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AN ANALYSIS OF THE SUPPLY CURVE: DOES IT DEPICT HOMOGENEITY AMONG ITS CONSTITUENT ELEMENTS? ANOTHER REJOINDER TO NOZICK.

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Abstract:

The supply curve embodies prices and quantities offered for sale of a good. But need each element of this supply be interchangeable? If so, then the person to whom the supply curve applies much necessarily be indifferent among all of these homogeneous components of the supply curve. However, Austrian economists reject the notion of indifference. Must they then jettison one of the most basic elements of economics, the supply curve? In this paper, we aver that the supply curve presupposes the notion of the same good and we approximate 'the same good' in steps. First, we delve into the concept of a good as such and only then do we consider what an economic good is, the latter being a proper subset of the former. Eventually, we order the set of economic goods by the relation of sameness, thus arriving at non-overlapping equivalence classes with their respective elements being the same goods. Equipped with this framework, we ultimately try to resist the Nozick's challenge.

Keywords: *Supply curve; indifference; Austrian economics*

1 INTRODUCTION

Nozick (1977) offered a challenge to Austrian economics. On the one hand, he averred, they reject the notion of indifference.[1] On the other hand, they, as in the case of virtually all

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[1] This cannot be denied. For example, Barnett, 2003; Block, 1980, 1999, 2003, 2007, 2009A, 2009B, Block and Barnett, 2010; Hoppe, 2005, 2009; Hudik, 2011; Hulsmann, 1999; Machaj, 2007; O'Neill, 2010.

economists, not only accept the concept of the supply curve but, as in the case of most others, positively revel in it; enthusiastically utilize it in their analysis.[2]

Block (1980) attempted to reconcile the seemingly irreconcilable; namely defending the Austrian support of the concept of supply, and, also, upholding its rejection of indifference.[3] He argued that we can make sense of equally serviceable goods but only prior to human action, thus saving the notion of strict preference when it comes to action and preserving the idea of homogeneity by moving it into the realm of thymology.

The present paper is an attempt to revisit this issue in the light of the literature engendered by these two articles. In section 1 we probe the notion of a good as such and of an economic good in particular. In section 2 we explain why the notion of the same good must be necessarily prior to an action. In section 3 we order the set of economic goods by the relation of *sameness*, therefore obtaining the equivalence classes whose respective elements are *the same economic goods*. In section 4, we demonstrate how to adjust the idea of a *unit* to do full justice to the law of diminishing marginal utility and obviate any confusion. In section 5, we try to face Nozick's challenge. We conclude with section 6.

2 A GOOD AND AN ECONOMIC GOOD

First and foremost, to approximate the notion of *the same good*, we should first get clear on what goods as such are and then delineate its subspecies, that is, economic goods. In this respect, we cannot do any better than use the Mengerian (2007) incisive analysis of goods and economic goods.

Menger (2007, p.52) understands goods as things distinguished by four necessary properties, all of them in combination amounting to a sufficient one. The extensive quote would come in handy:

"If a thing is to become a good, or in other words, if it is to acquire goods-character, all four of the following prerequisites must be simultaneously present:

1 A human need
2 Such properties as render the thing capable of being brought into a causal connection with the satisfaction of this need.
3 Human knowledge of this causal connection.
4 Command of the thing sufficient to direct it to the satisfaction of this need."

Menger (pp. 52 – 53) then goes on to say that the absence of even one of the above-stated properties would result in the thing losing its goods-character. After all, as identified above, all of the four properties are necessary conditions for an item to be a good. And, the second and third of these causal-realist conditions will prove vital in our forthcoming analysis. It will allow us to filter out any false beliefs on the part of economic actors as to certain apparent goods serving illusory ends.[4] For example, if an economic actor attributes to his scooter the ability to fly him to the moon, then at least with respect to this end, the scooter does not have a character of a good merely because condition 2 is not met.

Second[5], to understand what an economic good is, we should try to understand the concept against the background of the set of goods as such. Not surprisingly, we are treating the qualifier

[2] This contention is so obviously true, we do not feel the need for any support of it

[3] Hoppe (2005, 2009) maintains that Block's (1980) effort was a failure; he offered what he considered a better refutation of Nozick (1977). Block (2009A) and Block and Barnett (2010) responded to Hoppe (2005, 2009).

[4] It should be noted that Menger's four conditions are not fully logically independent of each other. It is enough, however, to focus on conditions 2 and 3 for our purposes. It can certainly be the case that there is an objective causal law that makes a thing capable of satisfying a given human need. On the other hand, 3 presupposes 2. Human knowledge, being *factual (*and the phrase 'to know' is a *factive* transitive verb) presupposes 2. That is, there cannot be human knowledge of a causal link without this very causal link obtaining independently of human knowledge.

[5] Trivially, we could approximate the notion of *the same economic good* via the reversed order: first, from the notion of *a good*, we can derive *the same good*, as equivalence classes obtained by the relation of *sameness* ordering the set of goods. Then, *the same economic good* would be only those classes of *the same good,* where the utility of each unit is still more than zero.

"economic" as *differentia specificae* of goods. This will allow us to distinguish economic goods from non-economic ones. As it will transpire, our distinction, adopted after Menger (2007), will also shed some light on the problem of indifference. To carve out the subset of economic goods from the set of goods, we pick up the Mengerian criterion of *how satisfactory* a given stock of goods is relative to human needs. Let us quote Menger (200, p. 95) at length:

"[…] wherever men recognize that the requirements for a good are greater than its available quantity – they achieve the further insight that no part of the available quantity, in any way practically significant, may lose its useful properties or be removed from human control without causing some concrete human needs, previously provided for, to remain unsatisfied, or without causing these needs now to be satisfied less completely than before."

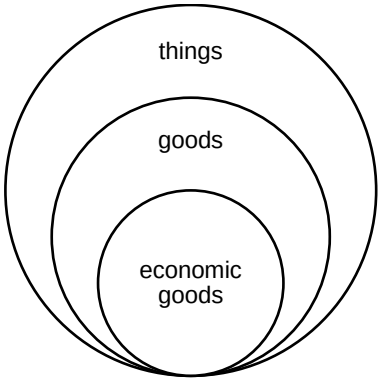

Fig. 1 Venn diagram: the relation between things, goods and economic goods

To put this in other words, a good remains an economic good when its marginal utility is greater than zero. This means that the good is able to satisfy some other human need or satisfy more completely the need previously attended to. By the same token, we can deduce that a good is not an economic one when its marginal utility is literally zero[6]; that is, as we have more and more of it, it eventually ceases to satisfy any human need at all; or, to use Mengerian language – the stock of the good in question, relative to human needs is too large (e.g. air).[7] The Venn diagram (Fig. 1) illustrates what has been said so far about the relation of our fundamental concepts.

Finally, a few words of explanation are due. First of all, Mengerian necessary condition 1 for a thing to become a good is, as we remember, 'human need'. What may arouse confusion is the question: 'but whose need?' Because of a good, in general, is neutral between its economic and non-economic aspect, we stipulate the following two definitions:

Definition 1:

A good is a thing such that there is at least *one person* for whom this good *would at least potentially* satisfy at least one *need*, the person (correctly) realizing how to employ (obeying physical causal laws) the said good to satisfy the said need.

This stipulative definition rightly abstracts from the question of whether the marginal unit of the said good is of some positive value or equals zero[8].

What is more, the "at least potentially" caveat used above is very important indeed for, intuitively speaking, air is a good although it is a non-economic one. However, the marginal unit of air *at least potentially satisfies at least one human need.* After all, it does not take much to imagine that air can be so polluted that it is sold or rationed or whatever.[9] Then, the utility of the marginal unit of air would be definitely positive and the previously non-economic good would acquire the character of an economic good. What is more, "at least potentially" makes sense of the fact that all economic goods are goods. It might seem that classifying economic goods as goods on our grounds looks like a category mistake. But it is not because of "at least potentially" caveat once

[6] Or less. There is, after all, such a thing as a garbage "good," or a superfluity. For example, when we continually add apples to our larder, after a while, we reach a point when we would be willing to pay someone to take some of them away, lest we have no room in our home for anything else.

[7] A common objection to this example is that we do not have enough *clean* air. But this does not counter our point. On Mars, or the Moon, or beneath the sea, the air of which we speak does not exist at all, clean or not.

[8] What our definition of a good rightly excludes is marginal utility below zero because then we would be speaking of a bad.

[9] But, again, in this case there would be no shortage of *air.* Rather, there would be the presence of pollutants, an entirely different matter.

again. At least potentially predicts that it may be also "actually". And when economic goods (see: next definition) are actual, they may be justifiably classified as goods too.

By the same token, we arrive at the definition of an economic good.

Definition 2:

An economic good is such a good that there is *at least one person* for whom this good would satisfy *at least one need* and the marginal utility of the said good is above zero (in other words, the stock of this good is relatively scarce given the said actor's needs).

We should finally note that both a good as such and an economic good, in particular, are always relative to a given economic actor. It is a trite to say that one man's meat is another man's poison, but our proviso makes sense of this proverb. After all, a given item (or a scarce resource) may satisfy some need of person A but fail to satisfy any need of person B. In our analysis, we will keep the economic actor constant so as to avoid an absurd conclusion that something is an economic good and is not at the same time (or it is at the same time an economic bad, horror).

Armed with this conceptual framework, we are ready to probe the notion of the same good in the next and next-but-one section.

3 WHY IS HOMOGENEITY LOGICALLY PRIOR TO THE LAW OF DIMINISHING MARGINAL UTILITY?

Machaj (2007, p. 231) starts off on the right foot in his abstract by explicitly saying that his task is "[…] to explain the concept of homogeneity, the basis for the law of diminishing marginal utility". The concept of homogeneity (or, equivalently, the same good) must be prior to the law of diminishing marginal utility because this law assumes it. That is, this law applies only when it considers homogeneous *units of the same good.* What is more, the relation between human action and homogeneity is very complex indeed. This is because of the fact that a person treating homogenous units of a given commodity as the same good cannot ever demonstrate this in action. For example, let us imagine the following series of actual human choices. First, an actor picks up the first unit of commodity A; second, he does so with some other unit of commodity B etc. From this alone, we cannot draw the inference that commodity A is the same as commodity B[10] and that the actor employed two successive units of the same good and employed them to different purposes. It might be the case that he was economizing two distinct goods according to his value scale; that is, he made use of good A to satisfy his most pressing need first and only then did he employ good B to satisfy his less pressing need. Therefore, human action alone cannot instruct us as to whether the actor was acting on the same good or not while making choices.

Moreover, we know that inaction all goods are necessarily heterogeneous even though they seem (and even *are* for that matter) physically homogeneous.[11] The above is simply true *ex definitione* – what was picked up (or what was chosen) is strictly preferred because this is simply the way we understand preference, that is something that is demonstrated by a particular choice. After all, the action is all about picking up something and setting aside something else.[12] So,

[10] Or that it is not

[11] Apart from location, which is necessarily distinct, a chemist would not be able to determine any difference between them.

[12] As Wysocki (unpublished) argued, the *domain of choice* are particular action-tokens. Action-tokens are particular instantiations of action-types. The former relates to the latter as going to the cinema C at the time T relates to going to cinema in general. The latter, truth be told, is on the other hand, an intentionally and psychologically sound description of the actor's intention as envisaged by him prior to an action. The former, on the other hand, is praxeological through-and-through and is concerned with what choice was eventually demonstrated by action itself. Furthermore, understanding choice as preferring a particular action-token to any other ones available allows us to explain away all the misconceptions about indifference e.g. why did Block (2009A) pay for his purchase with this particular note (notes being physically identical) for this particular sweater (sweaters being assumed to be physically identical too) of Hoppe's. The answer is now straightforward: as long as we act, we choose all those details; after all, it is an action-token (a particular state of affairs) that is brought about by an actor and not some generic state of affairs (as envisaged by a human actor in his mind's eye). Finally, with choice thus conceived,

it is impossible in principle to conclude from the action, based on strictly preferred choices, about the apparent homogeneity of the prior-to-the-action goods.

It must be borne in mind that when it comes to actions (particular action-tokens) geography (specific locations of the good) is very relevant indeed. It is physically impossible[13] for different physically identical resources to occupy exactly the same spot in space. Therefore, the location of a resource must be critical *especially* when homogenous goods are in question. So, there is always some reason, at the very minimum a location, that could account for any particular choice. Still, prior to the action physical sameness implies the same serviceability – a point to which we will turn our attention in the next section.

Summarizing, the same good is a concept which is clearly prior to any action. Therefore, it belongs in the category of transcendental concepts– it provides us with a way of construing human agency and it cannot by any means be inferred from the data of particular human acts. In other words, the notion of the same good gives us *Bedingung der Möglichkeit* for formulating the law of diminishing marginal utility. It is due to the concept of the same good (not being manifested in action itself) that we can better make sense of human action. The same is true about the concept of human purpose. After all, human purpose does not manifest itself in human action. The former is rather assumed *a priori* to make sense of the latter.

4 THE SAME ECONOMIC GOOD

Having probed the notion of an economic good, it is high time to make an attempt to clarify the concept of the same economic good. What we should continuously keep in mind is the fact that we cannot infer the idea of the same good from the action itself. Human action would always leave us in the dark as to whether an economic actor was economizing the successive units of the same commodity or of distinct ones.

Sameness is an equivalence relation, that is it is:

a. reflexive
b. symmetrical
c. transitive,

When this relation operates with regard to all economic goods, it exhaustively divides the entire category thereof into pair-wise disjunctive classes. In other words, if we allow economic goods be ordered by the *sameness* relation, we will eventually end up with non-overlapping sets, where all the elements of a given set are considered *the same good* and any two elements belonging to different sets are not. But what is the criterion for sameness; or, what is it about two economic goods that make them the same economic goods?

Our thesis is that physical sameness is a sufficient condition for two economic goods to be the same economic goods *because* physically identical economic goods necessarily serve the same *list of* (correctly perceived)[14] *ends*. We view this criterion as a definite improvement over Machaj's (2007, p. 236) contention that: "We recognize some things as "supplies" because we realized they could *serve the same end*". We claim that Machaj's grain of analysis is too crude to capture the concept of the same good. For let us imagine that an economic actor is confronted with a car and a scooter. Obviously, the two serve some common ends. Yet, unless the actor is blinded to the non-overlapping ends both serve, he would *falsely* treat them as the same economic goods. If an

there is a very interesting corollary, that is Epstein's (1973) theory of strict liability

[13] It is also logically impossible for two things to occupy the same space. If they seemingly do, for example, Poland has more than one car, we say that Poland is too big a space. Similarly, there are more than two cars in Warsaw, which is subject to the same objection: that is not the kind of space we are talking about. What kind of space, then, are we talking about? That kind in which two things cannot both fit.

[14] We hesitate to say that, but it can be the case that this "correctly perceived" scenario is not necessary at all. For it is hard to imagine that as long as an actor values a unit of commodity A (that is, he treats it as an economic good) that when he notices another physically identical unit, he would regard it as a different economic good (always abstracting from geographical location). We claim that he would promptly realize they must serve the same ends due to their identical physical constitution. Obviously, an actor can be unaware of multiple uses a given economic good may be put to; after all, inventions still occur, and, hopefully, will never cease.

actor's crudely described end is to travel from A to B without specifying either the velocity of the travel or the overall comfort thereof, can these two (with a huge stretch of the imagination) be considered two units of the same good? Continuing with this larger than life scenario, it could be even maintained that such an actor would economize the two along the lines of the law of diminishing marginal utility. Yet, why bother with such fancy scenarios? We assume (and quite correctly) that different physical conditions would translate into different economic goods because any reasonable actor could *correctly* attribute at least a few non-overlapping services the respective economic goods could possibly render.

Summarizing, Machaj's identification of the same good by referring to the fact it can possibly serve *the same end* (it is clear, that Machaj means *one* end) cannot do. First, it is feasible that two physically distinct goods may serve *one and the same end* but apart from this they differ in serviceability dramatically; that is, *one and the same end* is the only overlapping element in two sets of their respective serviceability. For instance, one can lay a book on both a brick (a sufficiently large one) and on a table. Yet, the two would obviously serve dozens of non-overlapping ends[15] and therefore, we cannot see any reason to treat them as homogenous. What probably led Machaj astray is his not finely-grained description of a person's end. Of course, one can mentally frame one's end as traveling from A to B but when it comes to comfort, efficiency etc., two distinct means (say, a car and a scooter) would be valued differentially, thus accounting for their respective statuses as distinct goods. To reduce this to absurdity, at the most general level of description (some means serving some end), everything is everything else. In other words, there is such a vague and general level of description (say, removing any discomfort, however infinitesimally) from which all goods would be homogenous – a most unwelcome conclusion.[16]

5 SYNERGY PROBLEM – HOW TO CALIBRATE A UNIT OF THE SAME GOOD

Our relatively simple criterion calls for one adjustment. Once the definition of the same good has been sharpened, we can successfully reply to the criticism leveled by Nozick (1977). He appeals to the fact that, psychologically speaking, units employed later on may prove to be of greater utility than the ones employed earlier. As Block (1980, p.425) puts it: "In the psychological view with which Nozick seems to agree, marginal utility need not always diminish with command over increased units of the commodity. There can actually be a realm of increasing marginal utility with extra units, perhaps because the additional units allow the actor to do things that were not possible with fewer, or because it takes a few units before he can really begin to enjoy the commodity. ('The second sip of beer tastes better than the first.') The problem with this, of course, is that it would imply that when forced to give up one unit of a commodity, the actor would choose to give up that unit which affords him more satisfaction than those that remain, a manifest impossibility."

Certainly, we do not have to take any heed of the possibility that the second beer may taste better *ex-post*. This is definitely true but is not part and parcel of praxeology. *Ex post* statements can constitute a proper field of study for psychology with all its contingencies[17] but these are of no interest to Austrian economics and are not scrutinized here.

A problem starts to emerge when we realize that a given actor may know that an end that one beer cannot serve can be achieved with a little help from the second beer. Let us consider an example.[18] An actor correctly believes that the first beer will make him tipsy, whereas the second one will make him drunk. As it happens, the actor's value scale is as follows:

[15] We assume (not unreasonably) that these non-overlapping ends are readily noticeable by any almost any ordinary human being.

[16] What is worse, then the predicate *the same good* would be empty for there are would be no two goods that could be said to be distinct, so why use the predicate in the first place?

[17] It is necessarily true that both parties of a voluntary trade gain in the *ex-ante* sense. Whether they also gain *ex post* is an empirical issue and neither the answer 'yes' or 'no' is apodictically true.

[18] This example we owe to Lukasz Dominiak.

1. get drunk
2. get tipsy

Therefore, there is an end served only by *two beers in combination* that is not attained by any individual tipple of this beverage. As it happens, this goal is valued higher than any end that a single beer can serve. This example is interesting since it is not a vague *ex-post* psychological statement. Instead, it directly refers to possibilities of behaviors of which the actor is acutely aware. He correctly believes that the second beer[19], when drunk, is going to be of greater avail than the first one, merely because it is only after drinking the second that he will get drunk, his highest priority. It may seem that, paradoxically enough, the second beer is valued more than the first beer. Is the law of diminishing marginal utility thereby falsified? Of course not! We claim that whenever there is a collection of physically identical units and there is such a number of n units that the n^{th} unit, after n-1 units were already put to use, yields such an over-and-above service that any n-1, n-2 …1 collection of those is unable to render, then the marginal unit should be defined as n-element collection of physically homogenous items.[20] Then, in our case, a marginal unit should be now defined as two beers. Then the law of diminishing marginal utility works perfectly. The first pair of beers would be valued higher than the second, and that higher than the third etc.

To recapitulate, paradoxically enough, having *two* physical cans of beer, we can arrange them into *three* specimens of two *kinds* of economic goods.

a. 1 beer – 2 specimens
b. 1 pair of beer- 1 specimen[21]

It shows that arranging economic goods into equivalence classes does not run along physical lines because of the synergy effect, as we label it.

Incidentally, we would be even ready to make a prediction. Let us imagine that semi alcohol prohibition takes place in the United States and one is able to buy only one beer per ~~a~~ day (for whatever complicated reason[22]). Because one cannot possibly get drunk drinking one beer a day, we predict that any economic actor instantiating the preceding value scale (which is, incidentally, not uncommon) would be ready to pay for a 2-beer package more than he would be ready to pay for two separate beers – *ceteris paribus* holding

6 FACING NOZICK'S CHALLENGE AND REPLYING TO MACHAJ YET AGAIN

Nowhere else in Nozick's (1997) criticism of the Austrian position on indifference and homogeneity does he put as expressly as in his footnote 30 (1997, p. 390), where that philosopher analyses Mises's view on the issues scrutinized in the present paper. It merits an extensive quote:

"However, on p.122 he [Mises] says, "All parts – units – of the available stock are considered as

[19] The ordinal numbers employed here are marked by temporal dimensional and do not refer to any numerical identities. In other words, the first beer refers to the one that happened to be drunk first, and the second to the one after that. The glasses of this liquid would be interchangeable as far as we are now concerned.

[20] Rothbard (2004, p. 73 – 74) defines what counts as a *unit of a good*. He avers: "For example, it is erroneous to argue as follows: Eggs are the good in question. It is possible that a man needs four eggs to bake a cake. In that case, the second egg may be used for a less urgent use than the first egg, and the third egg for a less urgent use than the second. However, since the fourth egg allows a cake to be produced that would not otherwise be available, the marginal utility of the fourth egg is greater than that of the third egg. This argument neglects the fact that a "good" is not the physical material, but any material whatever of which the units will constitute an equally serviceable supply. Since the fourth egg is not equally serviceable and interchangeable with the first egg, the two eggs are not units of the same supply, and therefore the law of marginal utility does not apply to this case at all. To treat eggs in this case as homogeneous units of one good, it would be necessary to consider each set of four eggs as a unit."

[21] There are two kinds of goods in this example but three tokens. Each single beer counts as two tokens because we have two of them and we have a pair of beer units, which constitutes a separate good. And how many specimens of two beers do we have? One! Thus, we have two specimens. If we ignore the specimens there are two kinds of goods here.

[22] As was pointed out to us by always insightful Lukasz Dominiak, for this example to work, we must also assume that this actor has a high-time preference and he does not accumulate beer for at least two days so as to be able to get drunk. He prefers getting tipsy immediately to getting drunk tomorrow.

equally useful and valuable if the problem of giving up one of them is raised." Here, then, we do have indifference. Yet a choice will be made, perhaps at random. One particular object will be given up. Yet, the person does not prefer giving up this one to giving up another one. Therefore, choice entails (at best) weak preference; it does not entail strong preference."

Let us now attempt to dismantle this ingenious excerpt from Nozick and thus try to defend our own position. What needs stressing again is the fact that indifference as such is not anathema to us; indifference apparently manifested in a particular choice is![23] So, can we reconcile the strict-preference view with the homogeneous stock of good (the same goods), the latter of which means nothing else but that the units of the said good are equally serviceable (or are able to satisfy the same list of ends of a given actor). We do believe that we can have our cake and eat it too.

As stated above, action by its very nature cannot demonstrate that an actor is choosing between the units of the same good for the very simple reason that action always demonstrates strict preference. Thus, any inference from the action itself to the homogeneity of the means (goods) employed therein is invalid. Therefore, homogeneity must be defined prior to any action. So, yes, we concur with Nozick – "we do have indifference"; but, not when it comes to an actual choice. We have indifference in the concept of supply but as we argued above, supply and homogeneity are transcendental notions which cannot be observed in action (they rather illuminate action). Then again, as for Nozick's "Yet, the person does not prefer giving up this one to giving up another one", we do not side with him on this at all. Just the opposite: the person *does* prefer this unit over any other simply because he did pick it. It is because Austrians understand preference not psychologically but praxeologically; It is demonstrated in action, in an act of a particular choice. Thus, the Nozickian entailment fails. Not only we do not have a weak preference, but also, we can successfully defend strong preference.

It is for the same reason that Machaj's (2007, p. 232) incisive example concerning the wedding ring actually fails and does not undermine our position at all. Machaj expressed his case against our physical definition as follows:

"Austrian tradition, however, teaches us that the merit of being a good is not derived from the physical nature of a thing, but rather from the human attitude towards scarce resources. This means that two goods may have perfectly identical structure, but can be treated by human beings in a radically different way. Take the example of a wedding ring. The ring that is given to a girl by her fiancé has a much greater value than the exact same ring when it is given to her by a total stranger on the street. Although physically these two rings might be homogenous, they definitely will be treated as heterogeneous goods. Obviously, then, physical properties of scarce resources cannot be the source of defining homogeneity, if we are to speak of human action and valuation."

We find the above passage slightly confused and confusing. First of all, the contention that these two homogenous rings will be treated as heterogeneous goods is indubitably correct. What is more, this is fully compatible with our own position. To stress it yet again, in action all goods are heterogeneous because a particular unit is picked up (thus showing the strict preference for it) and another is set aside. This is what action necessarily consists of. The apparent wedding-ring counterexample misfires so far. Because homogeneity can be defined only as *prior* to action, it obviously cannot be demonstrated *during* the action. What, then, prevents Machaj from defining homogeneity as physical sameness? It is obviously true that the wedding ring already offered to the girl by her fiancé does not meet the definition of homogeneity, prior to an action. After all, one particular ring was acted upon already. The same applies in the case of a ring given by a

[23] There is yet another sense in which we fully accept the notion of indifference: in ordinary language. That word has an entirely valid function to play in everyday discourse. We know full well what it means when someone employs it. Our only objection to it is as a matter of technical economics. A similar situation prevails in physics with "work." Technically, it is force times distance. But, if someone holds two twenty-pound weights still, with arms extended, he will be dripping with sweat within a very few minutes. In everyday speech, he will be "working" and "working" very hard indeed. And, yet, in the technical language of physics, for as long as these bar bells do not move, no "work" will be taking place.

complete stranger to the very same girl. For a succinct remedy and a clear exposition of homogeneity as physical sameness, let us quote Block's (2009, p. 67) comment on wedding-ring thought experiment:

"Machaj is, of course, correct in claiming that the girl is not at all likely to view two wedding rings as a part of the same supply, the one offered her by her beloved fiancé, the other by the stranger in the street. […] In order to make the case for a thymological or physical definition of supply, consider not those two wedding rings, the one imbued with sentimental value, the other not. Instead, look at the couple at the jeweler's store, before any of the wedding rings is chosen by the fiancé. Here, we have a true supply of wedding rings, dozens of them we may suppose, all of them physically indistinguishable from one another. There is no doubt that the law of diminishing marginal utility holds in the case. The first of these rings is of a greater value than the second, etc."

This hits the nail on the head. Homogeneity is defined as a physical identity but the equal serviceability of the units of the same good *cannot be demonstrated in action*. It is necessarily true that only one particular ring will be eventually picked up, thus showing the actor's strict preference for the chosen unit. So, no contradiction arises. Those weddings rings are equally serviceable prior to the act of choice and this is what makes them a supply of the same good *before* an actual choice is made.

Let us consider two thought experiments to put our position as clearly as possible. The first one is only a slight variation on Block's (2009) jewelry store scenario. Let us imagine that an actor is contemplating which particular ring to buy. They seem physically identical to him and he quickly realizes that they must (due to their same inherent properties) be able to satisfy the same ends anyone can possibly have. He remains indecisive until he hears a voice saying that it must be the one in the middle. So, he promptly picks up the one recommended by the strange voice in his head. This accounts psychologically for a praxeologically undeniable fact that once he picked up a particular ring, there must have a reason for his strict preference. Now the question arises: does the occurrence of the voice invalidate the prior homogeneity of the goods? Of course not. How could something as bizarre and accidental as a strange voice have any bearing on the concept of supply? The fact that the voice occurred (at least in the actor's head) does not retrospectively invalidate the fact that the units the actor was choosing among were the units of the same supply prior to his actual choice. On the other hand, the said strange voice undoubtedly had a bearing on a particular choice of our protagonist.

The second variation on Block's case is this: let us now divide the stock of wedding rings into two equal groups. One part remains where it was (and where the actor still is), while the other is transported to the store 10 miles away. Are these two sub-stocks still homogenous with each other (except, of course, for location)? Our theory would say 'yes'. Can an actor demonstrate this fact? The answer is now 'no'. He will most likely pick up a ring from the store he is now in; it is far more convenient.[24] What is more, he cannot even demonstrate that these units in the local establishment are the units of the same good because he will necessarily pick up a particular one, inescapably, once again, demonstrating strict preference. Yet, having assumed this definition of homogenous goods, the law of diminishing marginal utility functions without a hitch. As Block (2009, p. 63) had it: "Even if we assume polygamy, we reach the same conclusion. If the man contemplates marrying four different women, he will give the first of these rings to his favorite wife, the second to the second, etc."

The successive units of the same good will be necessarily employed in such a way that the needs they satisfy will be of lower and lower importance. Still, it is also true that once a given unit was chosen, this very unit (for whatever reason – even fancy ones count, as observed above in our first thought experiment) was strictly preferred to all the others. There is thus no contradiction in our position.

[24] However, we cannot rule out the possibility that he wishes to stretch his legs, and thus prefers a ring requiring a 10-mile trip to the other store.

7 CONCLUSION

We are very grateful to Nozick and Machaj. Without their contributions, the Austrian understanding of the supply curve, indifference, homogeneity, would be far weaker than it now is. We cannot see our way clear to fully agreeing with either of these eminent scholars, but we readily and thankfully acknowledge that they have pushed the envelope in our own understanding of these concepts.

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