



AMERICAN ASSOCIATION OF WINE ECONOMISTS

AAWE WORKING PAPER

No. 74

Economics

THE ROLE OF VITICULTURE AND
ENOLOGY IN THE DEVELOPMENT OF
ECONOMIC THOUGHT

Stephen Chaikind

December 2010

www.wine-economics.org

The Role of Viticulture and Enology in the Development of Economic Thought: How Wine Contributed to Modern Economic Theory

Stephen Chaikind

Gallaudet University and Johns Hopkins University
schaikind@gallaudet.edu

December 10, 2010

The importance of wine grapes as an agricultural product and of wine as a commodity quickly becomes evident to those reading through the history of economic thought. Well known examples by Adam Smith and David Ricardo come to mind. Yet on closer examination, wine's ubiquitous presence throughout civilized history has served as the basis, catalyst and example in the development of numerous economic concepts. The prominence of wine as a central factor in economic thought pre-dates the modern era and continues to the present day.

This paper introduces the proximity of wine in the development of a broad swatch of economic thought. Rather than proceed chronologically, Adam Smith will serve as an anchor in this search, followed by thoughts on wine economics from his antecedents, contemporaries and those who follow. The focus is on an examination of documented sources that link wine, its viticulture, enology and marketing to economic theories, models, analysis and practice.

Adam Smith and The Vineyard

Typical studies in the history of economic thought begin their coverage in earnest with classical economic ideas, starting with Adam Smith's *An Inquiry into the*

Nature and Causes of the Wealth of Nations.¹ In addition to being considered the first of the modern free-market economists, Adam Smith has also been called the “father of wine economics” (Veseth, 2008). Veseth cites several passages from *The Wealth of Nations* concerning economic theory and wine economics. On the value of the vineyard, he points to Smith’s statement that land used for growing wine grapes attracts the highest rent: “That the vineyard, when properly planted and brought to perfection, was the most valuable part of the farm, seems to have been an undoubted maxim in the ancient agriculture as it is in the modern through all the wine countries” (Smith, 1976, p. 170). Smith cites Lucius Junius Moderatus Columella, as his source for this ‘maxim.’ Columella, a Roman agriculturalist during the first century, “...decides, like a true lover of all curious cultivation, in favour of the vineyard, and endeavours to show, by a comparison of the profit and expence, that it was a most advantageous improvement” (Smith, 1976, p.170, referring to Columella’s *De Re Rustica*, iii, 3). Here, nearly 2000 years ago, is a cost benefit analysis, linking the price of wine to the value of land. In the words of later economists, it is likely that wine was the most valuable commodity produced on the farm, therefore yielding the highest rent. That is, the value of vineyards might be considered price-determined or derived from the relatively higher price of wine (the possible reasons for this pricing is discussed below).

¹ As an introduction to the ideas of classical and subsequent economic methodologies, comprehensive reviews of economic thought usually provide brief background material of economic practice prior to Adam Smith, such as those in the mercantilist and physiocratic schools. A few, notably the *History of Economic Analysis* by Joseph Schumpeter, review ancient and pre-classical economic thought. The role wine played in the development of several of these economic approaches is discussed below.

In tracing the history of the value of land, Columella was not the first to note the value of the vineyard. Marcus Cato (Cato the Elder), in his *De Agri Cultura* (On Farming), written in around 200 BC and what is said to be the oldest surviving work of Latin prose, noted the same. “If you ask me what is the best kind of farm, I should say: a hundred iugera [2/3 of an acre] of land, comprising all sorts of soils, and in a good situation; a vineyard comes first if it produces bountifully wine of a good quality; second, a watered garden; third, an osier-bed; fourth, an oliveyard; fifth, a meadow; sixth, grain land; seventh, a wood lot; eighth, an arbustum [tree plantation]; ninth, a mast grove [feed grain]” (Cato, p. 27). Cato continues later with discussions of the economic calculations needed to profitably manage the farm, wine storage and pricing, and detailed instructions for wine production.

In fact, the precedent for much of modern economic thought might be traced to the ancient Greek and Roman thinkers, as Smith notes, and there is some evidence that wine was the subject of economic analysis even prior to this. For example, Columella cites a Carthaginian (Phoenician) writer named Mago from 350 BC whose works did not survive but were apparently well known to Cato and Columella, and from which economic theory was likely gleaned. Columella notes that his contemporaries should: “...(pay) greatest reverence to the Carthaginian Mago as the father of husbandry, inasmuch as his twenty-eight memorable volumes were translated into the Latin tongue by senatorial decree” (Columella, 1960, p. 35).

Of Prices and Profits

Whether the relatively higher prices for wine, especially quality wine, were the result of demand or supply factors, or both, was left open by Smith who in total did

not say much about the interaction of supply and demand (discussed in greater detail below). Smith noted, though, that (expanding on another Veseth citation):

“The whole quantity of such wines that is brought to market falls short of the effectual demand, or the demand of those who would be willing to pay the whole rent, profit and wages necessary for preparing and bringing them thither...which necessarily raises the price above that of common wine. The difference is greater or less, according as the fashionableness and scarcity of the wine render the competition of the buyers more or less eager. Whatever it be, the greater part of it goes to the rent of the landlord. ... A small part of this high price, therefore, is sufficient to pay the wages of the extraordinary labour bestowed upon their cultivation, and the profits of the extraordinary stock which puts that labour into motion. (Smith, 1976, p. 172)

Here, Smith is tying the relatively higher equilibrium prices for wine, and by derivation the profit of the vineyard, to either limited supply (scarcity) or consumer tastes and income which enable higher demand.

Wine, though, may not have always had above average prices or extraordinary profits or value. Aristotle (384-322 BC), for example, did not indicate that wine led to unusual profits or monetary gains (Aristotle condemned profits). Aristotle’s important contribution to economic analysis is in the use of money in exchange (Landreth & Colander, 2002, pp. 31-32). As Joseph Schumpeter (1954) said in his *History of Economic Analysis*, “Aristotle’s theory of money is a theory in the ordinary sense of the term...and (h)e bequeasted it to the whole line of thinkers that descends from him....And it survived, in spots, until today”² (pp. 63-64). And in

² Note that while it is, in fact, difficult to study the history of civilization without realizing the role wine has played, not all of wine in history has an overtly economic aspect (although many economists can find economic roles to just about anything). As Schumpeter notes in his *History of Economic Analysis* (1994), “...the mere statement of facts that are known to us from common experience is of no scientific importance, unless they become the starting point of an analysis that distills from them more interesting results.” (p. 73, in a footnote with a reference to Varro and Columella) That Noah, for example, whose flood is dated to approximately 2350 BC, planted a vineyard the first thing off the boat after spending 40 days and 40 nights with only his family and a menagerie of animals makes a good story, but it is difficult to say what economic concept can be gleaned from the documentation of

describing the use of money, wine played a role. People, wrote Aristotle, “...who exchange with one another the necessaries of life and nothing more; giving and receiving wine, for example, in exchange for coin, and the like. This sort of barter is not part of the wealth-getting art and is not contrary to nature, but is needed for the satisfaction of men's natural wants” (Aristotle, <http://classics.mit.edu/Aristotle/politics.1.one.html> Part IX). Wine, it seems, was an ordinary part of life.

Interestingly, this thought by Aristotle concerning money and wealth, which he posited in terms of wine, predicts a distinction (and occasionally confusion) between value in use and value in exchange that appear much later in classical and neoclassical economic thought. Karl Marx, for example, echoes Aristotle when he declares that the exchange of goods for use value does not enrich the capitalist, and that money used to facilitate trade between two parties is neutral. Yet goods produced for exchange value would enrich capitalists. This relationship between use and exchange values and prices was not fully resolved by Smith or Ricardo, with their emphasis on total utility; the neo-classical economists and the marginal utility school of thought subsequently helped clarify the link between them.

Even earlier evidence of the economic importance of wine and its price can be found in several of the laws documented in the Code of Hammurabi (circa 1750 BC). Section 108 of the Code, for example, notes that “If a tavern-keeper (feminine) does not accept corn according to gross weight in payment of drink, but takes money, and the price of the drink is less than that of the corn, she shall be convicted

this event in Genesis 9:20-27 (other than the value of a good drink after the ordeal once the vines matured and the grapes fermented). (See McGovern (2003) for discussion of the “Noah Hypothesis.”)

and thrown into the water” (King, n.d.). Wine, at that early date, was being valued at least as much as what a merchant was willing to accept for the wine in some quantity of corn (or grain)³—albeit it is not clear what these quantities were. This is not the only occurrence in the history of economic thought that the value of wine is mentioned along side of the value of grain, another crucial crop in history (as well as one of the determinants of the value of land). It is also interesting to note that the wine merchants referenced in this and other laws were women—who were participating in the labor force long ago.

David Ricardo, Mercantilism and Wine

David Ricardo’s demonstration of the gains from trade resulting from his theory of comparative advantage is well known. He illustrated this by trades of cloth or other merchandise from England for Portuguese wine. England had a comparative advantage in cloth, Portugal in wine, and both gained from trade. Asking the question of why Ricardo chose wine, and why Portuguese wine and not French wine, though, provides unique insights into the role of world events and wine on the development of economic thought.

Clearly, Portuguese wine was on Ricardo’s mind when he wrote *On the Principles of Political Economy and Taxation* in 1817. Ricardo was a staunch supporter, of course, of free trade (as was Smith) and argued for the repeal of the English Corn Laws which placed heavy tariffs on imports. Concurrent with the Corn Laws and the trading environment in England at the time was the virtually prohibitive tax on French wine. As a result, no French wine entered England except for some

³ The term “corn” was used by translators of ancient works as a synonym for the concept of grain or cereal grains, rather than referring to corn as we now know it.

very high priced Grand Crus (which weren't yet called that). John Nye (2002), in *War, Wine and Taxes*, documents the decline in England's importation of French wine due to restrictive economic policies during the late seventeenth through mid-nineteenth century, as well as the growth of Britain's economic synergy with Portugal. Portugal was England's largest wine supplier at the time Ricardo was advocating free trade, but interestingly, he did not advocate for free trade with France by using French wine as his comparative advantage example, but rather Portuguese wine.

At the time Ricardo was writing, and during the centuries leading up to the start of classical economics, England pursued an essentially mercantilist policy. These mercantilist policies were important influences in the development of classical economic thought, especially as seen in Smith and Ricardo (Nye, 2002). Mercantilism, a pre-classical economic concept and another school of thought that was influenced by wine economics, defines the wealth of a nation in terms of the amount of surplus commandeered, entering and remaining in a country. In its pure sense, this involved collecting bullion and other species; in practice it is the growth of wealth through positive balances of trade, established through a nationalistic perspective, protectionism and emphasis on producing exportable goods.

Nye demonstrates the central role wine played in such mercantilist policies, and works by Smith, Ricardo and others emphasized the need for England to move away from such policies. "What is especially interesting," notes Nye (2002), "is the tendency to overlook Smith's remarks on the restrictions on the importation of wine-- which he often used as an example of mercantilism—when discussing the influence

of his work on British 'free trade' in the nineteenth century" (p. 27). Wine was central to Britain's restrictive trade policy because wine was the biggest component of Britain's trade deficit with France, which was a "...major source of concern to the English government and local merchants" (p. 45). Hence, Ricardo's use of Portuguese wine in his example of comparative advantage becomes clear. England, "(a)nxious to find outlets for their manufactures,...took advantage of their privileged position in Portugal to promote bilateral trade agreements that would guarantee a market for English goods and develop substitutes for French imports such as wine or linens" (p. 25).

Wine and the Transition to Neo-Classical and Modern Economic Thought

Wine remains on the minds of economic thinkers as economics transitioned to neo-classical and contemporary ideas. The neo-classical school moved economic analysis into the age of marginal analysis, with Alfred Marshall and Leon Walras often thought of as co-founders of modern economic partial and general equilibrium analysis, respectively. This transition also clarified the simultaneous roles of supply, demand and market equilibriums or disequilibriums in explaining pricing and production decisions. This section notes some interesting roles of wine in this transformation of economic thought. While public access electronic versions of historical and relevant economic works have allowed an efficient means to discover even small links between wine and economic thinking, this search is not exhaustive; rather, it may be considered as an impetus for further contributions.

Karl Marx provides his criticisms of classical economics in *Capital* (among other places). Marx mentions wine in several contexts. In one interesting note, Marx

uses wine as an example of exploitation. In the middle of his dissection of horrid working conditions in factories and the exploitation of labor by capitalists, he takes time out to discuss the adulteration of bread and other products, including wine. These are, according to Marx, further examples of unregulated exploitation or manipulation by capitalists. In a footnote, he notes that “The French chemist, Chevallier, in his treatise on the ‘sophistications’ of commodities, enumerates [many]... different methods of adulteration [used in production]. He adds that he does not know all the methods, and does not mention all that he knows. He gives 6 kinds of adulteration of sugar, 9 of olive oil, 10 of butter, 12 of salt, 19 of milk, 20 of bread, 23 of brandy, 24 of meal, 28 of chocolate, 30 of wine, 32 of coffee, etc” (Marx, 1967, p. 249, fn. 1, emphasis added). It may be said that similar ideas are still to be resolved in current-day wine economics, as questions about the manipulation of wine, flying consultants, and big business’ winery ownership and quests for profits continue, as noted in Mondovino and other works stressing the disconnect between new versus old world perspectives.

In another instance, discussing the conversion of surplus value into capital through abstinence, Marx (1967) notes “If the corn is not all eaten, but part of it is also sown-- abstinence of the capitalist. If the wine gets time to mature—abstinence of the capitalist” (p. 597). Marx is riling against savings (as profits) as necessary for investment and seems to disagree that aging wine is a necessary step in the production process for a finished, quality wine (there is no mention of what wine Marx was drinking). Marx continues by citing George Scrope, an English political economist in 1841, “No one...will sow his wheat, for instance, and allow it to remain

a twelve-month in the ground, or leave his wine in a cellar for years, instead of consuming these things or their equivalent at once...unless he expects to acquire additional value, etc" (p. 597, fn 2).

John Stuart Mill, whose ideas might be viewed as a bridge between Alfred Marshall and Leon Walras, had an especially interesting distinction between short-run and long-run supply relevant to wine economics.⁴ For wine, at least in the short run, Mills notes that, "The difficulty of attainment which determines value, is not always the same kind of difficulty. It sometimes consists in an absolute limitation of the supply. There are things of which it is physically impossible to increase the quantity beyond certain narrow limits. Such are those wines which can be grown only in peculiar circumstances of soil, climate, and exposure" (Mill, 1965, p. 464). This fixed, or totally inelastic supply, he goes on to explain, has a price determined by the interaction of demand with this inelastic supply—or, put differently, by demand increasing or decreasing along a fixed vertical supply line with a corresponding increase or decrease in price. Mills further expands, and maybe hedges a bit, on this idea:

"Again, though there are few commodities which are at all times and for ever unsusceptible of increase of supply, any commodity whatever may be temporarily so; and with some commodities this is habitually the case. Agricultural produce, for example, cannot be increased in quantity before the next harvest; the quantity of corn already existing in the world, is all that can be had for sometimes a year to come. During that interval, corn is practically assimilated to things of which the quantity cannot be increased. In the case of

⁴ Landreth and Colander (2002) note that Mills had a fully developed theory of supply, demand and partial equilibrium analysis in his *Principles of Political Economy*; even though he did not show this well graphically or mathematically. "Though he (Mills) did not explicitly formulate supply-and-demand schedules, his value theory clearly reflects a recognition that the quantities demanded and supplied are a function of price....(and) we may present his theory of long-run prices in the familiar Marshallian form without doing an injustice to either Marshall or Mill" (p. 177). A good crosswalk between Mill's descriptive rendering of supply and demand functions to those of Marshall's graphical analysis is shown by Landreth and Colander as well.

most commodities, it requires a certain time to increase their quantity; and if the demand increases, then until a corresponding supply can be brought forward, that is, until the supply can accommodate itself to the demand, the value will so rise as to accommodate the demand to the supply.” (Mill, 1965, p.469)

It appears that in the latter part of this statement, “...until the supply can accommodate itself to the demand...,” Mills may be qualifying a totally inelastic supply, saying that wine may over the longer period have a bit more elasticity, or at least shift (vertically) to the right.

Alfred Marshall has little to say about wine. However, in one rare mention of wine, he surmises that wine, at least expensive wine, exhibits high elasticity of demand. “The current prices of such things as rare wines, fruit out of season, highly skilled medical and legal assistance,” he states, “are so high that there is but little demand for them except from the rich: but what demand there is, often has considerable elasticity” (Marshall, 1920, p. 106). This might be the first mention of what the price elasticity of demand for wine at various price levels is—a topic of current wine economics research (and marketing).

Leon Walras, whom Schumpeter called “...so far as pure theory is concerned,...the greatest of all economists” (p. 827), has an interesting example of the way wine may affect an analysis of equilibrium, both partial and general. He notes an imaginary conversation between a critic of his mathematical and graphic methodology and himself with this passage:

”Some critics, however, poke fun at the number of pages I use in proving that the price must rise when demand exceeds offer [supply], and fall in the contrary case, if the current price is to be reached.—“And you,” I once said to such a critic, “how would you prove it?” “Well,” he replied, a little surprised and even somewhat embarrassed, “does it need to be proved? It seems to me to be self-evident.” “Nothing is self-evident except axioms and this is not

an axiom. But you have in mind, I suppose, the reasoning which Jervons formulated so clearly in his little treatise on *Political Economy*, that a rise in price which necessarily decreases demand and increases offer, brings about equality between the two in case the demand is greater than the offer....” “Precisely.” “But there is an error here. A rise in price necessarily diminishes the demand but it does not necessarily augment the offer. If you are selling wine, it may well be that you will offer less at a million francs a cask than at a thousand, and still less at a milliard than a million, simply because you would prefer to drink the wine yourself rather than consume the superfluous things you could procure by selling more than a certain amount of your wine” (Walras, 1954, p. 470).

Here is an illustration of the emerging distinction between changes in quantities supplied and demand, and changes in (shifts of) supply and/or demand, while noting that there are other products that may enter into a more general equilibrium solution.

The Current and Future Role of Wine in Economic Theory and Practice

In the development of economic thought, wine was there in the beginning. What is interesting is that as the reach of economic theory grew, and as modern economies and production expanded and became more complex, wine appears to be cited relatively less frequently as a cornerstone for economic thought. For example, it is surprising that there is no mention of wine in Thorstein Veblen’s *The Theory of the Leisure Class*, given his emphasis on conspicuous consumption and a wealthy leisure class. It may be that Veblen was writing during the depth of the phylloxera period when aspects of wine were not what they might have once been or subsequently became after that plague became controlled. Or certain wines, going back to the assumption of Aristotle, did not have conspicuous consumption attributes until more recently; wine formerly was for drinking and not for show.

As new and more recent economic concepts become increasingly specialized and further grounded in mathematics and modeling, however, wine’s usefulness in

demonstrating economic concepts also may be rebounding with the growth of wine economics as an emerging discipline. Just as wine played a part in developing modern economic theory, it continues to serve as one of the more applied forms of economic analysis. No other good can come close to the diverse range of applications as can wine, whether it be as an agricultural good, an investment good, a cornerstone of international trade, a contributor to price theory, or as a form of investment in human capital.

It is likely that wine will play a role in the observation and analysis of current and future economic pedagogies, just as it has in the development of economic ideas over time. Emerging trends in China, for example, one of the world's fastest growing economies, have led some economists to label China's currency, trade and other economic policies as a form of modern mercantilism (Krugman, 2009). China also had the world's fifth greatest number of acres of grape vines under cultivation for 2008, the last year data are available (Trade Data and Analysis, 2009, p. 20), and has the fifth largest share of the world market among wine producing countries for the same year (Trade Data and Analysis, 2009, p.16). It is likely, given these data, that new economic paradigms might be developed as a result of China's emergence onto the world's economic scene, perhaps a new form of mercantilism or some other model, will include the role of wine. Or, as another example, there is speculation that the growth of a new and large *nouveau riche* class of consumers in developing economies such as Russia, India, China and elsewhere are disproportionately driving up the price of the most prestigious wine labels in world markets. Could this be the time for renewed interest in or proposals for a new look at

the economics of conspicuous consumption? Further research into the past and continuing expansion of economic thought will likely strengthen the central role of wine as an important factor in the development of these and other ideas.

References

- Aristotle. (350 BC). *Politics*. Retrieved November 28, 2010, from The Internet Classics Archive: <http://classics.mit.edu/Aristotle/politics.1.one.html>
- Cato, M. P. (1913). *De agri cultura (English)*, in Roman Farm Management; The Treatises of Cato and Varro, by A Virginia Farmer. New York: The Macmillan Company. Retrieved November 28, 2010, from http://books.google.com/books?id=LUIAAAAIAAJ&printsec=frontcover&cd=1&source=gbv_ViewAPI#v=onepage&q&f=false
- Columella, L. J. (1960). *On Agriculture*. (H. B. Ash, Trans.) Cambridge: Harvard University Press.
- King, L. W. (Trans.). (n.d.) *Hammurabi's Code of Laws*. Retrieved November 30, 2010, from Exploring Ancient World Cultures: <http://eawc.evansville.edu/anthology/hammurabi.htm>
- Krugman, P. (2009, December 31). *Chinese New Year*. Retrieved November 24, 2010, from The New York Times: <http://www.nytimes.com/2010/01/01/opinion/01krugman.html?pagewanted=print>
- Landreth, H., & Colander, D. C. (2002). *History of Economic Thought* (4th ed.). Boston: Houghton Mifflin Company.
- Marshall, A. (1920). *Principles of Economics* (8th ed.). London: Macmillan and Company.
- Marx, K. (1967). *Capital: A Critique of Political Economy, Volume I*. (F. Engels, Ed.) New York: International Publishers Co.
- McGovern, P. E. (2003). *Ancient Wine: The Search For the Origins of Viniculture*. Princeton, New Jersey: Princeton University Press.
- Mill, J. S. (1965). *Principles of Political Economy: With Some of Their Applications to Social Philosophy*. (J. M. Robson, Ed.) London: University of Toronto Press.
- Nye, J. V. (2003, March 3). *The Myth of Free-Trade Britain*. Retrieved September 28, 2010, from Library of Economics and Liberty: <http://www.econlib.org/library/Columns/y2003/Nyefreetrade.html>.
- Nye, J. V. (2007). *War, Wine, and Taxes: The Political Economy of Anglo-French Trade, 1689-1900*. Princeton: Princeton University Press.
- Pellechia, T. (2006). *Wine: The 8,000 Year-Old Story of the Wine Trade*. New York: Thunder's Mouth Press.

Ricardo, D. (1821). *On the Principles of Political Economy and Taxation*, 3rd Edition. Retrieved September 23, 2010, from Library of Economics and Liberty: <http://www.econlib.org/library/Ricardo/ricP.html>.

Schumpeter, J. A. (1954). *History of Economic Analysis* (Vol. With a New Introduction by Mark Perlman). New York: Oxford University Press.

Smith, A. (1981). *An Inquiry into the Nature and Causes of the Wealth of Nations* (Vol. I & II). (R. H. Campbell, & A. S. Skinner, Eds.) Indianapolis, Indiana: Liberty Fund, Inc.

Trade Data and Analysis. (2009). *World Vineyard, Grape and Wine Report 2008*. Retrieved October 7, 2010, from <http://www.calwinexport.com/files/Vineyard%20Grape%20Report%202008.pdf>

Veseth, M. (2008, April 1). *The Father of [Wine] Economics?* Retrieved September 23, 2010, from The Wine Economist: <http://wineeconomist.com/2008/04/01/the-father-of-wine-economics>.

Veblen, T. (1912). *The Theory of the Leisure Class: An Economic Study of Institutions*. Retrieved November 30, 2010, from http://books.google.com/books?id=t7QJAAAIAAJ&printsec=frontcover&source=gbs_ge_summary_r&cad=0#v=onepage&q&f=false

Walras, L. (1954). *Elements of Pure Economics: The Theory of Social Welfare*. (W. Jaffe, Trans.) Homewood, IL: Richard D. Irwin.