Cameron M Weber
New School for Social Research

cameron_weber@hotmail.com
cameroneconomics.com

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Essay on Duality in Economics

Economics as it stands today started with political economy which started with philosophy (which started with art). With that as a precursor I begin this essay. In philosophy there is a concept known as dualism; the irresolvable gap between appearance and reality. In Descartes this dualism is between mind and matter, in Hume, fact and value, and in Kant the transcendental and the empirical.

In economics too we have dualism, or, duality. One could say that this economic duality is, “we want the most but can’t have it”. However unlike dualism in philosophy, duality in economics is resolvable due to the assumptions made in economics which attempt to make it a “predictive science” (economic assumptions and predictive powers are matters under debate and beyond the scope of this essay). The duality of resource constraint is found in both classical and neo-classical economics.

Classical economics is a deep and on-going field of study so in this short essay I will no doubt oversimplify; however, it is safe to say that in classical economics duality is manifested in the wage-profit trade-off. Classical economics assumes a commodity economy and that there are long-period values (natural prices) for commodities around which market prices gravitate. Any production above reproduction of the means of production (which sometimes is assumed, under strict Malthusian social systems, to mean a subsistence wage for workers) is called the social surplus. This surplus then is divided between the owners of the means of production, e.g., between the workers who contribute their labor and the capitalists who contribute capital.

Because there is just one amount of social surplus at any given time, duality means that this limited pie is divided between, in Sraffian terms, the "distributive variables", r (profits) and w (wages). The duality is such that the larger the wage, the less the profit, and vice-versa. And in fact, in Sraffian (post-classical, if you will) economics, when the wage is 0 (zero) profit is at its highest and when the profit is 0 (zero) the wage is at its highest. This wage-profit trade-off is the duality in classical economics.

In the von Neumann growth model (a "Sraffian" model, if you will) we find the classical duality manifested in the growth-consumption trade-off. This notion is that growth is at its maximum when consumption is at a minimum. In other words, growth is at a maximum when the social surplus is all put back into production. This implies as well that the maximum profit rate too is when consumption is at a minimum; the classical duality between consumption and growth, profit and wage. (Note in certain ways this is philosophical in its duality between pleasure now or pleasure later, or a mind-body duality).

The neo-classical economists rejected the idea of a natural price and assumed that economic decisions are made at the margins by consumers and producers who are maximizing the return (utility) to, now explicitly denoted, scarce resources. It is the market (and subjective utility) which determines value and prices, not a commodity-based value schema (oftentimes the labor embodied in a commodity) as was/is assumed by classical economists. So the duality in neoclassical economics can be found both in consumer and producer behavior:

1) Consumers want to maximize their utility (utility often assumed to be the consumption of a bundle of goods) subject to resource constraints (endowments, or, the material possessions of the consumer) and prices of the goods they wish to consume. Or, to maximize consumption while minimizing cost.
2) Producers want to maximize profits based on the demand for their product and subject to the costs (prices) of the goods used in production. Or, to maximize output while minimizing cost.

Another way to look at neoclassical duality is that Production Theory is about cost minimization and Consumer Theory is about utility maximization, both subject to the price constraints of goods.

Or, more technically, in Production Theory, producers, when using the production function, want to maximize the objective function, and when using the cost function, want to minimize the objective function. Consumers, when using the utility function want to maximize the objective function, but when using the expenditure function want to minimize the objective function. Both sets of problems have the same technical properties; this is the neoclassical economics duality.

So in summary yes, I would posit that the existence of simultaneous dualities means that indeed classical and neo-classical economics are unified. Duality means a tension or trade-off or dichotomy between two things. The fact that duality appears in both classical and neo-classical economics means that indeed both schools of thought are unified (and in fact there is a duality between the schools, but this duality is beyond the scope of the present essay).

In economics, in general, despite competing "schools", duality is the study of resource allocation under constraint.