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Adam Smith and the Austrian School of Economics: The Problem of Diamonds and Water

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Introduction

When end of 2017 Leonardo da Vinci's painting "Salvator Mundi" was auctioned off for over $450 million, it was nearly three times as expensive as the second most expensive painting, a Picasso, and it could have compensated for the state deficit of Lithuania. An absurdly high sum for a piece of wood and oil paint. How do you explain such a price? Neither the amount of time spent working on it, nor the benefits from this work alone could justify it. Why do we often pay high prices for goods with little use, but low prices for things that are sometimes partially vital? Generations of economists and philosophers have tried to resolve this apparent paradox. An explanation for this price is - quite simply - an individual’s willingness to pay this price. The prestige gain of owning one of only fifteen paintings of the probably most important artist and universal scholar of all time can already provide an enormous increase in status. It is the scarcity, the uniqueness of the artwork, which justified the high increase in utility or satisfaction. If there were any number of similar works, no one would pay more than the utility value for it. This – today rational – economic inference was not always granted. It is based on the recognition that the benefits of consumption of a good decreases with the amount consumed (and thus with the saturation of the consumer). This recognition of diminishing marginal utility is the result of centuries of search for the solution of the classical value paradox of water and diamonds.

Adam Smith assumed that the (exchange) value of a quantity of one good over a long period of time is constant. The influence of the demander was only included to explain a short term higher or lower price than the "natural price". However, even before Smith, economists realized that here something was wrong: diamonds were very expensive, even though they had no practical value and water was cheap, though vital. So, there was a discrepancy between value in use and value in exchange – between the value and the price of a good that could not be explained. Only about a century later, people and their needs were included in the bill.

The aim of this paper is to summarize the development from the classical economics of Adam Smith's to the Austrian school and the juxtaposition of different approaches in a literature review.

1. Summary of Schools of Economic Thought

The understanding of economic relations has changed repeatedly over the centuries and is constantly evolving. Furthermore it is always embedded in the particular historical context[1]. The most important schools of thought of the economy have become milestones in the history of economic thinking[2]:

- Preclassical Economics (including Aristotle, St. Thomas Aquinas, Francois Quesnay, William Petty)
- Classical Economic Theory (including Adam Smith, David Ricardo, John Stuart Mill and Jean-Baptiste Say), from about 1780
- Marxist economic theory (including Karl Marx, Friedrich Engels, Rosa Luxemburg, Nikolai Iwanowitsch Bucharin), from about 1850
- Historical School of Economics (including Friedrich List, Gustav von Schmoller), from about 1850
- Neoclassical Economic Thought (including Vilfredo Pareto, Léon Walras, William Stanley Jevons, Alfred Marshall as representatives of the various marginal utility schools), from about 1870
- Austrian School (including Carl Menger, Ludwig von Mises, Friedrich August von Hayek), from about 1880
- Development of Econometrics and Empirical Methods in Economics (including Henry L. Moore)
- Keynesianism (including John Maynard Keynes), from about 1930
- Monetarism (including Milton Friedman), from about 1970

The following introduces the different approaches that are used by Adam Smith, respectively the Austrian school, to resolve the classic paradox of value.

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[1] M. Quentel, The history of economic thought and its role in rethinking economics, Universität Witten/Herdecke, https://www.researchgate.net, access date: 29.04.2018.

[2] A. Heertje, H.-D. Wenzel, *Volkswirtschaftliche Ideengeschichte*, in: *Grundlagen der Volkswirtschaftslehre*, ed. A. Heertje & H.-D. Wenzel, Springer, Berlin, Heidelberg 2002, p. 37; H. Landreth, D. Colander, *History of economic thought*, Houghton Mifflin, Boston, Mass. 2002.

2. Adam Smith

Adam Smith was baptized on 5 June 1723 in the Scottish Kirkaldy. Probably he was born on this day, but this is not sure[3]. He was a philosopher, educator and the founder of classical economics. Middle of the 18th century he was professor of logic at the University of Glasgow and 1752 professor of moral philosophy. Since that time a close friendship links him with the Scottish philosopher, economist, and historian David Hume. In 1754, Smith began a well-paid, three-year educational tour of France as a companion to Henry Scott, 3rd Duke of Buccleuch. His major work "An Inquiry into the Nature and Causes of the Wealth of Nations"[4]is considered the beginning of economics and economic liberalism and inspired many thinkers to their research. Although since Aristotle numerous works have been widely published in the field of economics, they have not been written in such a systematic and scientific way. "Wealth of Nations" is a summary of findings of that time. This may have been the reason why Joseph Schumpeter[5] disparagedly remarked in his "History of economic analysis" that Smith's work contained no single thought, method, or analytic principle new to his time. Smith nevertheless influenced many thinkers who followed him, such as Karl Marx, who took up his labour theory of value to the representatives of the neo-classical who, with his "invisible hand" of the market, held an argument against the regulation of the markets[6]. So, for example, Alan Greenspan[7] described Smith's "Wealth of Nations" as "one of the great achievements in intellectual History".

In addition to the topics of division of labour, foreign trade, the role of the free market, the state and distribution, the theory of value is a much discussed topic - from the early days of economy to today. Adam Smith died in Edinburgh in 1790. This work will focus on Smith's theory of value in contradiction and as a predecessor to the Austrian School and their attempts to solve the value paradox of water and diamonds.

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3 I. Ross, *The life of Adam Smith,* Oxford University Press, Oxford, New York 2010, p. 1.

4 A. Smith, *The wealth of nations,* Thrifty Books, Blacksburg, VA 2009 [1776].

5 J. Schumpeter, *History of economic analysis,* Oxford University Press, New York NY u. a. 1994.

6 M. Brady, *Adam Smith, The Wealth of Nations, and the "Invisible Hand",* „Scholedge International Journal of Management & Development" 2016, vol 3, no. 5, p. 97.

7 A. Greenspan, *The age of turbulence*: *Adventures in a new world,* Penguin Books, New York 2008, p. 261.

3. Austrian School of Economics

3.1. Definition of Terms

In economic discourse in some cases very different positions are designated with Austrian School. Israel Kirzner[8], a disciple of Ludwig von Mises, distinguishes five different meanings of the term. First, the Austrian school can be seen as a purely historical epoch (especially in German-speaking countries) of economics, whose teachings were later recognized worldwide (marginal utility theory and detachment of economic theory from economic history). Second, Austrian School as a term primarily describing the capital theory of Böhm-Bawerk, but without Menger's strictly subjectivist theory. Furthermore, Carl Menger's idea of markets as a process, in contrast to the prevailing equilibrium model in economics, has been followed with interest since about 1970 in the USA. The first generation of the Austrian School is called, among others, as "Neo-Austrians". As a development the term "Austrian" is used to describe a generally libertarian political philosophy advocating free markets - especially in the US since the 1980s. At last, it summarizes a generally subjectivist theory of microeconomics, which emphasizes the uncertainty of all economic decisions through the actions of individuals.

In the context of this work the term "Austrian School" should be understood as the historical core of this subjectivist school of thought originating in Vienna at the turn of the century.

3.2. Origin and Development

"Austrian" or "Viennese School" in the economic-historical view designates a group of economists within the neoclassical schools of thought, whose view it is – based on the subjective value theory – that the entire economic causal chain has its starting point in the processes in the individual and thus has psychological origin. The representatives of the Austrian school rejected the neo-classical, mathematical-mechanical formulation of economic relationships of the Lausanne School and the Cambridge School and put the individual and his behaviour – and thus also the factor of uncertainty – in focus. Thus it forms a counter-movement both to the German economics with its Hegelian way of thinking as well as to the classical British economics, which tried to derive laws from objectively measurable quantities. The

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[8] I. Kirzner, *Austrian Economics*, in: *The New Palgrave: Dictionary of Economics*. *Volume 1 - 8*, ed. S. N. Durlauf & L. E. Blume, Palgrave Macmillan UK, London 2008, p. 313.

Austrian school was founded around 1870 – in a time in which significant insights in various areas have revolutionized the world of art, music and science. In the field of economics a group around Carl Menger emerged at that time in Vienna with Eugen von Böhm-Bawerk and Friedrich von Wieser: the "Austrian School of National Economics". The name "Austrian school" was first used by their opponents, the Historical School around Gustav von Schmoller, within the context of the Methodenstreit, or methodological debate, and should devalue the group. Later, however, they used it themselves[9]. The generation of founders was followed by generations of researchers who further developed the subjectivist spirit of this school of thought.

Carl Menger is considered the founder of the Austrian School and thus represented their 1st generation. He was born on 23 February 1840, named Carl Edler von Wolfensgrün, but he later dropped the title of nobility from confession to the bourgeoisie[10]. He proved the scientific untenability of Karl Marx's labour value theory. In his objective theory of value, Marx assumes that all goods have a value determined by the sum of the labour required to produce this good. The unit of measurement for this work is the (working) time. This makes the good comparable and exchangeable on a market. Thus, according to Marx, an (exchange) value for a good only arises through exchange.

Eugen von Böhm-Bawerk (1851–1914) was the formative head of the second generation. His brother-in-law, Friedrich von Wieser, was after 1903 Menger's chair successor and wrote contributions to a subjective theory of opportunity costs. Since he was the first to use the (quite mathematical) concept of marginal utility, Ludwig von Mises assigned him to the Lausanne School[11]. Ludwig von Mises (1881-1973) and Friedrich August von Hayek (1899–1992) formed the 3rd and 4th generation of the Austrian School.

4. The Paradox of Value

The classical value paradox, also known as the diamond-water paradox, describes the discrepancy between the value and the price of a good. Here, the "value" is usually derived from the utility of the good. The price is equal to the exchange value achieved in a market. The most popular example of

9 I. Kirzner, *Austrian Economics*. op. cit., p. 313.
10 M. Spitznagel, *Das Tao des Kapitals*: *Erfolgreich investieren mit der Österreichischen Schule,* Börsenbuchverlag, Kulmbach 2016.
11 L. von Mises, *Ludwig von Mises, notes and recollections*, Libertarian Press, South Holland, Ill. 1978, p. 36.

this paradox is the comparison between water and diamonds. While water is vital to individuals – but usually has a low price, diamonds are completely useless to humans – but still have an extremely high price. Although mostly associated with Adam Smith, the example already goes back to John Law's work "Money and Trade considered":

> The value of goods is rated not as the uses they are applied to are more or less necessary but as they are in quantity in proportion to the demand for them. Water is of necessary use yet of little value because the quantity of water is great in proportion to the demands of it. Diamonds are of less necessary use yet of great value because the demand for diamonds is great in proportion to the quantity of them[12].

Although the important approach to supply and demand is already mentioned here, this concept has not been developed any further over many years. One problem which philosophers and economists have faced for centuries is the definition and measurement of the value and price of a good. Already Aristotle pointed out in "Nicomachean Ethics" that the relative commensurability of goods had always to be the same if they were to be exchanged, but he did not solve the problem how to measure the correct, the "just", absolute proportion or value of the prices[13]. Now, two different approaches to the solution of the diamond-water paradox should be considered.

4.1. The Smithian Approach

Smith tries to dissolve Law's classical value paradox by first defining some distinctions:

4.1.1. "That early and rude state of a society" vs. "Civilized Country"

Here, Smith distinguishes between a simple state of a society, before both the accumulation of stock and the appropriation of land, in which the price is measured solely by the value of the labour required to produce the good - and a developed society where, to a large extent, price included rent and profit.

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[12] J. Law, *Money and trade considered: with a proposal for supplying the nation with money,* R. & A. Foulis, Glasgow 1750; A. Murphy, *John Law - economic theorist and policy-maker,* Clarendon, Oxford 1997.

[13] S. Meikle, *Aristotle on equality and market exchange,* „The Journal of Hellenic Studies" 1991, vol 111, p. 193–196.

4.1.2. “Market price” vs. “Natural price”

In Book I, Chapter VII, Smith states that there is an average rate of wages, rent and profit in every society or neighbourhood – which means that over a long period of time certain commonly accepted amounts of costs are established and it can be assumed that it would be more or less stable[14]. The result would be the “natural price” that does not have to be the price at which it is commonly sold, the market price. Smith assumes that if the quantity of the supply is equal to the quantity of the demand, then natural price and market price would also be equal. But if demand would exceed supply, a competition would begin among the buyers and the price would rise (and vice versa). Here Smith takes up Law’s idea of supply and demand.

4.1.3. “Labour embodied value” vs. “Labour command value”

In Book I, Chapter V of “The Wealth of Nations“, Smith divides the value of a good in “labour embodied value” and “labour command value”. This thinking, later called "laboratory-theory of value", attempts to explain the value of a good through the time invested in manufacturing. He thus builds a bridge to distinguish between natural price and market price: the labour embodied value is just the amount of work that an individual needs to produce a good in a rude state of society. In a developed society this would be the natural price of the good. Labour command value means the relative value of a good expressed in terms of value of another good which represents the market price, or value in exchange. As sources of the value of a good he identifies in Book I, Chapter VI, labour, land and capital. Smith brings goods-examples in which he describes the aggregation of values from just these three sources. This leaves the labour-theory of value behind and describes what has been widely accepted as cost-of-production theory[15].

4.1.4. “Value in use” vs. “Value in exchange”

In order to describe the discrepancy between utility and market price, Smith first splits the value of a good into its value in use and value in exchange. Accordingly, water has a high value in use but a low value in exchange. Diamonds are the other way around. He wrote:

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[14] A. Smith, *An Inquiry into the Nature and Causes of the Wealth of Nations*, Smith: Wealth of Nations, Book I, Chapters 5-7 | Library of Economics and Liberty, http://www.econlib.org, access date: 29.04.2018.

[15] J. Henry, *Adam Smith and the Theory Of Value: Chapter Six Considered*, „History of Economics Review" 2000, vol 31, no. 1, p. 1–13.

> The word VALUE, it is to be observed, has two different meanings, and sometimes expresses the utility of some particular object, and sometimes the power of purchasing other goods which the possession of that object conveys. The one may be called 'value in use'; the other, 'value in exchange.' The things which have the greatest value in use have frequently little or no value in exchange; and on the contrary, those which have the greatest value in exchange have frequently little or no value in use. 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 (Smith, 1904 [1776], Book 1, chapter IV).

So Smith was able to describe **that** the price of a commodity is increasing with scarcity and high demand, but the question of **why** he could not answer satisfactorily, because in his time, the concept of marginal utility was not yet known. Instead, he started from the total utility and natural value of the good.

4.2. The Austrian Approach

The Austrian School pursued a subjectivist, utility-oriented approach. That is, the value of a good is measured by the existing stock of goods and the individual appreciation of the consumer, which decreases with increasing consumption. The basics of this doctrine were laid by Heinrich Hermann Gossen, whose findings were taken up almost at the same time after his death by William Stanley Jevons, Léon Walras and Carl Menger[16] independently of each other: Gossen's first law states that the benefit diminishes with each additional unit consumed. Thus he justified the idea of marginal utility without, however, using this term. Gossen's second law postulates that a consumer finds his optimum utility when the marginal utility of all goods consumed, divided by their price, is the same[17].

While Walras[18] and Jevons[19] chose a mathematical approach to explaining marginal utility, Menger's approach was of more or less verbal-applied nature. He wrote that the value of a good is not an intrinsic property of it, but a judgment consumers get about it and what exists only in their

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[16] C. Menger, *Grundzüge der Volkswirtschaftslehre*: *Erster Allgemeiner Theil,* Wilhelm Braumüller, Wien 1871.

[17] H. Gossen, *Entwickelung der Gesetze des menschlichen Verkehrs, und der daraus fließenden Regeln für menschliches Handeln,* F. Vieweg, Braunschweig 1854.

[18] L. Walras, *Éléments d'économie politique pure, ou, Théorie de la richesse sociale*, L. Corbaz, Lausanne 1874.

[19] W. Jevons, *The Theory of Political Economy,* Macmillan and Co., London 1871.

consciousness[20]. He concludes that the utility for the consumer grows with each consumed unit of the good - but is getting smaller, until the interest in consumption is saturated. Thus, it can be explained that willingness to pay for a vital asset such as water at near saturation is extremely low, whereas interest in very scarce goods can be extremely high. Eugen von Böhm-Bawerk, Menger's successor on the chair of Political Economy in Vienna, illustrated this thought in his work "Capital and Interest: The positive Theory of Capital":

> A pioneer farmer had five sacks of grain, with no way of selling them or buying more. He had five possible uses — as basic feed for himself, food to build strength, food for his chickens for dietary variation, an ingredient for making whisky and feed for his parrots to amuse him. Then the farmer lost one sack of grain.
> Instead of reducing every activity by a fifth, the farmer simply starved the parrots as they were of less utility than the other four uses, in other words they were on the margin. And it is on the margin, and not with a view to the big picture, that we make economic decisions[21].

Thus he made it clear that not every unit of a consumed good is valued the same. Consequently, he was also able to disprove Marx's labour-theory of value by showing that value does not arise through the addition of labour but through the subjective assessment of the actors in the market[22].

Conclusion

What we have discovered is a living example of trends and counter-movements in the field of economic science. It is an interplay of mathematical and behaviouristic trends – as we now can see the trend of behavioural economics as a counter-movement to the assumptions of a homo oeconomicus.

Adam Smith dealt with the analysis of the development of societies and with the political establishment of the premise of growth. He was of the opinion that wages, rent and profits determine the minimum price of a good and thus form an objective standard of value - with the result that he could not dissolve the value paradox. If he had been right that the price of a good is

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[20] C. Menger, *Grundzüge der Volkswirtschaftslehre*. op. cit., p. 86.
[21] E. Böhm-Bawerk, F. Wieser, *Kapital und Kapitalzins*: *Zweite Abtheilung: Positive Theorie des Kapitales,* Fischer, Jena 1921.
[22] M. von Guttenberg, *The Life and Works of Böhm-Bawerk,* https://mises.org, access date: 29.04.2018.

based on the cost of production, it would be worthwhile for the producers to produce at extra cost. By focusing on the supply side, the price is given and determined exclusively from the **past**. Also scarcity is described by Smith as naturally given.

The Austrian School pursued a Jevon-inspired subjectivist approach. Menger places the customer and his needs in the foreground. Thus, the value would be formed by estimating the individual's **future** utility[23]. The "Austrians" differed from the representatives of the neoclassical school in not adopting their methodological approach to an empirical foundation such as Jevon's or mathematical like Walras, but choosing a rather abstract, deductive-logic approach[24].They made clear that not the amount of invested labour determined the value of a product but the value of a product determined the amount of labour that could be invested. That means that the producer of diamonds knows how much effort he can invest in digging for diamonds because the consumer determines the price on the market.

And this is why Leonardo's painting "Salvator Mundi" can achieve a price of over $450 million: not because of the amount of labour invested in making the wooden plate and the oil colours and painting the picture – but because it's worth it to somebody!

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[23] I. Kirzner, *Austrian Economics*. op. cit., p. 313.

[24] H. Landreth, D. Colander, *History of economic thought*. op. cit.

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Summary
Everyday consumers have to face the question if the value of a good is really worth its price. When in 2017 Leonardo da Vinci's painting "Salvator Mundi" was auctioned off for over $450 million, it nearly could have compensated for the state deficit of Lithuania. Is there a rational justification? In economic history we have an interplay of competing theories – often with

contemporary trends as a counter-movement to established theories. While Adam Smith was not able to solve the value paradox, his – especially Austrian – successors developed theories of marginal utility and put the individual back in focus.

ADAM SMITH I AUSTRIACKA SZKOŁA EKONOMICZNA:PROBLEM DIAMENTÓW I WODY

Streszczenie
Konsumenci zadają sobie często pytanie, czy wartość danego dobra rzeczywiście odpowiada jego cenie. Kiedy w 2017 r. obraz Leonarda da Vinci „Salvator Mundi" został sprzedany na aukcji za ponad $450 mln, kwotę tę porównano do wielkości deficytu budżetowego Litwy. Czy istnieje jakaś racjonalna metoda oceny wartości dóbr? W historii ekonomii występują konkurujące ze sobą teorie, podporządkowane aktualnym trendom jako przeciwwagą dla już znanych teorii. Podczas gdy Adam Smith nie był w stanie uzasadnić paradoksu wartości, jego – zwłaszcza austriaccy – następcy rozwinęli teorię użyteczności krańcowej i uzupełnili tę problematykę o własne odkrycia.