price as the supply curve. This balancing impact results in a new equilibrium ('E3'), where price ('P_{E3}') is stable as compared to original supply / demand ('P_{E3}' = 'P_{E}') but there is an increase in volumes both supplied and demanded ('Q_{E3}' as opposed to 'Q_{E}'). Equivalent graphs to the above can be drawn to illustrate the impact on price and quantity of decreases or other changes in supply / demand determinants. However, it should be noted that the situation where supply and demand curve shifts reflect equivalent movements is useful for explaining the model but in practice occurs very rarely. This is because most supply / demand curve shifts are complex and asymmetrical.

One of the most significant aspects about the economic price / quantity graphs presented above is that, on condition one is able to identify and analyse appropriate supply and demand data, they provide a model of price and volume relationships that is dynamic, reflects our everyday experience (thus, seems intuitively solid) and is demonstrable in the large volumes of evidence collected by economists for over a century.

From an economic perspective, agreed or equilibrium price is the resultant of the supply / demand balance at a specific moment of time. However, it may also be possible to view the resultant of the value alignment process between (potential) sellers and potential buyers (discussed at the start of this section), as an agreed or equilibrium price. Combining the two perspectives, it may be possible to use the economic supply / demand model as a model for value alignment which could enable quantification of perceived value into a monetary value.

[27] See also ibidem.

The reason for proposing this approach is that perceived value is very difficult to measure for anything like the volumes of data needed to verify a theoretical model, because, for the marketing reasons described in the section on value, the value of identical products perceived by different persons, but in identical situations can be very different. Likewise, for reasons of scarcity or marginality, the value of identical products perceived by the same person, but in different situations, may also be totally different.

Therefore, to understand the value relationship one could perhaps use the economic supply / demand model as an analogous model. The supply curve would serve as an analogy for supplier value perceptions and the demand curve as an analogy for buyer value perceptions and with changes to perceived value determinants represented by leftward or rightward shifts in the relevant curves.

The reason for proposing this approach is that the supply / demand curves as presented in the economic model seem to be fairly realistic ways of quantifying the 'volume' of perceived value that has the realistic potential to be translated into concrete sales or purchases. These volumes have market impact and thus, the potential to identify an equilibrium point where supplier perceived value can meet purchaser perceived value ready for translation into a price, thus (perhaps) providing the opportunity to quantify and aggregate the value concepts described earlier in this paper.

*

This paper attempts to present the relationships between money, price, value, and exchange, drawing mainly on the author's experience as a purchaser. These relationships are discussed in the introduction and, as presented in the body of the paper, built on a 'foundation' underpinning the discussion which is the concept of value.

Both on the part of the buyer and on the part of the seller, value can arise from objective needs (e.g. a physical, economic, societal or social need) or subjective ones which may often be 'wants.' To some extent, the difference between 'needs' and 'wants' can be seen as one of the fine lines between freedom of choice and manipulation.

Quite often the role of marketing is to 'package' a subjective need for a specific product or service (e.g. for the newest and best model of something) into a more 'objective' need (e.g. security, acceptance, social warmth, self-realisation, status, etc.). One defence against this process is through awareness that it is taking place and attempting to make choices which are conscious, rational (for oneself) and based on defined criteria rather than allowing oneself

to submit to something that may be a manipulation trying to create an identification with a specific social group, class or status level to or build a sense of personal prestige (or 'betterness'), or even as a simple gratification reward 'for a job well done.'[28] This can be dangerous especially if the manipulation is insidious and directed at developing a permanent state of 'less than full satisfaction,' which is (often) fuelled by a drive to possess the 'latest and greatest' (this occurs in fast changing or innovative environments such as fashions, mobile phones, tablets, household electronics, etc., where buying 'the latest' one has the feeling of 'being the greatest,' however short-lived such a state may prove).

With regard to the concept of value, this 'objective' need / subjective 'desire' differentiation is just one of the possible 'fine lines' between freedom of choice and manipulation. Value based on concrete physical needs (such as sustenance, warmth etc.) may seem less prone to manipulation but this is certainly not necessarily the case as physical need generation can also be manipulated in various ways some of which can be quite horrifying (for instance crop destruction inflicted through war or through environmental impact which results in famines devastating entire populations or drug traffickers generating physical needs that drive the victims to 'pay any price' to satisfy their habit).

However, although manipulation is felt to be more often associated with perceived value based on subjective needs, specific advertising or publicity campaigns can make one aware of the needs of other people and in these cases whether they are manipulative or not is realistically a secondary issue as individual responses (or non-responses) to other peoples' needs as presented in these advertising or publicity campaigns are a clear question of freedom of choice.

Fundamentally, whatever (more of less logical) reasons one has or one feels one has, whatever criteria one applies, the decision of what value to allocate to what particular product or service or to personal situations either of oneself or of other people is a choice which may seem very 'small scale,' 'trivial' or 'easy to ignore' on an individual level but which, when summated across societies or whole social groups, can have a very wide and far reaching impact with very wide and far reaching social, environmental, political and (fundamentally) moral consequences.

[28] This is a common technique next to supermarket check-out counters with racks of sweets, chocolates or newspapers at child and adult eye-levels. The specific lay-out and positioning of the racks is to try to stimulate purchasing by consumers as impulse 'rewards' for the hard work of shopping at a particular retail outlet (or for their children, as a reward for being 'good' whilst shopping).