

CHAPTER TWO

THE MICROFOUNDATIONS OF CREATIVITY: AN ECONOMICS PERSPECTIVE

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Abstract

The study of creativity in economics has often been limited to macro questions involving such concepts as long term industrial growth, national innovation systems, and the ‘creative class.’ While not explicitly acknowledged, however, many microeconomic principles hold a direct connection to the study—and at times very unique understanding—of human creativity. The principle of diminishing marginal utility, for example, a centerpiece of modern consumer theory, suggests that the value placed on new, original goods and services (and decreasing satisfaction with the trite and ordinary) springs from innate consumer preference as much as producer ability (in other words, the act of creativity is likely driven by both demand and supply considerations). Hence, though the concept of creativity has been dominated by interpretations drawn from the field of psychology, we argue that economics too has something useful and interesting to offer to a more complete understanding of individual creativity. Among other implications, the teaching of microeconomics in terms of its many connections to creativity may provide one potential means to further augment its study and understanding in new and original ways within business curricula.

The Microfoundations of Creativity

While the study of creativity has taken root and flourished in psychology in recent decades, it remains a topic relatively untouched in the field of economics. Though there are likely a number of reasons for this seeming disinterest, at least one factor seems worthy of mention here: economics has heretofore lacked the call for research into creative studies offered by J. P. Guilford decades ago. Indeed, since Guilford’s historic request in 1950, the domain of psychology has dominated contributions to modern understandings of creativity. The result is striking: while volumes of psychological research have since appeared on topics ranging from individual creative behavior to the particular environmental conditions conducive to creative output, most micro-

economics textbooks today do not even include an index entry for the term creativity.

The discussion of firm innovation within microeconomics, for example, is usually relegated to the back of most micro texts under the topic of imperfect competition, and makes scant reference to individual creativity as a productive force. Indeed, the direct study of creativity in economics, when it occurs at all, has often been limited to macroeconomic questions involving big-picture interests such as long term industrial growth, national innovation systems, and the creative class—all very important factors, no doubt, but all factors that fall neatly into Rhodes's structural notion of 'press' (1961). In short, the field of economics, we believe, currently lacks an understanding of what we term the *microfoundations of creativity*, that is, understandings of creativity that connect to the central building blocks of modern microeconomics—specifically, the individual agents of production (the firm) and consumption (the consumer).

Interestingly, a number of theorists in the field of psychology have attempted to fill the theoretical void left by economics in contemporary creative studies, introducing ideas and analogies from the material world to better understand such key topics as incentives and the value of novel output. For instance, Sternberg and Lubart (1995) suggest in their Investment Theory that creative thinkers behave like investors—they 'buy low and sell high,' investing resources (time, labor, etc.) in new and unique ideas until such ideas achieve social acceptance. Likewise, Amabile (1983) suggests that incentives are often an effective condition of individual creative output, but are intrinsic, going beyond simple material (or, one might even say, economic) reward, a belief today popularized by Daniel Pink (2009) and others.

Indeed, the dominant definition today offered by psychology to understand what creativity *is*—an ability to generate novel output that has value (Sarkar & Chakrabarti, 2011)—includes as its underlying basis, two concepts (novel output and value) that are central to the science of modern microeconomics. If nothing else, then, current studies and conceptualizations of creativity strongly suggest a role for microeconomics as a potential theoretical tool for: (1) developing a more comprehensive understanding of creativity at the level of the individual creator; and (2) better understanding the vital role played by individual consumer in securing creative activity and value. In short, we believe there is hope yet for the dismal science—and, to boot, a chance to push the study of creativity in new and interesting directions given a liberal application of modern economics.

Our purpose with this chapter, then, is to provide an initial foray into the field of creativity using the tools of modern microeconomics, and in so doing, suggest a new call for creativity research in economics similar to that put forth by Guilford in psychology decades ago. Fortunately, we believe the path ahead may not be so daunting for those intrepid souls in economics willing to forge forward into the dark, foreboding forests of creativity.

For starters, it is interesting to note that a number of central figures in the

history of microeconomic thought, from Adam Smith and Alfredo Pareto to Thorstein Veblen and Ayn Rand, held great interest in the creative act, viewing creativity as a constituent element of economic activity and development. And while not often explicitly acknowledged, many central principles in microeconomics, we argue, hold a direct connection to the study--and at times very unique understanding--of human creativity. Among other implications, we believe the teaching of microeconomics in terms of its many connections to creativity may provide a powerful way to further augment its study and understanding within both general studies and business curricula.

We are also careful to note that an adequate contribution from economics to new understandings of creativity will likely depend on input from multiple sources and perspectives, including schools of behavioral, experimental, institutional, libertarian, marxian, and evolutionary economic thought. Nevertheless, we couch the following discussion primarily within the structure and language of neoclassical economics, as it remains the most widespread theory of the microeconomy taught today at undergraduate and graduate levels.

The Basic Creativity Equation: Creativity = Novel Output + Value

One of the dominant definitions of creativity today emerging from the field of psychology is the ability to generate novel output that has value (e.g., Sternberg, 1999). Included in this definition are two concepts, output and value, that are central to the science of modern microeconomics. While the act of production (creation) by the individual producer and resultant output provides a somewhat obvious connection to an understanding of creativity, we believe the notion of value developed within microeconomics also holds great promise to shed new light on creative activity, especially as it relates to the act of consumption. We therefore focus our attention, in turn, on each of these underlying concepts of creativity—novel output and value. In our analysis, we also make note of the central roles played by incentives and market competition in shaping creative action and output on the part of individual agents.

The Microeconomics of Novel Output

One of the main conclusions of modern microeconomics is that all producers, even if driven by their own inherent interests, must respond to the needs of consumers within the marketplace, a notion often referred to as consumer sovereignty. While consumer sovereignty might seem to lend itself to novel outcomes of invention and innovation (consider such common idioms as “necessity is the mother of invention”), the opposite is actually true within most microeconomic models of perfect (or pure) competition. In microeco-

nomics, a market is defined to be perfectly competitive if, among other conditions, it is marked by numerous producers, each of which creates the exact same type of (homogeneous) output. As the requirement of homogenous output surprises many people, its inclusion as a condition of perfect competition demands a bit of explanation.

Within neoclassical models of perfect competition, numerous firms compete with one another, each attempting to respond to consumer need. As each of these firms within a particular market produces an identical form of output, the optimal end result for consumers is the lowest possible output price (since, given a standardized product, no one producer is able to charge consumers more than the equilibrium price set by the overall market supply). If firms were to innovate in the form of product differentiation or variation, such innovation would provide them with a temporary (and unfortunate, from this perspective) monopoly position in the marketplace, hence raising price above its perfectly competitive equilibrium, much to the detriment of consumers. In essence, according to models of pure competition, the trade-off for the consumer benefit of optimal price within competitive markets is limited variation (that is, standardized, non-differentiated output). In still other words, pure competition and resultant price optimality are driven by firm imitation, not product innovation.

We note, then, the impact of perfect competition on the production of novel output—according to microeconomics, the two are mutually exclusive. Perfectly competitive markets may be good at some things, like ensuring that price just covers average costs within an industry, but they are seemingly very poor at others—like securing novel forms of output. This conclusion is striking—economics has celebrated perfect competition for hundreds of years as the optimal market for satisfying consumer need. Yet the very market structure that guarantees optimal price outcomes is seemingly incapable of promoting creative outcomes and the production of novel output—and may in fact stifle creativity, if we are to believe current microeconomic models.

How then *might* original and novel output appear within markets? For appear it most certainly *has*, indeed throughout the history of the development and evolution of market economies. To answer this question, modern microeconomics relies on the notion of imperfect markets, including monopoly (a market composed of one producer), oligopoly (a market composed of a few producers), and monopolistic competition (a market composed of a unique combination of elements defining both monopoly and pure competition).

Though each of these imperfect market structures influences the production of novel output, for our purposes, we focus now solely on monopolistic competition—a market structure defined by numerous firms, each of which competes based on *differentiated* products. Unlike perfect competition, producers within monopolistic competition realize competitive advantage based on new, different, and original output. Such differentiated output allows the

innovating producer to realize temporary monopoly prices (hence economic profit), as no competitors yet exist within the market to push price down to average production cost. Though price is no longer economically efficient within this market structure (as price remains above average costs given imperfect competition), consumers seemingly benefit from a more diverse and differentiated set of goods and services.

With this insight, we now introduce an example of how microeconomics can contribute immediately to new understandings of value based on the novelty of output and a more nuanced means to illustrate consumer benefit. Within monopolistic competition, the higher output price paid by consumers is offset by the greater utility of differentiated products (we will speak more about this economic benefit below in our further discussion of value). In other words, consumers willingly pay for the novelty generated within monopolistic competition.

The value placed on this novelty by consumers may be found by analyzing the price differential established between two otherwise identical product markets, one defined by perfect competition and one by monopolistic competition. That is, the higher market prices found within monopolistic competition are indicative not of economic inefficiency, but rather the price premium consumers are willing to pay for novel output. Given this logic, monopolistic competition need not lead to any loss in consumer benefit even given higher relative prices, which we might in fact expect in the case of perfect competition.

Current models of imperfect competition also reveal something important about how microeconomics views incentives and creative behavior. What drives firms to innovate within market structures defined by monopolistic competition? According to microeconomics, the answer is the firm's desire for economic profit and competitive market advantage. That is, individual firms are motivated to create novel and unique products based on the desire for monetary gain. Further, according to this model of production, the social act of competition spurs monopolistic competitors to innovate, illustrating the positive impact of market competition on creative behavior.

One might consider this result to be hardly surprising. The basis of modern neoclassical economics is *homo economicus*, that is, the human individual defined (and driven) by self-interest qua economic gain. The desire and search for wealth, according to this view, is not only the engine of economic activity within markets defined by monopolistic competition, it also helps drive the generation of novel output and creative action on the part of the individual firm (and would be referred to as extrinsic motivation in psychology, in contradiction to the intrinsic motivation discussed by Amabile and Pink).

Indeed, this is exactly the argument developed by Joseph Schumpeter with his notion of *creative destruction*. As is well known in the fields of business and economics, Schumpeter argues that firms are driven to innovate based on the modern realities of achieving revenue. In other words, profit-

ability today requires that firms ceaselessly innovate, lest they cease to exist as innovators (and firms). According to this view, long-run economic profit is the main motivator of original and unique output, and is itself secured by the competitive environmental structure within which the firm operates. Creativity in this view has a dual nature, driven by both the desire of the firm for individual gain and the competitive structural environment within which the firm is forced to operate.

This notion of creativity also appears in very recent understandings of innovation such as that found in Clayton Christensen's (1997) concept of the *innovator's dilemma*. Christensen argues that innovative firms, once they achieve market dominance, often become passive, and increasingly wary of innovation, as they view the continuing pursuit of differentiation as potentially threatening to their current market standing. Christensen argues that such market-leading firms often believe they are doing well enough—so why rock the boat with risky actions like additional product novelty that might only serve to undermine their current position at the top of the market? Yet that very decision to shun further differentiation paradoxically leaves the door open for nascent (and willing) innovators to disrupt the market and steal market share from below.

Yet, we must note again that, according to existing microeconomic models, producer self-interest (profit seeking) is just as likely to generate a market structure of perfect competition (or, for that matter, monopoly) as monopolistic competition. Further, we must explain why imperfect competition seems to promote the creative behavior of the firm, whereas perfect competition does not (we also see how the descriptors of 'perfect' and 'imperfect' may themselves require a bit of tinkering, for if 'imperfect' competition better promotes creativity, it may not be so bad after all...). In short, why are some markets defined by product differentiation and innovation while others are not?

We believe this is a question that requires much more research within microeconomics, including study into the often overlooked role of the consumer in securing creative activity on the part of the firm, about which we will soon comment. In terms of the individual firm and supply considerations, however, we propose that an initial answer to this riddle may rest on how microeconomics now defines self-interest and its connection to monetary gain. We believe that in markets defined by monopolistic competition the drive for monetary gain may be as much a *consequence* of the creative drive as an underlying *cause*. An individual creator's desire to satisfy consumer need requires scarce economic resources.

We surmise then that the human drive and need to be creative—and to creatively satisfy human need—is likely an underlying condition of the accumulation and transformation of resources within market structures like monopolistic competition, not vice-versa. Make no mistake—the motivation here remains extrinsic, as the economic creator is driven to satisfy external consumer need (consider the professional musician or the open-source software

programmer), yet this external drive stems not from the desire for expanded monetary value, but rather the expansion of consumer satisfaction. We tend to think Adam Smith would agree.

This view of human nature qua “need to create” is captured by apt phrase *homo faber* (“man the creator”) and has been touched on by Thorstein Veblen and Ayn Rand within the institutionalist and libertarian schools of economic thought. Marx (1976, 284) as well offers a tantalizing understanding of this notion of individual creativity when he famously comments on the modus operandi of productive activity: “A spider conducts operations that resemble those of a weaver, and a bee puts to shame many an architect in the construction of her cells. But what distinguishes the worst architect from the best of bees is this, that the architect raises his structure in imagination before he erects it in reality.” Also on this unique human drive, Henri Bergson made note in *Creative Evolution* (1911) of the inherent human ability to “create artificial objects... and to indefinitely variate its makings.”

This reconceptualization of self-interest also helps explain an interesting fact in highly innovative industries, especially within the startup world, concerning entrepreneurial drive and motivation. According to most innovative entrepreneurs, their motivation is not about financial gain. It’s rather about making “a dent in the universe,” as Steve Jobs put the matter (talk about extrinsic motivation!), and who later added, “I never did it for the money” (Beahm, 2011). Bell, Edison, Tesla, and countless other of history’s greatest entrepreneurs would almost certainly say the same. At least in the case of monopolistic competition, monetary gain is very likely an approximating measure of the creation and realization of social value, the latter of which is the true driver of the creator.

This unique understanding of human nature requires much greater theorization and development in microeconomics, as it remains a central, unifying theoretical concept within the discipline, a necessary consideration for understanding the conditions necessary for the promotion of economic development, and remains an important concern in modern understandings of creativity. Indeed, a more complete understanding of the microfoundations of creativity likely involves breaking down the black box of the profit-maximizing firm and exploring the actual individuals, *homo fabers* one and all, creating therein.

It also likely requires a reconceptualization of capitalism and market-based economic systems—rather than viewing capitalism as a collection of self-interested individuals bent on monetary gain, we believe it is much more accurate to view capitalism, at least those segments marked by monopolistic competition, as an economic system defined by a collection of individuals driven by the creation of new and novel material solutions in response to society’s unmet consumer needs.

The Microeconomics of Value

The concept of value holds a long and somewhat tortured history in economics. Following the breakdown of the medieval period and rise of capitalism, early economists (today often referred to as bullionists) often attributed value, worth, and overall wealth to precious metals and minerals (e.g., gold, silver, diamonds, etc.). An important critique of this early view was levied by the classical school, led by Adam Smith and David Hume (as well as many others). Smith's diamond-water paradox (or paradox of value) is illuminating in how it recalibrates questions dealing with value and wealth during this time. Smith noted that many items of small monetary value held great worth in terms of their usefulness (water and air, for example).

Items of great monetary value often held very little worth in terms of actual usefulness (a diamond ring worn simply for display, for example). With this discussion, Smith introduced into economics (or rather re-introduced, given Aristotle's original discussion of the topic thousands of years earlier) a distinction between exchange-value (what a good or service is worth relative to other items during the process of exchange) and use-value (what a good is worth in terms of its usefulness in satisfying some human need).

Smith resolved the value paradox, at least in his view, by suggesting that value and wealth are determined not by precious metals *per se*, but in large measure by the human effort and resources required for their creation. The greater the effort any form of output requires, the greater its cost, and therefore its social value (since scarce resources, including human ability, were expended in its creation). Moreover, Smith argued, human effort, in order to create value and wealth, must be directed toward satisfying some human desire or need. In other words, the product of human labor, to be of some quantifiable value, must be useful to some consumer somewhere. And herein, Smith explained, doth lie the true explanation of value and its measure—value in economics acts as an indicator of the usefulness of products created by human effort, reflecting the requisite use and transformation of scarce resources, nothing more, nothing less.

This notion is worth exploring in greater detail, as psychology has placed a great amount thought on (and realized important insights about) the concept of value (see especially Vartanian et al., 2013)—a concept that many economists might view as one rightfully belonging to their realm of study. As psychology began to ponder the notion of value in relation to creativity, Thurstone (1952) argued that society's decision about whether or not an idea or product is novel really makes very little difference in the matter. Rather, an act is creative, and therefore of value, if the *original creator* believes in its originality (that is, the end work is novel in the creator's eyes). Stein (1953), in stark contrast, suggested that creativity and resultant value required that the creator's work be accepted as "useful or satisfying by a group in time." Contemporary theorists in psychology tend toward the latter be-

lief. Sarkar and Chakrabarti (2011), for instance, argue that “to assess the creativity of designers or creativeness of newly designed products, one must be able to assess the novelty and usefulness of these products, where usefulness represents the value of products.”

From the perspective of microeconomics, value arises in society for two reasons: (1) a desired product or service requires scarce resources for its creation (including human effort or labor); (2) a desired product or service satisfies an unmet need, providing utility to the consumer. We can refer to the former factor as supply and the latter as demand; together, these forces forge value based on the balance of product cost and consumer utility. Indeed, from the perspective of neoclassical economics, market price is little more than a measure of value, hence utility, as it acts as a proxy for the consumer’s willingness to pay for a good or service (and, one might add, the willingness of the creator to produce it).

Yet our story of value in microeconomics is still not complete. In the late 1800s, the marginalist school of economics dramatically expanded on this idea of utility and value. The marginalists argued that as an individual consumes more of any good, the additional satisfaction or utility realized from each added unit of consumption *falls*. In more common language, as a product becomes more common, it loses its value in the eyes of consumers—they grow tired and sick of it, valuing it less and less, as more units are consumed.

This basic understanding of consumer utility, today referred to as the principle of diminishing marginal utility (DMU), is a centerpiece of modern consumer theory. DMU suggests that the value placed on new, original goods and services (and decreasing satisfaction with the trite and ordinary) springs from innate consumer preference, and seems to describe how consumers value all varieties of products, from musical creations to clothing styles. Consumers seem to naturally place greater value on (that is, they show greater preference for) the unique, the original, and the rare creation. From this perspective, the act of creativity is likely secured by important demand considerations that have been so far neglected in contemporary studies of creativity.

The consumer’s contribution to determining value based on originality is further demonstrated by the concept of elasticity in microeconomics. A good or service is considered elastic if, given a change in price, the quantity demanded by consumers changes *more* in percentage terms than the initial price change. In other words, consumers are generally not willing to pay the higher price in the case of elastic demand, responding to the price increase by decreasing their consumption in relatively greater terms, causing a fall in overall revenue for the firm.

In the case of inelastic goods, however, an increase in price does not have the same effect on consumers. The overall quantity demanded still falls given an increase in price, yes, but the change in demand in percentage terms is *less* than the initial change in price. That is, in the case of inelastic goods or services, an increase in price is followed a proportionally *lower* fall in quantity

demanded, as consumer drop-off is not so great. Total revenue for the producer therefore rises for the firm fortunate enough to produce goods marked by inelastic demand.

What then determines a product's elasticity? Primarily, it is the existence of similar or substitute goods (or lack thereof), that is, goods that consumers are willing to purchase in place of the product or service whose price has risen. In other words, price elasticity of demand is determined in large part by a product's uniqueness, which helps explain the price premium (and resultant revenue) that innovators receive for their novel output. In short, innovators are able to realize higher prices compared to non-innovators given that consumers are willing to pay relatively more for the innovator's unique output.

In conjunction with monopolistic competition, as discussed earlier, we can understand why innovative firms not only introduce novel products, but also why advertising tries to convince the consumer that such products are indeed "new and improved." Not only do originators and iconoclasts create products for which there are few substitutes, they tap into our innate desire for difference, variation, and divergent output.

The implications of this principle for human creativity are interesting to consider. Without the demand for the new, the novel, and the unique on the part of consumers, producers would have no market for their novel creations. Such a conclusion suggests that *consumer demand* is as much a driver (and underlying condition) of creativity as *firm supply*, and deserves an equal allotment of future research in microeconomics as the study of producer abilities, motivations, and behaviors.

This view of individual consumption as a possible microfoundation of creativity is also interesting as it is likely at odds with a number of current understandings of novelty and originality in psychology. To see why, we might describe this consumer-based explanation of creativity as a "demand-side" understanding in contrast to existing "supply-side" understandings. That is, whereas supply-side understandings of creativity often reduce the creative act to Rhodes's four Ps--the creative personality, the creative process, the creative product, and the creative press (environmental factors affecting the individual creator)—a demand-side understanding of creativity allow for no such reduction.

Further, within many such supply-side understandings, such as the Investment Theory of creativity introduced by Sternberg and Lubart (1995), new ideas are often conceptualized as a threat to the status quo, therefore very often squashed by those who do not trust the perceived novelty or potential value. A consumer-centric or demand-side notion of novelty and originality, however, does not suggest such a threat—indeed, quite the opposite, according to microeconomic consumer theory. Consumers not only value and search for the new, the novel, and the unique—they place greater relative value on goods and services as the relative rarity and originality increases.

From whence this desire for the new and novel springs is another impor-

tant area for future research involving economics. It likely involves the development of evolutionary advantage—in this case, an advantage for seeking out difference. Our ancient ancestors likely benefited from different food sources, different forms of shelter, and different living locations. Our desire for the new and unique has likely secured our existence a number of diverse ways in our ongoing dance with evolutionary change and our fickle environment. It also likely helps explain many forms of humor, such as the pleasure we receive when recognizing new incongruities relative to common experience and expectations (see, for instance, Koestler, 1964).

Further, the inherent consumer desire for the novel and unique may today be a reaction (perhaps ironically so) by the consumer to overchoice, a new area of study in both economics and psychology (Schwartz, 2004). Faced with a growing sea of choices, according to overchoice theory, the consumer is often unable to make any choice at all. Creativity and resultant product differentiation, we believe, provides the overwhelmed buyer with a novel solution—the new and unique (the uncommon) becomes increasingly demanded by consumers as a reaction against too many common options.

Finally, this demand-side view creativity may suggest a new way to think of self-interest in microeconomics. We have long believed in microeconomics in the notion of non-satiation, the idea that consumers can never be satisfied, holding limitless wants. The idea of non-satiation may in fact be true, but it seems we suffer not so much from a desire for more per se, but rather a desire for greater difference and variation as part and parcel of the act of consumption. In fact, it is likely more accurate to consider self-interest as a limitless desire for the new and unique, for variation and diversity in the consumption of new products and services. This notion of consumer self-interest also seems to explain actual innovation in practice, including consumer support for such leading firms as Apple, Google, and other innovators. The aforementioned notion of consumer sovereignty therefore likely includes a type of power overlooked within microeconomics—the ability to allow creativity to flourish in those regions, cultures, and historical epochs in which consumer demand is sufficient to secure (and appreciate) the appearance of creative output.

Concluding Remarks

In 1950, J.P. Guilford described the state of creativity study in psychology in somewhat blunt terms, noting “the neglect of this subject by psychologists is appalling.” We might say the same about the state of the art in economics today. Though the concept of creativity has been dominated by interpretations drawn from the field of psychology since Guilford’s classic rebuke, we believe that economics too has something useful and interesting to offer to a more complete understanding of individual creativity. We believe the current

dearth of microeconomics research into creativity limits not only the field of economics, but current understandings of creativity as well. And if our conclusions about the microfoundations of creativity are sound, including the complex motivations of the individual creator, the possibility exists that this dismal science may yet prove a bit more optimistic in its understanding of human nature, ability, and future progress.

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