Stigler on the Science of Economics: A Tale of Two Knights

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Introduction

"A science," according to George Stigler, "is an integrated body of knowledge, and it is pursued and developed by a group of interacting practitioners called scientists," the extension and validation of which is the intellectual goal of such scientists (1983: 530). Economics "is a substantive science dealing with economic phenomena" (Stigler quoted in Kitch 1983: 172), but it also "requires both the persistent and almost timeless theories that naturally ignore the changing conditions of their society" upon which to understand economic phenomena (Stigler 1983: 534–535). The persistent and timeless basis of economic theory, and

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the basis that grounds the economist's assessment of economic policy, is the assumption that man is "a reasonably efficient utility maximizer," an assumption which Stigler argues is "singularly ill-suited to assuming that the political activity of men bears little relationship to their desires" (Stigler 1982: 9). Therefore, the economist qua scientist has no public policy relevance other than to provide general understanding of the cause and effect of public policy, not to advocate for public policy.

Stigler's extension of the body of economic science included not only the history of economic thought, but also the development of new subfields, including the economics of information, economic regulation, and industrial organization. For these seminal contributions, the Royal Swedish Academy of Sciences awarded Stigler the Alfred Nobel Memorial Prize in Economic Science in 1982, particularly for "research on market processes and the causes and effects of public regulation."[1] As Harold Demsetz remarks in a remembrance of Stigler, the development of these subfields, not to mention his understanding of market processes, are no accident, but "strongly guided by a penchant for defending and extending neoclassical price theory" (1993: 794).

Our focus in this chapter will be on the methodological role that Stigler played in validating what he regarded as the science of economics that he had inherited from his own teacher, Frank Knight, and how this affected his understanding not only of economic theory but also public policy. Our point here is not to downplay Stigler's stature within the Chicago School by interpreting him through a Knightian lens. Given the complexity and subtlety with which Knight treats economic science, this cannot be the case (see Emmett 2009). Rather, given that Stigler was such a mythic figure in the transition from the Old Chicago School, prior to WWII, to the New Chicago School post WWII, his understanding of economic science, viewed from a Knightian perspective, will help historians of economic thought to answer the following questions regarding twentieth-century neoclassical economics: first, what was lost and what was carried forward from Knight by the generation of Chicago economists following WWII? Secondly, how did Stigler's understanding of Knight contribute or detract from the mainline of economic science and its relevance to public policy? Our contribution is an attempt to answer these questions.

Ludwig von Mises has characterized the evolution of economic science as a "march" from a "science of wealth" to "a science of human action" (von Mises 1960 [2009]: xv). Historically, twentieth-century neoclassical economists have understood economics as a science of human action from two overlapping, yet distinct, approaches: as a *price-theoretic* approach and as a *choice-theoretic* approach. As a price-theoretic science, economics illustrates an *indirect* link between rationality and equilibrium via comparative institutional analysis. According to this approach, individuals in their assessment of the *expected* costs and benefits of their decisions (i.e. rational behavior), and through their interaction with other individuals, *unintendedly* generate institutions, including money prices, which in turn guide them in their future assessment of expected costs and benefits toward a coordination of their independent plans (i.e. equilibrium).

As a choice-theoretic science, there is a *direct* link between the rational agent and the efficiency of market equilibrium. This means that equilibrium is already assumed to exist *ex-ante*, and therefore equilibrium outcomes are directly reducible to and constructed from an aggregation of individual choices. The public policy implication of this choice theoretic approach is that institutions and public policy are not unintended outcomes, but are a deliberate and efficient result of rational actors optimizing their goals.[2] The distinction between the two is subtle, yet related, but the degree to which the two have been conflated has both waxed and waned among economists throughout the history of economic thought in the twentieth century (Boettke and Candela 2017: 732, fn. 11). For Stigler, the distinction between the two was somewhat conflated, given that they also reflect different points of emphasis that he inherited from Knight himself. The point here is that one's understanding of economic science, including Stigler's, is never irrelevant to the economist's role in public policy. Economic science has public policy implications.

Stigler was, predominantly, a choice-theoretic economist, in which partial equilibrium is the anchor that foregrounds economic analysis, and that Stigler's public policy conclusions were a by-product of this understanding of economic science. Like Knight, however, this did not imply he always neglected to tell a background story of dynamic

adjustment of relative prices to changing circumstances, in which error-prone actors are being guided toward equilibrium. Moreover, it does not imply that Stigler neglected comparative institutional analysis. As he himself stated in his presidential address to the American Economic Association, the competence of the economist as a scientist "consists in understanding how an economic system works under alternative institutional frameworks" (1965: 2). However, Stigler goes on to state that "[i]f they have anything of their own to contribute to the popular discussion of economic policy, it is some special understanding of the relationship between policies and results of policies" (Stigler 1965: 2). Therefore, for the economist in the role of the scientist, the assumption that a given set of institutions and policies are inefficient, or to say that a set of policy results are ineffective in fulfilling a set of policy intentions, would imply that individuals are "irrational" or "wrong" in their choice of policies, a conclusion that Stigler would regard as contradictory to the economist as a value-free scientist, in which science is defined almost entirely by the logic of choice.

For the economist to remain a value-free scientist, and not become a "preacher,"[3] they are restricted to taking the policy choice as given, and assess its costs and benefits *as perceived by those individuals who have chosen that policy*. The public policy implication is that the economist as a preacher may recommend a set of policies that increase economic wealth, such as free trade. However, once he or she has taken into account the costs of implementing such a policy, such as lost rents to special interest groups benefiting from such a policy, the economist qua scientist is methodologically straitjacketed from offering such a policy recommendation. This public policy conclusion, however, presents a fundamental dilemma for the advocate of the market (of which Stigler was a fervent proponent): is there a non-normative way for the economist to remain in their role as a scientist while fulfilling their role as an economic reformer? From a purely Stiglerian perspective, the answer would be no.[4] But if we regard Stigler's methodology as a subset of Knight's broader understanding of economic science, then there is another Knightian answer to this dilemma, which answers this question in the affirmative, the solution to this dilemma being provided by another of Knight's Nobel Prize winning students, James Buchanan.

George Stigler and the Chicago School

In a recollection of George Stigler as a political economist, Warren Samuels described Stigler's understanding of economic science in the following way:

> George was a neoclassicist; a certain type of neoclassicist; if he was more than a neoclassicist he was also an Austrian economist[5]; his version of neoclassicism was an interesting blend of Marshallian and Austrian economics. I am more eclectic than George, and certainly an institutionalist of the old school. In any event, I think he appreciated not only that I took the Chicago School seriously but that I lauded the old, Frank Knight-Henry Simons version of the School relative to his version. (Friedland et al. 2002: 642)

George Stigler's intellectual biography offers an important lens into the evolution not only of the Chicago School in the twentieth century, but also how he contributed to the evolution of neoclassical economics in general. In the post-WWII period, George Stigler, along with Milton Friedman, were instrumental in reconstructing what would later become known as the Chicago School of economics. Only in retrospect have economists made a distinction between the "Old Chicago School" of Frank Knight, Henry Simons, and Jacob Viner, and the "New Chicago School" of Milton Friedman, George Stigler,[6] and later Gary Becker (see Buchanan 2010; Hammond et al. 2013; Mitch 2016; Reder 1982). Prior to the end of World War II, there was no identifiable Chicago School[7] (Stigler 1988: 148). A full exposition of why this was the case is beyond the scope of this chapter, but we can outline both a *methodological* and an *analytical* reason, which are both illustrated by Stigler's role in the Chicago School.

The first reason is with regard to the relationship between economic science and public policy. Economic science is not a public policy conclusion, but a set of methodological and analytical propositions that yields public policy conclusions as a by-product of scientific analysis. It would not be unfair to associate the study of free markets with the Chicago School, including the Old Chicago School. However, it would

be misleading to then conclude that Chicago economists *advocate* public policies consistent with economic freedom. This is a commonly oversimplified characterization by proponents and advocates of the Chicago School, leading to the claim that "Chicago economics" is inconsistent with public policy goals that are commonly associated with government intervention, such as the reduction of income inequality. However, in Stigler's publication of *Roofs or Ceilings?* (1946), co-authored with Milton Friedman (and the only piece they would ever co-author), he and Friedman had argued that free pricing was the most effective means to reducing income inequality, not as a matter of public policy advocacy, but as a matter of science in terms of studying the results of a public policy in terms of its desired intentions. *Roofs or Ceilings?*, published by the Foundation for Economic Education (FEE), presents a study of the housing market in San Francisco in 1906, when it experienced a destructive earthquake, in comparison to San Francisco's housing market in 1946 with extensive rent controls. Although the city had lost more than half of its housing in three days, during the crisis, "*there is not a single mention of a housing shortage!*" (Emphasis original, Friedman and Stigler 1946: 7). In 1946, however, there were extensive reports of housing shortages due to rent controls, even though there had been no physical destruction of housing by earthquakes. In an exchange of correspondence, reprinted in *Making Chicago Price Theory* (2006), a dispute between FEE, Stigler, and Friedman emerged not over the findings of the study, but over what FEE regarded as what might be interpreted as an advocacy of collectivism (Watts 1946 [2006]). Friedman and Stigler's contentious passage went as follows:

> For those, like us, who like even more equality than there is at present, not alone for housing, but for all products, it is surely better to attack directly existing inequalities in income and wealth at their source than to ration each of the hundreds of commodities and services that compose our standard of living. (1946: 10)

The irony of this story is that George Stigler and Milton Friedman, two founding members of the Mont Pelerin Society, were accused of advocating collectivist goals! This is a common misunderstanding

among free-market proponents regarding the relationship between economic science and policy, particularly in the Chicago School, namely because, as Stigler has written elsewhere, economists since Adam Smith "have always been opposed to inequality of income" (1949: 1) as a policy objective. Put differently, the notion that there was an identifiable pre-WWII Chicago school, substantially differentiated from other neoclassicists, which *advocated* public policies consistent with laissez-faire would be a misunderstanding. Acting as scientists, Stigler and Friedman were employing the doctrine of *wertfreiheit*, or value-freedom. In order for economic analysis to remain scientific and value-free, it must remain neutral with regard to ends. However, it was not the empirical testability of propositions that kept science value-free, as science came to be understood in the New Chicago School.[8] Rather, value-freedom in Stigler and Friedman's economic analysis was preserved by using price theory to *illustrate* the indirect and unintended effects of rent controls in a way that contradicted the goals of those who desired rent controls in the first place. In other words, it was an analysis of the effectiveness of a set of means for a given set of ends.

In a letter to Leonard Read, President of FEE, Friedman makes this point: "I believe it is essential to make it clear wherein we are criticizing means and wherein ends. Failure of liberals to emphasize their objectives seems to me one of reasons they are so often labeled reactionaries" (Friedman 1946 [2006]: 21). Where economists have differed is over the most efficient set of means to reduce income inequality, not over the objective of reducing income inequality itself. But as a science, the economic theorist introduces objectivity into the analysis by taking the stated objective of policy as given, in this case the reduction of income inequality, and assesses whether or not the chosen policy, in this case the existence of rent controls, is logically congruent to its stated objective.

Stigler and Friedman were "seeking to convince the open-minded, not those who already favor our position" (Stigler 1946 [2006]: 20), that if one wished to decrease income inequality, then using rent controls as a means to make housing cheaper for lower-income families would have the opposite effect, thereby illustrating in a logical manner that the policy of rent controls was self-defeating to those who desired it in the first place. With rent controls, the unintended consequence

of a price ceiling is to create shortages, which in turn will redistribute income from the poor to the wealthy, since the distribution of housing will go disproportionately to those who can pay the higher real price of housing. The unintended consequence would be to increase the inequality of income. To reiterate, economic science is not a set of public policy conclusions, but a methodology that yields public policy conclusions. This methodology is a way of thinking that takes stated ends as given, and then assesses the effectiveness of alternative means to achieve those ends—a scientific practice that had been shared by economic scientists including Knight, Mises, Robbins, and Weber.

This brings us to the second reason one could not point to a distinctive "Chicago School" prior to World War II, which was the fact that, among neoclassical economists, which included Austrians, Marshallians, and Walrasians, there existed a shared analytical understanding of markets that overshadowed any substantive differences between the different schools of thought. As Stigler puts it, "1930s economics appeared to be little different at the University of Chicago than elsewhere" (1988: 148). For example, in Jacob Viner's lecture notes to Economics 301, the graduate course on price theory, dated June 17, 1930, Viner remarks the following:

> Neoclassical economics is a sympathetic evolution of the English Classical School. Included under neoclassical economics is the English-American version in Taussig and Marshall and also the Austrian school, whose differences are not as important as the resemblances to the Anglo-American type. Included also is the Continental Equilibrium School or the Mathematical School, such as Walras, Pareto, and their followers. They have much more in common with the neoclassicists than in dispute. (Viner 2013: 19)

This shared and implied understanding included a study of markets in terms of dynamic processes of adjustment, not in terms of equilibrium. In short, economics was understood to be a price-theoretic science. This does not imply that equilibrium analysis was not unimportant. Rather, equilibrium analysis was utilized as a method of contrast, or a theoretical tool by which to understand the institutional conditions necessary

to generate a *tendency towards equilibrium*. These conditions include not only free pricing, but also private property and freedom of contract under the rule of law. In this shared understanding, there coexisted not only an appreciation for competition as a rivalrous process, but also an appreciation for the degree to which markets tend to approximate the conditions of perfect competition. Throughout Stigler's work, there are elements of both understandings of the market, but the dominant strand is an emphasis on *choice theory*, rather than price theory as it was traditionally understood prior to the mid-twentieth century. The unifying theme that connected these two generations of Chicago economists, and that later differentiated it from other schools of thought in the post-WWII era, was the consistent and persistent application of price theory, particularly that of Alfred Marshall's *Principles of Economics* (1920 [2013]), to understanding economic phenomena.

Stigler, however, "believed not only in neoclassicism but in the Chicago version of neoclassical economics" (Friedland et al. 2002: 642), which "proceeded from the assumption that modern price theory is a powerful weapon in the understanding of economic behavior, not simply a set of elegant theoretical exercises suitable for instructions and the demonstration of one's mental agility" (Stigler 1988: 162). This "Chicago version" of price theory that was consistently and persistently applied by Stigler and that later came to define the New Chicago School, most consistently practiced by Gary Becker,[9] included three distinguishing characteristics.

The first characteristic is the pervasiveness of efficiency. "Indeed, every society that is purposive," Stigler states, "seeks to do efficiently whatever it seeks to do" (1975b: 286). The presence of efficiency is based on a universal fact that, when faced by a set of alternative opportunities constrained by scarcity, individuals will choose that alternative that gives them more rather than less satisfaction. In other words, individuals are rational and *strive* to maximize utility. Based on the postulate of utility maximization, individuals will not only succeed in maximizing all the gains from trade and innovation, but also succeed in minimizing waste and error. This implies that goods and services will be produced and sold at the lowest possible cost to consumers, and therefore generate the highest possible profit to producers. The presence of inefficiency

in production, however, would imply the existence and pursuit of other more desired outputs, in which case (1) inputs are more highly valued in alternative lines of production and (2) producers have not chosen the lowest cost method of production. This can only be the case, according to Stigler, if (1) the economist imposes value judgments upon consumers that they never accepted (1976: 214) or if (2) the economist has not accounted for the cost of gathering information; if information is costly to gather, then adopting another production method may be inconsistent with utility maximization (Stigler 1961). For example, advertising is an efficient response to positive information costs on the part of producers and consumers. In a world of perfect information, consumers, and producers would converge instantaneously. The presumption that producers are able to manipulate consumers and exercise monopoly power through advertising implies an instance of market failure. However, this conclusion only follows if (1) consumers are fully aware of other competitors and (2) other competitors are selling at a lower cost. Once the cost of producing information is accounted into the production function, then advertising proves to be the most efficient way to coordinate buyers and sellers at the lowest cost, both monetary and non-monetary, consistent not only with utility maximization, but also perfect competition.

The second characteristic is the ubiquity of competition in society. Competition, Stigler writes, refers to "the independent rivalry of two or more persons" (1957: 1) and "a process of responding to a new force and a method of reaching a new equilibrium" (1957: 2). Given that scarcity cannot be eliminated, neither can competition be eliminated as well. Given the postulate of utility maximization, regardless of the market structure, competitive pressures will generate an outcome that approximates that of perfect competition. On the concept of competition, Stigler remarked that "it was unfortunate that perfect market was made a subsidiary characteristic of competition, for a perfect market may also exist under monopoly. Indeed, in realistic cases a perfect market may be more likely to exist under monopoly, since complete knowledge is easier to achieve under monopoly"[10] (1957: 14–15). What this implies is that "the processes of obtaining, defending, sharing, and eliminating monopoly positions are far more important and interesting than

the exercise of monopoly power" (Stigler 1988: 164). Both rent-seeking and profit-seeking will exhaust the gains from trade and innovation, approximating a situation in which all profit opportunities have been discovered and rivalry no longer exists (i.e. perfect competition).

The ubiquity of efficiency combined with the omnipresence of competition also yields public policy conclusions, in that it undercuts, for example, the rationale for anti-trust policy. It is not simply the case that the effects of monopoly power are negligible in the long-run due to the threat of entry and exit by other competitors. Rather, according to Stigler, monopoly power is often an instance in which policymakers have defined the relevant market so narrowly so as to merit government intervention to preserve or generate what already approximates a perfectly competitive market in the first place (see Stigler and Sherwin 1985). For example, in "The Extent and Bases of Monopoly" (1942), in sectors of the economy, which have allegedly become monopolistic through market competition, such as the domestic automobile industry, a "reasonable approximation is all that is needed" (1942: 3). Stigler identifies two "grave defects" with the use of statistics measuring concentration ratios for particular industries. In the case of automobiles, the first is the omission of imports that compete with domestic car manufacturers. By including imports, the extent of monopoly in the domestic automobile industry would be greatly minimized, making "it reasonably certain that monopolistic powers are in general small" (Stigler 1942: 8). Moreover, the inclusion of secondary markets, such as a used-car market, into statistical analyses of market concentration would further minimize the extent of monopoly power. Taking into account the constant erosion of monopoly profits by competitive pressures, it is no wonder that "persistent monopoly problems" most often "are created by governmental regulations" (Stigler 1988: 165).

This last point leads us to a third characteristic, not only in the extension of Chicago price theory, but also in the evolution of Stigler's economic thought from the Old Chicago School, namely the application of equilibrium analysis to explain the existence and persistence of government regulation. Like his own predecessors of the Old Chicago School, Stigler, by his own admission, regarded the existence of monopoly power as a persistent problem in the economy,[11] and its persistence

justified the use of anti-trust policy not only to break up concentrated industries but also punish collusive behavior in order to approximate the conditions of perfect competition (1988: 97–99). It was after his return to Chicago from Columbia in 1958 that he was increasingly persuaded by his colleagues, most notably Aaron Director, Ronald Coase, and Harold Demsetz,[12] but also Sam Peltzman and Lester Telser, about the insignificance of monopoly in an unhampered market, even one whose structure did not conform to the conditions of perfect competition. Moreover, his own work on public regulation, particularly in industrial organization (see Stigler and Friedland 1962; Stigler 1966), led him to conclude that utility regulation and anti-trust laws have a negligible intended effect of curtailing monopoly power. "The declining importance of monopoly as a problem in public policy or as a hypothesis to explain business behavior," Stigler writes, "is an important reason why my own research interests shifted increasingly to the government regulation of economic life – and the reciprocal regulation of government by economic groups" (1988: 109).

If public policy has, at best, negligible intended effects, or more likely, unintended consequences, as in the case of rent controls described above, is it reasonable to conclude, based on the assumption of rationality and the ubiquity of competition, that policy makers are persistently mistaken? The presence of a mistake implies waste or error, and therefore unexploited gains from trade, which implies individuals are not striving to maximize their utility. "To say that policies are mistaken is to say that no can explain them" (Stigler 1975a: x). If the economist is to remain positive and explain why such policies persist, then we must "assume that political systems are rationally devised and rationally employed, which is to say that they are appropriate instruments for the fulfillment of desires of members of the society" (Stigler 1971: 4). This implies that regulations persist because industries have expended time and resources to "capture" the discretion of a regulatory body as a means to effectively pursue their own private goals. For Stigler, political parties are analogous to firms in markets (Stigler 1972), and just like in any other commodity, there exists a market for regulation governed by supply and demand conditions. As Stigler states, the "representative and his party are rewarded for their discovery and fulfillment of the political

desires of their constituency by success in election and the perquisites of office," but this cannot be achieved without the support of special interest groups demanding a variety of regulations for their own private gain. The refusal to "sell" regulation and abolish subsidies, price controls, tariffs and the like would promote the general welfare, but this benefit would be dispersed among the masses of rationally ignorant voters. In turn, such refusal will be a concentrated cost to the politician, in terms of votes and campaign contributions forsaken to competing political parties. As such, regulation will be "bought" by special interest groups and "sold" by political parties, resulting in an "efficient" political outcome. Stated differently, to argue that such policies are "inefficient" implies that the costs of removing protective regulations, in terms of "buying out" the present discount value of rents accrued to protected industries, are less than the gains in consumer surplus that would be created by a fall in price due to entry of new firms into the industry. If this is not the case, however, the existence of regulation implies that consumers and voters "desire" such policies because the alternative policy—economic freedom—is more "expensive" under the given circumstances. This positive conclusion, as we shall see in section "Economic Science and Public Policy: A Knightian Solution to Stigler's Dilemma via Buchanan," led Stigler to conclude that neoclassical economists are extremely limited in their ability to engage in value-free welfare economics. This public policy conclusion, as we discuss in the next section, is based on Stigler's definition of economic theory as rational choice itself.

A Tale of Two Knights: Statics and Dynamics

Elsewhere in an extended, earlier version of our paper,[13] later published as "Price Theory as Prophylactic against Popular Fallacies" (2017), we had suggested that in the history of the Chicago School of Economics, there is "a tale of two Knights" that could be told, a Knight that leads logically not only to Stigler's choice-theoretic emphasis in economics, but also a Knight that leads to the Buchanan's price-theoretic emphasis in economics. Given the focus of this chapter, however, we will

concentrate primarily on Stigler, but also discuss Buchanan in more detail in section "Economic Science and Public Policy: A Knightian Solution to Stigler's Dilemma via Buchanan." Stigler's rendition of Chicago price theory had come to emphasize a more choice theoretic approach compared to the price-theoretic emphasis displayed by the Knight-Viner-Simons generation of Chicago economists.[14] The method by which a choice-theoretic approach to economics explains economic phenomena is by fitting aggregations of rational behavior directly into an equilibrium construct, in which *equilibrium prices* are rendered sufficient for market-clearing outcomes. However, this approach trivializes, as Henry Simons put it, the "central conception of price theory," which "is that of an equilibrium *adjustment* with respect to relative prices and relative production" (Simons 1983: 6, emphasis added). Individual plans not only are adjusted by relative prices, but relative prices themselves in turn are adjusted by the mutual adjustment of individual goals. In such a world of *disequilibrium prices*, individual ends cannot be simply reduced to an equilibrium construct, because the knowledge necessary to define equilibrium—perfect foresight of individual ends—does not exist *ex ante*. Rather, the knowledge necessary to define the conditions of equilibrium are defined through a process of interaction, where private property, *disequilibrium prices*, and hence the emergence of profit and loss, are generated by such interaction to set forth equilibrating *tendencies*. Individual ends, though taken as given for scientific analysis, only *become known* through the process of equilibration. For example, the economic scientist can deductively conclude, as a given, that individuals strive to maximize their utility, but what entails utility maximization for the individual requires subjective knowledge about the content of one's utility function, which can only be translated into publicly available information through the price system, and such knowledge can only be communicated through a process of monetary exchange. Without such knowledge, the choice-theoretic economist can only construct an equilibrium by inferring intentions from outcomes.

However, Stigler's choice theoretic emphasis should be not mistaken for ignorance or neglect, given his training by Knight and his appreciation for the Old Chicago School. As Stigler himself wrote, the "merging of the concepts of [perfect] competition and the market [process] was

unfortunate, for each deserved a full and separate treatment" (1957: 6). Before we elaborate on those aspects in which Stigler diverges from the Old Chicago School, and arguably Knight himself, let us outline the basis upon which economic science was understood when Stigler received his training at the University of Chicago. The idea that both classical and early neoclassical economists outlined a *shared understanding* of the methodology of economic analysis, including Frank Knight, is often misunderstood by modern economists. For both economists of the Old Chicago School as well as the Austrian School, economics is understood as a social science that could derive laws "as universal as those of mathematics and mechanics," yet account for the complexity of the human experience (Knight 1935 [1997]: 127). As Knight states, economics is composed of three, interconnecting "methods of treatment which must logically be sharply differentiated," the first two parts of which constitute the theoretical core of price theory.[15] The first part refers to pure theory, or in today's terminology the logic of rational choice, which is "largely deductive in character, of the more general aspects of economic cause and effect," and forms the basis for "those tendencies of a price system which are independent of the specific wants, technology, and resources" (1935 [1997]: 135). The tendencies of the price system are not based on any laws regarding the content of rational choice, but only on laws regarding the *form* of rational choice, which states that individuals prefer more of a good rather than less. The second part refers to applied theory,[16] which combines rational choice with subsidiary empirical conditions of time and place, such as institutions, in order to understand the concrete manifestation of rationality itself. Applied theory is the realm of spontaneous order analysis, from which the unintended emergence of money prices and institutions are traced back to rational decision-making. The third division of economics is history, which includes the realm of statistical analysis. The economic scientist takes the arguments one constructs in pure and applied theory, and then develops a framework of analysis that aids the empirical interpretation of events and provides an economic assessment of those events.

Within this methodological framework, equilibrium analysis is not absent from economic science. Rather, it serves as a necessary backdrop,

or a method of contrast, to understanding how the application of theoretical abstractions, such as rational choice theory, combined with institutional analysis generates concrete equilibrating tendencies that manifest themselves in a particular time and place. This methodological understanding of economic science, as Knight understood, was not new, but how all economists since Smith understood it: "Whether or not the use of the method of exact science is as necessary in the field of social phenomena as the present writer believes, it will doubtless be conceded, even by opponents of this view, that it *has been* employed in the great mass of literature since the modern science of economics was founded" (emphasis original, 1921 [2006]: 13). Given that Knight considered himself to be articulating what was considered the mainline of economic thinking, the primary theme in Knight's understanding of economic science, we argue, is one in terms of dynamic processes of change. For example, consider how Knight explains the role of the price system in *The Economic Organization*:

> The system of social organization does more than reduce individual values to a common denominator or scale of equivalence. In large part the individual wants themselves are *created* by social intercourse, and their character is also largely dependent upon the form of organization of the economic system upon which they are dependent for their gratification… the science of economics is largely taken up with description and analysis of the process by which this common denominator of things consumed and produced by the economic system is arrived at, that is, with the *problem of measuring values*. (emphasis original, 1933 [1967]: 9–10)

Knight's emphasis here is on the *process* by which money prices emerge out of human action, though not of human design—individual values are neither directly embodied in the price mechanism as mere aggregations of individual demonstrated preferences, nor are they directly reducible to individual ends. Moreover, information regarding individual wants are neither fixed nor given. Rather, knowledge is an ever changing and multifaceted flow of new ends that are created and discovered only through the context of market exchange (see Boettke 2002). Economic knowledge embodied in the price system is an emergent

whole that is not directly reducible to the sum of all individual valuations; it only emerges within the context of private property and monetary exchange. From a choice-theoretic perspective, information is an aggregation of individual search according to marginal benefits and marginal costs; equilibrium is constructed as if it were directly reducible to pure theory, or rational choice. With regard to whether or not comparative statics or dynamic processes are the focus of economic theory, Knight also states the following:

> The problem of conditions of equilibrium among given forces – "statics" in the proper sense – is often important in economics, *but is after all subsidiary*, as indeed it is in physical mechanics. *The larger question is that of whether the forces acting under given conditions tend to produce an equilibrium*, and if so how, and if not what is their tendency; that is, it is a problem in dynamics. This type of problem has been too largely passed over hitherto, leaving a fatal gap in the science. The crying need for economic theory to-day is for a study of the "laws of motion," the *kinetics* of economic changes… *The centering of economic theory about the possibility and condition of equilibrium has caused the study of the laws governing economic changes in time to be neglected*. (emphasis added, Knight 1935 [1997]: 133–134)

This shared understanding regarding economic science between the Austrians and the Old Chicago School, as outlined by Knight, was based not on a particular *method* of analysis per se, which was the case for Stigler (and more explicitly for Gary Becker), but on *economic activity* with a particular analytical understanding of the coordinative properties of private property, freedom of contract, and money prices. This analytical understanding of the market as an open-ended discovery processes, as expressed by Knight, is most prevalent in Buchanan's "What Should Economists Do?" (1964), where he states that

> A market is not competitive by assumption or by construction. A market *becomes* competitive, and competitive rules *come to be* established as institutions emerge to place limits on individual behavior patterns. It is this *becoming* process, brought about by the continuous pressure of human behavior in exchange, that is the central part of our discipline, if we

> have one, not the dry-rot of postulated perfection. A solution to a general-equilibrium set of equations is not pre-determined by exogenously-determined rules. A general solution, if there is one, emerges as a result of a whole network of evolving exchanges, bargains, trades, side payments, agreements, contracts which, finally at some point, ceases to renew itself. At each stage in this evolution towards solution, there are *gains* to be made, there are exchanges possible, and this being true, the direction of movement is modified. (emphasis original, Buchanan 1964: 218)

However, another plausible interpretation of Knight is that he understood economics in terms of stationary equilibrium,[17] the latter of which Stigler pushed to its logical conclusion in terms of positive analysis and public policy. Though indeed Stigler regarded economics as a substantive science dealing with economic phenomena, the analytical focus of explaining economic phenomena came to be dominated by pure choice theory, not price theory per se. It is plausible to trace Stigler directly back to Knight, since it is unclear in Knight to what degree the realm of price theory can be reduced to the pure logic of choice. Knight commonly equated economic theory with the pure logic of choice itself: "A large part of the extant body of economic theory would be as valid in a socialistic society as it is in one organized through exchange between individuals" (Knight 1935 [1997]: 131). This strand of Knight that views the market in terms of stationary equilibrium leads him to conclude the following:

> [T]he problems of collectivism are not problems of economic theory, but political problems, and that the economic theorist, as such, *has little or nothing to say about them*. This holds true whether we consider the problem to be the scientific one of predicting what the collectivist economy would be like in structure and activities, or whether we look at it *practically from the standpoint of the right objectives to be pursued and the right principles to be followed in realizing them*. (emphasis added, Knight 1936: 255)

Here we see the purest form of Stigler in Knight, from which we see Stigler's positive assessment of economic science and his normative assessment of public policy, the latter of which we discuss in section

"Economic Science and Public Policy: A Knightian Solution to Stigler's Dilemma via Buchanan." If economic science is taken literally as the maximization of given means and given ends, calculating the relative values of scarce capital resources is not an economic problem that is *contextually dependent* on private property and monetary exchange. Rather, it is a political problem of incentivizing bureaucratic agents, who are imperfectly informed, to gather information that is already given, so as to approximate the *equilibrium prices* necessary to the clear the market of any surpluses and shortages.[18]

What this reveals is that not only that Stigler's economics of information, but also his economics of regulation and public policy conclusions, follow from a conflation of an important distinction between *information* and *knowledge*. Information for Stigler is treated as a commodity acquired through *deliberate search*, which implies an individual who searches for such information already knows of its existence, but invests in acquiring it according to the marginal benefits and costs of search. From this perspective, the informational content embodied in prices are the equilibrium outcome of nothing more than the aggregation of individual search activity. This is different from knowledge, which is spontaneously and unintendedly generated through interaction. For the choice-theoretic economist, this introduces an inherent paradox: *deliberate search requires that we know beforehand what we don't yet know*. Stigler, by his own admission, is aware of the limits of this approach, since the paradox that arises from such conflation renders economic theory unable to "explain how the comparative values of different goods and services are established" (Stigler 1983: 533). As Stigler writes:

> The near-universal tradition in modern economic theory is to postulate a maximum possible output from given quantities of productive inputs – this is *the* production function – and to assert that each firm operates on this production frontier as a simple corollary of profit or utility maximization. The merit of this conventional tradition is also its demerit: *it eliminates the problem of the choice of technology*…What one may lament, however, is the failure…to recognize the problem of determining which technologies will be used by each firm (and, for that matter, each person).

> *The choice is fundamentally a matter of investment in knowledge: the costs and returns of acquiring various kinds and amounts of technological information* vary systematically with various characteristics of a firm. (emphasis added, Stigler 1976: 214–215)

Returning to one of the questions outlined in the introduction for a moment, this passage exposes in several ways what was lost and what was carried forward from Knight by the generation of Chicago economists following WWII. If, as Stigler argues, that "a science requires for its very existence a set of fundamental and durable problems," the most fundamental of which is "the theory of value," then indeed the "gap" in economic science to which Knight referred follows from pursuing a static view of markets in terms of choice of given means and given ends. Therefore, the consequence of pursuing economics exclusively as a choice-theoretic science is to turn the subject-matter of economic science exclusively into a *technological* problem of gathering information regarding given resources and given goals, not an *economic* problem of discovering the means to satisfy competing ends that are open-ended and defined by the process of competition itself. Stigler's focus on stationary equilibrium conditions leads him to conclude that markets are always and everywhere efficient with respect to given means and chosen ends by individuals. To say otherwise implies that the economist has (1) misunderstood the given constraints or (2) imposed a value judgment on the chosen ends of utility maximizing agents.

Economic Science and Public Policy: A Knightian Solution to Stigler's Dilemma via Buchanan

Is there a non-normative basis for the economist to remain scientific without economic science losing its public policy relevance? This depends upon, as we suggested above, whether the economist treats science as price theory or simply the logic of rational choice. "Social policies and institutions, not individual behavior," Stigler states, "are the proper object of the economist-preacher's solicitude. *This orientation is demanded by the very logic of economic theory: we deal with people who*

maximize their utility, and it would be both inconsistent and idle for us to urge people not to do so" (emphasis added, Stigler 1982: 6). Based on his view of economic science as the logic of choice, Stigler intends this statement to be an indictment that limits the economist from offering policy recommendations or "preaching." However, economic science from a price-theoretic approach suggests that this very statement also offers a non-normative basis for the economist to offer policy advice that is consistent with economic science, namely by suggesting institutional changes, as Buchanan would argue. "If the utility function of the choosing agent is fully defined in advance, choice becomes purely mechanical" (Buchanan 1964: 217), and therefore the economist scientist is extremely limited in their capacity to suggest Pareto improvements that are not normative. "On the other hand, if the utility function is not wholly defined, choice becomes real, and decisions become unpredictable mental events," from which the economist can suggest policy measures that expand the scope for mutually beneficial exchange (Buchanan 1964: 217).

Another way to understand the public policy relevance that Buchanan and Stigler attributed to economic science is in terms of a quote each has credited to Frank Knight. Stigler has quoted Knight as saying that "anything which is inevitable is ideal!" (Stigler 1982: 6), or Buchanan has put it, "to call a situation hopeless is equivalent to calling it ideal" (Buchanan and Tullock 1962: 204). For Buchanan, economic theory is defined in terms of the "non-ideal" disequilibrium of the market process, which is dynamically adjusting to changing conditions. For Buchanan, the fact that we live in an imperfect and open-ended world of discovery implies not only a scope for change, but also hope for a better world. Given that economic science, for Stigler, is defined in terms of the "ideal" of competitive equilibrium, the economic scientist is restricted from "preaching," since he or she has no hope of changing what is inevitably an efficient outcome.

Stigler argues that at "the level of economic policy, then, it is totally misleading to talk of ends as individual and random; they are fundamentally collective and organized. If this conclusion be accepted, and accept it we must, the economist may properly exceed the narrow confines of economic analysis. He may cultivate a second discipline,

the determination of the ends of his society particularly relevant to economic policy" (1943: 358). By inferring the intentions of voters from the outcomes of public policy, Stigler concludes that the role of the economist is to infer that voters have chosen such a policy because they wanted it, and to say otherwise would mean the economists are substituting his or her value judgments for those of voters, abandoning their role as a scientist for that of a reformer. Moreover, the presumption that there are benefits to the overall economy to a change in public policy, such as the abolition of tariffs against imports, according to Stigler, would imply that the economist has not properly identified all of the costs that would entail changing such a policy. If it would have been less costly for policymakers to compensate interest groups the capitalized value of the rents they derive from an existing policy, then it would have been efficient for policymakers to have done so already. Moreover, the idea that free trade would be a more beneficial policy to society neglects the fact that those individuals who benefit from restrictions on trade at any moment have supported laws which are designed to prevent trade. Stigler takes the prevailing social consensus as the efficient equilibrium from which to assign a rational choice explanation as to why societies choose particular policies. The welfare implications of Stigler's theoretical paradigm economics for public policy is best stated by Stigler in his "Law or Economics?":

> [E]very durable social institution or practice is efficient, or it would not persist over time. New and experimental institutions or practices will rise to challenge the existing systems. Often the new challenges will prove to be inefficient or even counterproductive, but occasionally they will succeed in replacing the older system. Tested institutions and practices found wanting will not survive in a world of rational people. To believe the opposite is to assume that the goals are not desirable. (1992: 459)

Unlike Stigler, Buchanan combines the reformist zeal of the economist in a manner not inconsistent with his role of a scientist. Rather than approaching political economy from an approach that takes tastes and preferences as stable and given (see Stigler and Becker 1977), Buchanan argues that there is a non-normative basis for economic reform, which

"may be summed up in the familiar statement: *There exist mutual gains from trade*" (italics original, Buchanan 1959: 137) from which individuals can benefit, and that such gains from trade can be realized by suggesting adjustments in the rules of the game. For Buchanan, the task of economists is broader than the study of the efficiency propositions of the market; it also includes "the study of all such cooperative trading arrangements which become merely extensions of markets as more restrictively defined" (1964: 220).

The political economist contributes to science and reform by analyzing alternative institutional arrangements, and offering changes in the rules of the game as hypotheses to be tested in the arena of collective action. In devising such changes in the rules of the game Buchanan stresses two critical building blocks. The first building block concerns the position of the status quo. The positive political economy of reform must begin with the "here and now," and never some imaginary start state where opposition to change is non-existent. In doing this, Buchanan is not attributing any normative weight to the status quo. All he is doing is insisting that "it is what it is" and that must be the starting point of any assessment of relevant alternatives. The second building block follows from the recognition that we begin with the "here and now," and that is the compensation principle. Any shift in the rules of the game will change the nature of the payoffs in the game. Those who currently gain from the status quo will lose, while others currently not in a position of privilege with respect to existing institutions will gain from the change. The winners must compensate the losers in the proposed change, not because the losers have any normative claim to their existing benefits but because unless compensated the beneficiaries of the status quo will fight to defeat any proposed changes in the structure of rules. For example, compensation can come directly from "buying out" the present discounted value of rents derived from changes in policy, such as monopoly profits lost by protected industries from the abolition of a tariff. From a more dynamic standpoint, however, compensation is paid not from redistributing a fixed pie of economic wealth, but from an economic pie that grows due to realizing the increasing returns to the gains from trade and innovation that are unleashed from an expanding the scope of the market. However, this dynamic conception of efficiency

in terms of *discovering* ever greater gains from trade via institutional changes, as suggested by Buchanan, is incommensurable with a conception of static efficiency emphasized by Stigler, in which all of the gains from trade are already known and fully exhausted.

Conclusion

Stigler was a dominant figure in the evolution of the Chicago School. Given that he was a crucial transitional figure in the Chicago School, first as a student of Frank Knight, and later as a faculty member of the University of Chicago, analyzing his contributions to economic science and public policy helps us to understand what aspects of Knight's conception of economic and public policy were filtered through to the generation of Chicago economists of the post-WWII era, most notably Gary Becker, and those aspects of Knight's work that became deemphasized. We are not suggesting here that Stigler was merely a Knightian vessel, with no original insights of his own. Rather, his own original contributions to the development of economic science reveal that there is "a tale of two Knights" in the Chicago School, and that Stigler's particular understanding of Knight illustrates that what were *shared* methodological and analytical propositions held by early neoclassical economists later became different substantive points of economic analysis, ultimately generating different conclusions with regard to the public policy relevance of economic science.

Notes

1. https://www.nobelprize.org/nobel_prizes/economic-sciences/laureates/1982/press.html.
2. The choice-theoretic approach is also outlined by Demsetz, in what he describes as "neoclassical price theory," in the following terms: "First, the theory exudes confidence that rational behavior succeeds in realizing mutually beneficial exchange opportunities. Second, it counts the individual—whether consumer, laborer, or business owner—as

unimportant, despite its reliance on self-interested individual behavior; it uses aggregations of the behavior of individuals to construct its equilibria, and in doing so it deprives the individual of any force in the economic system. Third, it relies on Marshall's two-bladed scissors, supply and demand, to construct these aggregations of the behavior of individuals" (Demsetz 1993: 795). The choice theoretic approach provides an atomistic view of individuals, in which individuals yield all economic power to the market and are in turn free to respond to the resulting market prices. Individuals thus are passively responding to exogenous changes in prices, rather than initiating price changes. They are free to choose, yet given their preferences, choice is essentially pre-determined.

3. Stigler's defines preaching in the following way: "I suppose that it is essential to state what I mean by preaching. I mean simply a clear and reasoned recommendation (or more often, denunciation) of a policy or form of behavior by men or societies of men" (1982: 3).
4. As Stigler states in a letter to Milton Friedman, "if a pure scientist—one believing only demonstrated things—is asked his opinion on policy, he must decline to answer—and listen to his intellectual inferiors give advice on policy" (see Stigler 1948 [2006]: 96).
5. Samuels' association of Stigler with the Austrian school is based not upon similar public policy conclusions, but based upon shared analytical propositions regarding economic theory. In his review of Stigler's *Memoirs of an Unregulated Economist*, Samuels writes the following: "We also find a Chicago School emphasis on the economy as *process*: on the implications of scarcity, on people responding 'rationally' to changes in the incentive structures around them, on the flexibility and adaptability of markets, and on competition in nonstructural, behavioral terms. For all the relevance of tight prior equilibrium, Chicago is not neo-Walrasian; it much more resembles neo-Austrian economics" (emphasis original, Samuels 1990: 409).
6. Though beyond the scope of this chapter, much has been written regarding the circumstances of this transition. Knight would continue to serve as on the economics faculty until his official retirement in 1951 (Emmett 2009: 84). In 1947, Aaron Director, brother-in-law of Milton Friedman, joined the Law School (Stigler 1988: 158), succeeding Henry Simons; the causes of Simons' death in 1946 are still being disputed (see Van Horn 2014). Jacob Viner moved from Chicago to Princeton in March 1946, which prompted a hiring process, in which Milton Friedman emerged as the compromise candidate between the

Knightian faction of the department, who had wanted to hire George Stigler, and the Cowles Commission (now the Cowles Foundation at Yale University), who had wanted to hire Paul Samuelson. As Mitch states, "It was arguably this mix of technical skills and serious policy interests that made Friedman viable as a compromise candidate in February 1946 garnering support from Marschak and Koopmans of the Cowles Commission as well as Frank Knight and his protégés" (Mitch 2016: 1727). Stigler would eventually move from Columbia University to receive a joint appointment in the School of Business and the Department of Economics at Chicago in 1958, when he was recruited by Allen Wallis, the then Dean of the Booth School of Business (and a former classmate of Stigler's at Chicago), as the Charles R. Walgreen Professor of American Institutions (Stigler 1988: 157).

7. As Stigler mentions on this point, though Knight and Viner were identified with classical liberalism and *laissez-faire* economic policy, the "rest of the faculty were highly varied in their policy preferences: Paul Douglas favored a large economic role for the state; Simeon Leland was a traditionalist in taxation; Harry Millis was an old-fashioned labor economist; Lloyd Mints wrote only on central bank policy; Henry Schultz stuck to his mathematical and statistical knitting; and Oskar Lange was a socialist" (Stigler 1988: 149).
8. The emphasis on quantification and empirical testing of theoretical propositions as a matter of public policy relevance is made quite explicit later by Stigler in his 1964 Presidential Address at the American Economic Association, where he stated the following: "The age of quantification is now full upon us. We are now armed with a bulging arsenal of techniques of quantitative analysis, and of a power—as compared to untrained common sense—comparable to the displacement of archers by cannon… It is becoming the basic article of work as well as of faith of the modern economist that at a minimum one must establish orders of magnitude, and preferably one should ascertain the actual shapes of economic functions with tolerable accuracy… It is a scientific revolution of the very first magnitude—indeed I consider the so-called theoretical revolutions of a Ricardo, a Jevons, or a Keynes to have been minor revisions compared to the vast implications of the growing insistence upon quantification. I am convinced that economics is finally at the threshold of its golden age-nay, we already have one foot through the door. The revolution in our thinking has begun to

reach public policy, and soon it will make irresistible demands upon us" (1965: 16–17).

9. As Becker writes, the "combined assumptions of maximizing behavior, market equilibrium, and stable preferences, used relentlessly and unflinchingly, form the heart of the economic approach as I see it" (1976: 5). But even Becker, who stresses the equilibrium conditions of a market, must also provide a background discussion about the process of equilibration for markets in disequilibrium. As he writes in his textbook, *Economic Theory* (1971: 92), the "stabilizing force is the negative slope of the demand curve and the positive slope of the supply curve because they imply that demand exceeds supply below the equilibrium price, and supply exceeds demand above it. A market can overcome this force and become unstable only if lags are introduced that require demanders or suppliers continually to make erroneous decisions."
10. With regards to monopoly and anti-trust regulation, this was not always the view of Stigler or of the Chicago School.
11. This is further evidence that a sweeping generalization of the Chicago School as always having propagated and idealized the efficiency of the market is a retroactive misrepresentation. For example, in "The Ethics of Competition" (1935 [1997]: 44), Frank Knight argued that "the workings of competition educate men progressively for monopoly, which is being achieved not merely by the 'capitalist' producers of more and more commodities, but by labor in many fields, and in many branches of agriculture, while the producers of even the fundamental crops are already aspiring to the goal." Moreover, Henry Simons, in his pamphlet, *A Positive Program for Laissez Faire: Some Proposals for a Liberal Economic Policy* (1934), went so far as to propose that poor regulation of alleged natural monopolies in utilities required direct nationalization of industries, including telephones and railroads.
12. Among the most important and critical works challenging the necessity of regulating natural monopolies as well as anti-trust legislation against market concentration, see for example Demsetz's "Why Regulate Utilities" (1968) and "Industry Structure, Market Rivalry, and Public Policy" (1973), the latter of which had sparked the Airle House Conference, which was held between March 1 and 2, 1974 in Virginia, debating the merits of anti-trust policy. The papers from this conference were later gathered in an edited volume entitled *Industrial Concentration: The New Learning* (1974).

13. This paper can be viewed and downloaded at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2710201.
14. Being in the mainline of economics (see Boettke 2012), this price-theoretic emphasis in the Old Chicago School can trace itself back to Adam Smith, but its more recent and direct origins can be found in Marshall. As Stigler states, Marshall's "treatment of competition was much closer to Adam Smith's than to that of his contemporaries" (1957: 9). As Marshall himself wrote, "Economic laws are statements with regard to the *tendencies* of man's action under certain conditions" (emphasis added, 1920 [2013]: 32).
15. This shared methodological understanding regarding price theory can be found both in Marshall and Böhm-Bawerk as well. As Marshall writes, "Some parts of economics are relative abstract or *pure*, because they are concerned mainly with broad general propositions: for, in order that a proposition may be of broad application it must necessarily contain a few details: it cannot adapt itself to particular cases; and if it points to any prediction, that must be governed by a strong conditioning clause in which a very large meaning is given to the phrase 'other things being equal.' Other parts are relatively *applied*, because they deal with narrower questions more in detail; they take more account of local and temporary elements; and they consider economic conditions in fuller and closer relation to other conditions of life" (emphasis original, 1920 [2013]: 31, fn. 1).
    Böhm-Bawerk restates this in similar terms: "Accordingly, it seems to me expedient to divide the problem of the theory of price into two parts. The first part concerns the necessity for developing *the law of the basic phenomenon in its purest form*…under the supposition that all persons participating in an exchange are actuated by the one single motive of the quest for the attainment of an immediate benefit through exchange. The second part of the problem consists in incorporating into the basic law the modifications which result from the contributory activity of other motives and factual circumstances…this second part is also the proper situs for revelations concerning the function performed by certain highly concrete institutions" (emphasis original, 1888 [1959]: 212).
16. Ludwig von Mises, whose economic methodology is often misrepresented as purely deductive, or aprioristic (see Boettke and Leeson 2006) makes reference to Frank Knight, with whom he shares a similar methodological perspective on economic theory. As Mises states: "Economics does not follow the procedure of logic and mathematics.

It does not present an integrated system of pure aprioristic ratiocination severed from any reference to reality. In introducing assumptions into its reasoning, it satisfies itself that the treatment of the assumptions concerned can render useful services for the comprehension of reality. It does not strictly separate in its treatises and monographs pure science from the application of its theorems to the solution of concrete historical and political problems. It adopts for the organized presentation of its results a form in which aprioristic theory and the interpretation of historical phenomena are intertwined" (von Mises 1949 [1966]: 66).

17. Following Knight, what we mean by "stationary" is "the use of given resources in accord with a given system of technology to realize given ends" (1936: 259).
18. Following the Socialist Calculation Debate between Austrian Economists, such as Ludwig von Mises and F.A. Hayek, and market socialists, such as Oskar Lange and Abba Lerner, this distinction was made more explicit and developed by the Austrians, particularly Israel Kirzner (1973, 1979), but is still conflated by many economists today. For example, the "tale of two Knights" theme that we have discussed is also embodied in Harold Demsetz, an important economist who straddles between the Old and New Chicago School and whose scholarship embodies elements of appreciation for dynamic market rivalry (see Demsetz 1968, 1973) and elements of appreciation for markets understood in terms of perfect competition (see Demsetz 1993). Following Knight, however, he regards the problem of economic calculation as one primarily about incentives, not about knowledge. As he notes: "Mises and Hayek note that the price system is much better at using knowledge and improving calculation than is central planning, but they emphasize the price system too much. It is not the price system per se that improves knowledge utilization. If it were, a socialist society could implement a price system, and some economists have urged just that…A socialist price system would yield prices that differ from those that would arise if ownership were private. *The problem is not knowledge acquisition* per se *but motives to marshal and use particular kinds of information*" (emphasis added, Demsetz 2002: S664, fn. 18). Though Demsetz is one of the leading scholars in the economics of property rights, in this quote, he ironically misses the point that Mises and Hayek were making an institutional argument regarding private property being a fundamental prerequisite for economic calculation.

As another student of Knight, G. Warren Nutter, states this point, market prices without property is a grand illusion (see Nutter 1968).

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