

Bryan P. Cutsinger and Alexander W. Salter. "The Need for a Price Theory Revival" *The Journal of Private Enterprise* 39(1), 2024, 11-44.

The Need for a Price Theory Revival

Bryan P. Cutsinger

Angelo State University
United States of America

Alexander W. Salter

Texas Tech University
United States of America

Abstract

Is the time right for a price-theory revival? Recent prospects are encouraging, but there are significant challenges. We provide an overview of price-theoretic microeconomics, drawing on lessons from the Chicago, UCLA, and London-Vienna traditions. We also discuss contemporary scholarship about the place of price theory in economics education. Finally, we consider how to raise the relative status of price theory within the academy, which we view as a necessary but not sufficient condition for revitalizing price theory.

JEL Codes: A10, A11, A23, B21, D01, P14

Keywords: Chicago, economics profession, graduate education, London, microeconomics, price theory, price system, property rights, rational choice, Vienna

I. Introduction

All economic systems must answer three questions: (1) What goods and services will be produced? (2) How will these goods and services be produced? (3) Who gets the goods and services once they are produced? Price theory is the study of how market economies address these issues. Unsurprisingly, market prices play a crucial role. Studying how the price system coordinates the disparate plans of producers and consumers is price theory's essential task.

Importantly, price theory is explanatory rather than hortatory. While casual observation and rigorous study confirm the effectiveness of decentralized planning coordinated by relative prices, economics is not committed to the positive proposition that price-based coordination fully satisfies the participants in the market process nor the normative proposition that price-based coordination

is ethically desirable. The first proposition is defensible but by no means certain. The second proposition is outside the bounds of economic science.

Price theory entails careful reasoning about the trade-offs households and firms confront as they attempt to navigate output and factor markets. Market theory correctly places a significant explanatory weight on relative prices. Exchange ratios are not merely measures of expensiveness. In a market economy predominantly characterized by private property rights and a legal system conducive to the exchange of those rights, prices reflect *opportunity cost*—the value of forgone satisfaction. These values are, of course, subjective. They exist in the minds of individual decision-makers and nowhere else. But this makes understanding the price system more important, not less. Relative prices facilitate the *objectification of the subjective*. By forcing market participants to confront a common set of exchange ratios, prices provide buyers and sellers a way to negotiate and adjudicate otherwise-incommensurate values. The give-and-take of the market process could not occur without prices bridging the gap from personal value scales to interpersonal trade-offs.

Part tatonnement process, part mass communications network, the price system is a subtle and magnificent apparatus worthy of serious scientific attention. Unfortunately, the group that should be most committed to studying and appreciating (warts and all) the price system—professional economists—increasingly regards price theory as unworthy of attention. The unsatisfactory state of economics education at both the graduate and undergraduate levels reflects this attitude.

This is unacceptable. Competence in price theory, both in terms of abstract analysis and applied problem solving, is part of the well-trained economist's toolkit. We think it is high time for a price-theory revival. By defining the content and scope of price theory, surveying recent trends in price-theory education, and laying the foundation for a price-theoretic understanding of markets, we hope to instill economists with a new appreciation for this important branch of knowledge.

A. What Is Price Theory?

We implicitly defined price theory in terms of its *scope*, meaning the extent of its subject matter. It is also helpful to define price theory in terms of its *content*, meaning its basic social-scientific commitments.

Below we discuss the definitions of other scholars. Here we provide ours.

Price theory relies on *rational choice* and the *interconnectivity of markets* as modeling conventions. The first specifies the manner in which households, firms, and other actors make decisions. The second specifies the institutional framework that generates feedback effects within and across markets.

Rational choice follows from the recognition of purposiveness: people want things and will act to get them. It is *not* a psychological postulate. Whatever their heuristics or biases, actors' decisions must be rendered intelligible by a formal choice architecture that illustrates the link between desired ends and chosen means. The logic can be expressed in different ways. Verbal reasoning, proceeding from the axiom that all action is the attempt to exchange a less desired state of affairs for a more desired state of affairs, often suffices. Sometimes modeling action as a constrained-maximization problem can be helpful for illuminating hidden assumptions and teasing out testable hypotheses. These ways of doing economics are complements, not substitutes.

Market interconnectivity provides the context for decision-making. The data of rational choice take the form of constraints, such as prices, over which the actors whose behavior we seek to understand and predict have only limited control. It is often convenient to express prices in terms of money (or some other *numeraire*), but we must never forget that the *numeraire* is a stand-in for other goods and services. The economizing actor always seeks the greatest satisfaction at the least cost; when the price of one good in a bundle changes, the quantities of all goods in the bundle can change, too. Because all prices are *relative* prices, movements in exchange ratios can influence behavior in seemingly strange ways, often with counterintuitive welfare implications.

A famous thought experiment by Armen Alchian offers us a magic button that, if pressed, will instantly and costlessly eliminate pollution from major urban centers. Ought we push the button? Almost all non-economists (and many economists, too) would unhesitatingly answer yes. However, price-theoretic reasoning uncovers some unintended consequences we might otherwise miss.

Large urban centers often house low-income populations. Pollution makes the demand for shelter, and hence its price, lower than it would be otherwise. Low-income residents have made a trade-

off: accept a bundle with more of something desirable (shelter) at the cost of more of something undesirable (pollution).

The magic button changes the trade-off. Eliminating the pollution makes the urban centers a more desirable place to live. This increases potential residents' willingness to pay, boosting the market demand for shelter. Rents will almost certainly increase, which may price low-income residents out of their homes. Alternatively, these residents may choose to reduce their consumption of other goods in the bundle to minimize the need to economize on shelter. Either option is costly.

Eliminating pollution seems desirable. Yet burdening the relatively poor among us seems undesirable. Although price theory cannot tell us anything about the ethics of increasing wealth (reducing pollution) by increasing inequality (through raising rents), price theorists can and will bring value judgments to bear when making recommendations based, in part, on their analyses.

Joshua Hendrickson and Brian Albrecht (2020), whose *Economic Forces* newsletter is a must-read for all students of economics, think there are three points that distinguish the price-theoretic perspective: simple models, the pervasiveness of competition, and price-based coordination. Our perspective mirrors theirs. Keeping models tractable forces us to focus on the essential aspects of the problem at hand. Competition reminds us people can and will change their behavior in unusual ways when constraints change. And relative prices—the beating heart of price theory—help us understand the concrete links that reconcile disparate plans and actions.

We discern three conceptually separable yet overlapping traditions within price theory:

- The *Chicago* approach, which emphasizes formal comparative-statics modeling and careful measurement (for example, Becker 2007 [1971], Jaffe et al. 2019; Mulligan 2023)
- The *UCLA* approach, which emphasizes how property rights and contractual structures align agents' incentives and information (for example, Alchian and Allen 2018)
- The *Vienna-London* approach, which emphasizes the subjective nature of cost and choice, the process of interagent plan reconciliation given this subjectivity, and the institutional foundations of social learning (for example, Mises [1949] 2008; Hayek 1948)

We do not assert one of these paradigms is the correct one. All are necessary, and none sufficient, for doing good applied work. The choice of approach is largely a function of the problem at hand. A trained economist should be well versed in all three, in terms of both history of thought and contemporary applications.

Before concluding this section, we briefly discuss how price theory is distinct from contemporary microeconomics. Perhaps the starkest difference is the latter's increasing emphasis on mathematical formalism, which, in our view, has reduced its real-world purchase—a point we discuss when comparing the types of problems each approach asks graduate students to solve. Elegant and sophisticated models are fine, so long as they increase our understanding of how markets work. But it is unclear at best whether these models have.

As Jaffe et al. (2019) note, another difference between the approaches is how they treat strategic behavior and competition. Price theory treats the supply and demand model as a reasonable approximation of most markets, even if the assumptions underlying the model do not hold in the real world. Furthermore, supply and demand often have nonintuitive yet powerful applications, as Mulligan (2023) shows in the case of externalities and governance. By contrast, modern microeconomics' axiomatic approach to modeling sees exceptions to competitive markets everywhere. It thus relies on increasingly complex models that incorporate features of the real world from which price theory purposefully abstracts.

Consider the emphasis price theory places on market supply and demand, as opposed to individual supply and demand. Rather than fretting about whether individuals and firms are rational, price theory focuses its analysis at the market level because that is where the action is. Rationality thus becomes functional rather than axiomatic. This emphasis allows price theorists to address real-world (and policy-relevant) questions. How will changes in the tax rate on capital affect wages? Why might a price ceiling result in greater output? How do gas prices affect the price of housing in urban areas relative to homes in the suburbs? These are questions that the supply and demand model can answer with relatively few variables, making it a powerful engine of analysis.

B. Why Should We Care?

Critics might reply that this way of doing economics does not speak to contemporary scholarly discourse. Refinements in both theoretical and applied economics have relegated price-theoretic reasoning to

introductory courses—and even there it should give way to paradigms that focus on correcting market failures or embrace a statistics-first approach that eschews fruitless speculation about unobservable mechanisms.

We disagree. If price theory is yesteryear's economics, so much the worse for today's economics. Neither theoretical- nor applied-economics advances obviate the need for price theory. If anything, they make price-theoretic foundations even more important. Without the disciplining emphasis on rationality, trade-offs, and market feedback, abstract mathematics and concrete statistics are more likely to obscure rather than reveal the social realities we seek to explain.

Ever-more-elaborate theoretical constructs are valuable only if they help us better understand the world. Empirical findings are only valuable if they help us comprehend the workings of economic forces. The purpose of economic theory, including price theory, is to provide a structure for doing applied work. And applied work must proceed from some theoretical understanding of how the social world operates before it can decide what to measure or estimate. Ironically, many research economists seem to have confused means and ends.

Economists' abandonment of price theory could result in economics losing its relevance. A major concern is the increasing prevalence of partisanship. Theorists engaged in abstract intellectual exercises will—rightly, given their beliefs—see little real-world relevance in their work. Empiricists pursuing an increasingly narrow set of questions for the sake of precision will—rightly, given their beliefs—renounce the search for broader explanations. Both attitudes create a vacuum that ideology will inevitably fill.

We are living through a Great Forgetting: hard-won knowledge that should be a staple of economic science is disappearing. In recent years alone, many prominent and accomplished economists have made claims about public policy that do not withstand elementary scrutiny. Again, the problem is not with value judgments. The problem is with means-ends reasoning. An economist trained in price theory would cringe when encountering claims that, for example, a one-dollar cut in corporate taxes cannot generate more than one dollar in increased wages or that greater immigration cannot improve labor market outcomes for native workers.

Price theory also speaks to subjects traditionally within the purview of macroeconomics. Milton Friedman ([1962] 2017) famously divided economics into price theory and monetary theory,

rather than microeconomics and macroeconomics. His reasoning was important: macroeconomic issues, too, have prices—specifically, the price of *money*—at their core. Hence recent claims that market power and corporate profits are a major driver of inflation, or that price controls are an effective way to curb inflation, can be judged on price-theoretic grounds. The judgment is harsh: given the evidence provided and arguments made, these claims are nonsense.

By itself, our critique is not very useful. We must show the *positive* value of price theory to economic scholarship. This requires several projects on different aspects of price theory. Here, we lay the foundation. We begin by surveying the place of price theory in economics. Next, we discuss the course of graduate economics education, recent works of price theory, and themes of emphasis for a price-theory restoration. We conclude by considering strategies for raising the status of price theory within economic scholarship.

II. The Trend in Graduate Economics Education

To understand why we think a reorientation toward price theory is necessary, it will be helpful to compare and contrast two approaches to graduate economics education. The first is that which was common at the University of Chicago, exemplified by the graduate texts written by Becker ([1971] 2007), Friedman ([1962] 2017), and Stigler (1966). The other approach is that which is common at most universities today, exemplified by Mas-Colell et al.'s (1995) *Microeconomic Theory* and its antecedents—namely, Varian's (1992) *Microeconomic Analysis* and Kreps's (1990) *A Course in Microeconomic Theory*. After briefly discussing these two approaches, we turn to our issue with the now-dominant strain—namely, that it pushes economic reasoning to the analytical background, emphasizing, instead, the mathematical language of economics. Finally, we discuss the current efforts to reintroduce the price-theoretic approach into the graduate curriculum.

A. Comparing Graduate Textbooks

While there were several price-theoretic graduate textbooks in use in the latter half of the twentieth century, Becker's textbook, *Economic Theory*, stands out in our view as the graduate price-theory textbook par excellence. Compared with Mas-Colell et al.'s *Microeconomic Theory*, the standard graduate microeconomics textbook in use today, Becker's book seems almost like a pamphlet, coming in at a mere 222 pages, or roughly 20 percent of the size of today's leading

textbook. Part of this difference is no doubt due to the treatment of additional topics that Becker's book ignores—for example, game theory, social-choice theory, and mechanism-design theory. Nonetheless, the size difference reflects the alternative approaches that each book's authors take to economics.

One major difference between the two books is that whereas Mas-Colell et al.'s begins with a rigorous set of definitions and propositions, which the authors then prove using the formal tools of mathematics and logic, Becker's begins with the basics necessary to begin analyzing issues of practical importance. For instance, throughout Becker's book he introduces a piece of economic theory, uses it to explain some real-world phenomenon, and then asks the reader to explain why the economic reasoning explains his example. In Becker's (p. 42) discussion on incorporating the value of time into the analysis, he points out that the consumption of all goods also requires time, implying that as the value of time increases, so too does the opportunity cost of consumption. He then asks the reader how to apply this analysis to some stylized facts of household organization.

Consider another example about the importance of incorporating the value of time into the analysis. Becker asks the reader to consider “why married women who can earn more in the market sector have fewer children than other married women” (p. 42). The obvious inference from the question is that the value of a woman's time, measured in this context by her market wage, influences her childbearing decisions. What economics offers to our understanding of fertility—a topic that has become increasingly more relevant in light of falling birth rates—and related topics like household production are simply never discussed in Mas-Colell et al. In our view, that these topics are ignored by the leading graduate microeconomic-theory textbook is a major omission.

Consider another basic economic concept: rent. In his discussion of rent, Becker (p. 77) asks the reader to explain why, if we included rents with other costs, total cost would equal total revenue in equilibrium. As Becker explains, rents differ from other costs in that they are price determined rather than price determining. Thus, it is not entirely appropriate to include rents in our accounting of costs. Not only is there no discussion of this distinction in Mas-Colell et al., there is no discussion of the concept of rent whatsoever—a remarkable omission given its relevance to discussions of market power and antitrust.

Another major difference is that Becker's book spends less time on the specific properties of various mathematical functions, whereas carefully defining these functions and describing their characteristics is a critical part of Mas-Colell et al.'s analysis. This difference stems from the latter book's goal of carefully illustrating the underlying assumptions behind the various analytical tools economists use. While doing so is certainly valuable for those working at the cutting edge of economic theory, it is not at all evident to us that such knowledge is necessary for most economists. Indeed, as we explain below, we think mastering the approach embodied by Mas-Colell et al.'s book comes at a high opportunity cost.

The two books also differ in their approach to the types of exercises they assign at the end of each chapter. In Becker's book, the overarching goal of the exercises is the development of the reader's economic reasoning and its relevance for understanding the real world. For example, in the chapter on indifference curves, Becker (p. 35) asks the reader to answer the following questions: "Will a decline in the relative price of black market or stolen merchandise increase the quantity demanded of such merchandise? Is this because people become less 'honest' when the price of 'crime' is lower? How would you measure, at the margin, a person's preference for legal over illegal merchandise?"

Compare that type of problem with the following one, found at the end of the chapter on preference and choice in Mas-Colell et al. (p. 15), which asks the reader to "show that if $f: \mathfrak{R} \rightarrow \mathfrak{R}$ is a strictly increasing function and $u: X \rightarrow \mathfrak{R}$ is a utility function representing preference relation \succeq , then the function $v: X \rightarrow \mathfrak{R}$ defined by $v(x) = f(u(x))$ is also a utility function representing preference relation \succeq ."

Or consider the following problem from Becker's (p. 41) list of questions on demand analysis, in which he asks the reader to evaluate the following statement: "Suppose that potatoes are a strongly inferior good and their relative price is reduced because price supports are removed. This would reduce the market consumption of potatoes." Compare that type of problem with the following problem, found at the end of the chapter on demand theory in Mas-Colell et al. (p. 99), which asks the reader to "show by means of a graphic example that the separating hyperplane theory does not hold for nonconvex sets. Then argue that if K is closed and not convex, there is always some $x \notin K$ that cannot be separated from K ." The

difference in emphasis between the two questions speaks for itself. Becker's questions require a firm grasp of price theory. Their purpose is not to simply test the reader's understanding of obscure mathematical relationships, as is often the case in Mas-Colell et al. Instead, Becker is trying to illustrate the power of economics to analyze topics ranging from fertility, to discrimination, to market power, all of which have real-world policy implications. By comparison, Mas-Colell et al. comes across as mathematically elegant but devoid of real-world relevance.

While our description of the current approach to graduate economics education exemplified by Mas-Colell et al.'s textbook comes across as critical, we recognize the importance of analytical rigor. We simply think the current mixture includes too little emphasis on economic reasoning and too much on formalism. Nonetheless, we do not want to suggest that economists abandon formalism altogether. The challenge is to find the right mixture of economic reasoning and mathematical sophistication.

B. Is Price Theory Taught in Graduate Programs?

The available data illustrate the extent to which microeconomics has displaced price theory. According to the website Open Syllabus, *Microeconomic Theory* by Mas-Colell et al. (1995) appeared in 2,804 syllabi between 2009 and 2022. During this same period, Hal Varian's (1992) *Microeconomic Analysis* appeared in 2,265 syllabi, Jehle and Reny's (2010) *Advanced Microeconomic Theory* appeared in 1,785 syllabi, and David M. Kreps's (1990) *A Course in Microeconomic Theory* appeared in 823 syllabi. By contrast, between 2009 and 2022, Milton Friedman's ([1962] 2017) *Price Theory* appeared in 110 syllabi, George Stigler's (1966) *The Theory of Price* in 96 syllabi, and Gary Becker's ([1971] 2007) *Economic Theory* appeared in 23 syllabi.

We acknowledge that this comparison has limits. The Friedman, Stigler, and Becker books were published long ago and may be considered dated by the profession. However, there are a handful of graduate courses in which these books remain part of the curriculum, although they are typically paired with more recent material. For example, a 2019 Dynamic General Equilibrium and Growth course taught at Clemson University assigned Becker's *Economic Theory* alongside more formalistic works. This could be a fruitful combination. Unfortunately, such examples are rare, according to the data from Open Syllabus.

Another question is whether graduate programs have incorporated the recently published *Chicago Price Theory* book by Jaffe et al. (2019) into their graduate curricula. According to Open Syllabus data, mainstream graduate programs have yet to adopt this book despite its greater level of formalism compared to its Friedman-Stigler-Becker forebears and greater focus on policy-relevant topics. The *Chicago Price Theory* text may yet see widespread adoption by graduate programs in the coming years. However, the book is already five years old. It may ultimately have a limited reach—to the detriment of the profession, we believe.

The available data are insufficient to establish precisely the extent to which graduate economics education has moved away from price theory. Yet the data we do have indicate that price theory is, at best, a marginal part of today's graduate curricula. That is a problem, for the reasons we now discuss.

C. Switching the Analytical Foreground and Background

One effect of the increasing formalism in graduate economic education is that mathematics has replaced economic reasoning in the analytical foreground. Math has become the essence of economic analysis instead of an input into the production of economic analysis. As a result, economics has become increasingly more abstract and less relevant for practical problems. While we do not suggest that increased rigor is undesirable, our concern is that the emphasis on mathematical sophistication has brought unintended and undesirable consequences.

For example, this shift in emphasis has led many young economists to focus on applied research using sophisticated statistical tools without an underlying theoretical framework to guide them, as the economic theory they are learning in graduate school seems far removed from the real world. This atheoretical approach to economics is concerning for several reasons. First, without a theoretical framework, it is difficult to identify the underlying causal mechanism that the statistical tools purport to measure. Thus, relationships that appear causal today may not be in the future, especially if policy makers try to leverage the apparent link to achieve a particular goal. A related issue is that much policy-relevant causal-inference research ignores the political economy of policy making itself, which is, in our view, another casualty of the recent shift of economic reasoning to the analytical background. While we welcome the continued development of the economist's empirical toolkit, we

worry that without the grounding provided by economic theory, our sophisticated empirics will blind our profession to the simple but profound insights price theory provides.

Another issue with the shift in emphasis from economic reasoning to mathematical formalism is the trade-off that it entails. Developing the mathematical tools necessary to master the material in Mas-Colell et al. (1995), for example, requires significant time that students could otherwise allocate toward developing their economic reasoning. As a result, many graduate students in economics possess advanced mathematical skills but little to no economic intuition. Certainly there is a role for advanced theoretical research in economics. But mastering the material in contemporary advanced microeconomics textbooks should be left to those who wish to do advanced theoretical research, with price theory forming the core of the graduate economics curriculum.

These issues have led to the current equilibrium, which separates graduate students into two groups. The first group eschews theory in favor of sophisticated empirical analysis because the students either lack the mathematical skills to publish theoretical papers in leading journals or view economic theory as too abstract to be useful for applied research. The other group uses its mathematical talents and skills to work on increasingly abstract and formal models divorced from reality. There are exceptions, of course. However, this classification adequately captures the current state of affairs and motivates, at least in part, our desire to reintroduce price theory into economics.

D. Data Do Not Speak for Themselves

The growth in popularity of causal-inference methods provides another difference between price theory and contemporary microeconomics research. Economists use these methods, such as difference-in-differences and synthetic control, to estimate the causal effect of changes in, for example, government policy or productivity. While some of this work uses price theory as a guide to measurement, much does not, opting to let the data speak for themselves. The problem with this atheoretical approach is that the data never speak for themselves. Theory—a conceptual apparatus to navigate the data—is impossible to avoid. Without theoretical grounding, particularly in price theory, scholars can easily be misled by their own results..

Consider a recent paper by Minton and Mulligan (2024). They note that today's barbers are no more productive than their early twentieth-century counterparts, whereas farmers' productivity has risen substantially since the beginning of the 1900s. However, as Minton and Mulligan note, both barbers' and farmers' earnings have increased by approximately the same amount over the past 100 years. Minton and Mulligan ask whether this observation should lead us to conclude that productivity has no causal effect on wages. A naive application of the difference-in-differences method would suggest the answer is yes.

In this case, the farmers constitute the treatment group and the barbers the control group. The difference-in-differences method would estimate the difference between the difference in farmers' earnings and the difference in barbers' earnings. Since the rise in earnings for both professions has been roughly equal, the difference-in-differences method would indicate that productivity has no causal effect on wages—a startling conclusion that runs counter to what basic economics would suggest.

As Minton and Mulligan (2024) explain, however, the price-theoretic approach tells us that our occupational choices depend, in part, on the wages paid by different professions. If farmers' earnings are rising relative to those of barbers, people will leave the barbering business to start farming. This adjustment will continue until barbers' wages increase by the amount necessary to restore equilibrium between the two labor markets. Indeed, no one would have continued being a barber if their wages had not kept pace with those of other occupations.

In this example, the difference-in-differences method illustrates that productivity increases that apply to a particular profession do not significantly affect the earnings of those working there. What the difference-in-differences method (or any causal-inference strategy, for that matter) cannot tell us is the occupational-choice mechanisms that determine how higher productivity affects wages in general.

Minton and Mulligan (2024) recognize that there is nothing inherently wrong with using the difference-in-differences method, provided we understand what it measures. But without price theory, we will likely make erroneous statements about important economic relationships, as the barber and farmer example shows. Price theory enables us to use causal-inference methods fruitfully by telling us precisely what we are measuring and what the measure means.

E. The University of Chicago's Price Theory Summer Camp

We are not the only economists concerned with these problems. In response to the trends in graduate economics education, some programs have reintroduced price theory into the graduate economics curriculum. The most well known of these efforts is the Price Theory Summer Camp hosted by the Becker Friedman Institute for Economics at the University of Chicago. The Price Theory Summer Camp is a weeklong program immersing students in the Chicago-price-theory tradition through lectures, problem sets, and discussions.

Unlike a traditional graduate microeconomics course, the camp emphasizes using economic reasoning to address real-world questions, with mathematics playing a supportive role. For example, a lecture may begin with a question such as “How would an increase in the minimum wage affect industry profits?”

Questions like this one highlight core economic principles and, because they leave many aspects of the underlying model unspecified, require students to fill in the pieces missing from the model. This question, in particular, raises several issues that students must address before arriving at an adequate answer. These include:

1. What time horizon are we considering?
2. Are the firms in this industry price takers in the labor market?
3. What is the elasticity of substitution between labor and capital?
4. How elastic is industry demand?
5. Does the industry exhibit constant or increasing costs?

While open-ended questions like this one have didactic value, as they require students to reason through the other parts of the model, such questions are also of practical significance. The minimum wage debate is perennial in politics, so understanding the minimum wage's effect on industry profits is relevant to policy makers. This question also highlights the political economy of corporate support for the minimum wage. If raising the minimum wage increases industry profits (as it may if the industry is more labor intensive on average than at the margin), then that may explain why some corporations support raising it, despite the appearance that it contradicts their self-interest.

This approach to economics mirrors our graduate education at George Mason University, where our price-theory course emphasized economic reasoning and real-world applications. Unfortunately, outside of the University of Chicago, George Mason University, and

a handful of other graduate programs, price-theory courses are uncommon, as many regard this approach to economics as unsophisticated. Clearly we disagree with this view. Instead, price theory should be at the center of graduate education. Thus, following the Becker Friedman Institute's Price Theory Summer Camp, we are launching a price-theory seminar hosted by the Free Market Institute at Texas Tech University. Our first seminar ran in early January 2024. We look forward to reporting the results and working toward a repeatable, generalizable model for price-theoretic education.

III. Recent Price-Theory Literature

Despite the decline of price-theoretic economics in graduate education, there are reasons for optimism. New price-theory texts provide opportunities for better in-class instruction. Economists are still writing scholarly papers on price theory. Recent works can serve as a foundation for a price-theoretic revival. Building the programs and institutions required to sustain renewed interest in price theory will be hard work, but many of the academic raw materials are there.

A. Books

At the graduate level, the most important recent book is *Chicago Price Theory* by Sonia Jaffe, Robert Minton, Casey Mulligan, and Kevin Murphy (2019). The text is based on the celebrated first-term price-theory course at the University of Chicago. Dedicated to Gary Becker, it provides a solid overview of the economic way of thinking to students pursuing an economics PhD. Portions of the text would be suitable for MA programs as well.

Chicago price theory is “an empirical subject that measures, explains, and predicts how people behave.” It has “always been tethered to practical questions” (Jaffe et al. 2019, p. 1). The goal is not theoretical refinement for its own sake, but developing tools and concepts to guide measurement.

Jaffe et al. distinguish price theory from microeconomics: “Both typically begin with the consumer or household, but price theory stresses how consumers react to prices, many times without reference to utility or even ‘rationality’ [!]; whereas microeconomics takes care to lay down an axiomatic foundation of the utility function and individual demand functions” (Jaffe et al. 2019, pp. 2–3).

While microeconomics often focuses on strategic interactions and small-group settings, price theory is primarily concerned with markets and competitive equilibrium. Price theorists emphasize

competitive markets because “for most purposes, it is a reasonable description of most markets” (Jaffe et al. 2019, p. 2). Price-taking behavior and the zero long-run-profit condition are the default, but this does not rule out price-searching behavior.

Price theory is “stingy as to the number of variables that are declared to be important in any given application” (Jaffe et al. 2019, p. 2). This is no mere aesthetic preference. Parsimony is essential for putting market-competition models to work. This approach is valuable because it highlights secondary or downstream effects resulting from changes in parameters, such as public policy. Oftentimes, “the most important effects of policy, technical change, and other events are not necessarily found in the immediate proximity of the event” (Jaffe et al. 2019, p. 3). The authors use the example of ethanol subsidies: corn markets for energy receive the subsidy and corn markets for animal feed do not, yet the latter may gain more than the government pays because of the increase in the equilibrium feed price.

At times, *Chicago Price Theory* reads like a collection of extended lecture notes. Links between the covered topics and contemporary scholarship could be stronger. Nevertheless, the text is a useful corrective to excess abstraction in graduate microeconomics. “Completing a mathematical microeconomics course will not make you good at price theory,” the authors warn; “price theory skills are obtained by practicing applications of the toolkit” (Jaffe et al. 2019, p. 4). We believe that this is the correct approach and that this book can help aspiring economists learn it.

At the undergraduate level, the most notable recent publication is *Universal Economics* by Armen Alchian and William Allen (2018). This text was incomplete at the time of Alchian’s death in 2013. It was edited by Jerry Jordan, who received his PhD from the University of California, Los Angeles under Alchian’s direction. This book is an excellent introduction to the economic way of thinking, reflecting the UCLA school’s traditional emphasis on property rights in economic analysis (Henderson and Globerman 2021).

Unlike *Chicago Price Theory*, *Universal Economics* does not describe itself as price theoretic. And as an undergraduate introductory text, it contains scant mathematics. Nevertheless, this book will make serious demands of its readers. Its dedication to the economic way of thinking is uncompromising. Those familiar with price theory will easily discern its distinctive mode of analysis. Alchian and Allen trace, step by step, the logic of human behavior guided by property rights,

prices, and profits. Alchian throughout his career counseled his students and peers to pay attention to “economic forces *at work*” (Alchian 1977). The text’s deft combination of process-based and equilibrium-based analysis follows this theme.

The book begins, as many economics texts do, with the fact of scarcity, meaning “limitations of what is available to satisfy unlimited desires” (Alchian and Allen 2018). Scarcity implies the necessity of choice, both individually and socially. Hence economists must study how institutions govern production and distribution. Alchian and Allen survey various allocation schemes (first come, first served; violence; voluntary exchange; etc.) and justify economists’ assumption of rational, self-interested behavior.

Another important topic is the infamous f-word of economics: *free*. Alchian and Allen distinguish between *economically free* (nonscarce) goods and zero-money-price goods. Importantly, “charging a zero price does not convert an economic good into a free good. As we will see, distributing goods for ‘free’—at a zero price—paradoxically makes their scarcity seem even greater” (Alchian and Allen 2018).

Universal Economics grounds economics in the laws of demand. Property rights, choice and opportunity cost, and exchange are the tools Alchian and Allen use to guide the reader to market-demand theory. They also use these tools in the next part of the book, which studies producer theory. Both sides of the market, demand and supply, have the same foundational logic. This is what makes economics *universal*, justifying the text’s title. Brian Albrecht and Joshua Hendrickson (2021) recount an apocryphal, but all too believable, story about Alchian that reveals his thinking: “A younger faculty member who was taking over teaching responsibilities approached Alchian and asked him what he generally taught. Alchian said, ‘I teach the theory of demand.’ The other faculty member replied, ‘Yes, I have a couple of weeks on that. What else do you teach?’ Alchian purportedly answered, ‘I teach the theory of demand.’”

For Alchian and Allen, markets are first and foremost an opportunity for social inquiry, not social control. Accordingly, they approach the traditional syllabus of topics very differently from most textbook authors. The most obvious example is their analysis of price-taking and price-searching behavior by firms. Other books treat these differences in market structure as synonymous with either competition (price taking) or monopoly (price searching). But of

course this is wrong. Price-taking markets can be uncompetitive and price-searching markets competitive. Oftentimes, the most fascinating economic phenomena, such as marketing, bundling, and quality differentiation, occur in competitive price-searching markets. Lazy economists habitually interpret these business tactics as evidence of imperfect competition. In reality, they exist precisely because firms are fiercely competing for customers.

Other important topics include equilibrium non-market-clearing prices, contractual dependencies between firms, and even inflation's effects on relative prices. Again, the book is clearly price theoretic on these topics, although it does not label itself as such. That makes the case for price theory stronger, not weaker. Alchian and Allen implicitly equate the price-theoretic approach to economics with the universality of economics. That seems like an affirmation to us!

B. Articles

We now turn to scholarly papers that consider the role of price theory in economics. These papers are meta-price-theoretic: they are not applications of price theory to concrete problems but discussions of the relationship between price theory and contemporary scholarship more generally. The first paper provides evidence that price theory is, and has been for decades, in decline. The second paper offers a perspective on contemporary price theory with which we do *not* agree. The third and fourth papers, considered together, provide a path forward for a price-theoretic revival.

Colin Harris, Andrew Myers, Christienne Briol, and Sam Carlen (2022) pose an important question: what defines economics? “A discipline is bound by some combination of a shared subject matter, shared theory, and shared technique. Yet modern economics is seemingly without limit to its domain. As a discipline without a shared subject matter, what is the binding force of economics today?” (Harris et al. 2022, p. 1). The authors “combine topic modeling and text analysis to analyze different approaches to inquiry within the discipline of economics” (Harris et al. 2022, p. 4) and conclude that economic theory is waning, whereas empirical techniques are waxing.

The authors use machine learning to identify key words in articles in the top five economics journals: the *American Economic Review*, *Econometrica*, the *Journal of Political Economy*, the *Quarterly Journal of Economics*, and the *Review of Economics and Statistics*. Section 3 of the paper has an ominous title: “The Decline of Price Theory.” As

expected, the authors document a flagging “trajectory of price theoretic language” in the top journals (Harris et al. 2002, p. 9). Here are the main results: “Price theoretic language rises from an average of 3% of all words in our dataset in 1886 to approximately 5.5% in 1940 where it remains nearly constant for five decades. The average percentage of price theory words declined steadily after 1980, ending around 3.5%” (p. 9).

This decline cannot be explained by a substitution from verbal to mathematical logic. Nor does a migration to (perceived) heterodox subfields, such as Austrian economics, capture the change. Instead, the culprit appears to be “the extent to which the economics profession has substituted econometric analysis for price theoretic analysis” (Harris et al. 2022, p. 15). The authors conduct several robustness checks, including focusing on the post-1980s credibility revolution in econometrics and comparing key words’ prevalence in the journals to their prevalence in the works of a paradigm’s preeminent scholars (Gary Becker for price theory, Joshua Angrist for econometrics).

Harris et al. (2022, p. 24) reach an inauspicious conclusion: “The decline in price theory is not simply a reshuffling of the importance of techniques and theory. A decline in price theory *is* a decline in economics.” We agree, which is why we think properly trained economists should make a concerted effort to resist this trend.

Next we turn to Glen Weyl (2019, p. 329), who has a very different perspective on price theory. On his interpretation, price theory still plays a “valuable complementary role” to other economic paradigms. Weyl’s conception is quite different from ours and from the definition employed by the modern expositors of the Chicago school. He defines it as “neoclassical microeconomic analysis that reduces rich and often incompletely specified models into ‘prices’ (approximately) sufficient to characterize solutions to simple allocative problems” (329).

Weyl explicitly distances himself from the Chicago (and implicitly UCLA) approach to price theory. What he calls the traditional definition, based on “price-taking, partial equilibrium analysis,” “limits price theory to topics and approaches that no longer constitute an important focus of cutting-edge mainstream economic research, given that such models are fairly well understood by now. Thus, it limits price theory to being of primarily pedagogical and historical interest” (Weyl 2019, p. 331). As we have seen, price theory does find great value in price-taking models and partial-

equilibrium analysis, but only because of their utility in solving concrete economic problems.

Weyl (2019, p. 331) claims his definition “helps make sense of the complementarity of price theory with advances in other methodologies of economic analysis that has helped fuel a resurgence in price theoretic work in the last decade.” Hence the main consideration is the sociology of the economics profession—what methods and topics are currently in vogue among the profession’s mainstream—rather than the way of thinking as a problem-solving apparatus.

Price theory is one of three reigning paradigms in economics, Weyl contends. The other two are the “reductionist,” which eschews price-theoretic parsimony in favor of “solving the ‘true’ or correct complex models fully,” and the “empirical,” grounded in the belief that refinements in data collection and analysis “will soon make it possible for us to directly observe answers to basic economic problems, making price theory less relevant” (Weyl 2019, p. 356). It thus occupies a middle position between two endpoints.

Importantly, Weyl “does not claim that price theory is or should be the lone or even primary core of economic analysis.” He believes instead that “the three traditions are complementary and that neoclassical microeconomics has been most successful when clear lines of communication, exchange, and mutual esteem across the three traditions have been most open” (Weyl 2019, p. 356). Price theory compensates for reductionism’s weakness of fragility and empiricism’s blind spot concerning the theory-ladenness of all observation. But price theory without reductionism is “barren” because it “cannot generate new qualitative insights, allocation mechanisms, or channels for transmitting economic effects.” And price theory without empiricism is “only an abstraction” (357).

We find much to agree with in Weyl’s defense of price theory against the reductionist and empiricist paradigms. However, we contend that by placing price theory in an intermediate category between these two poles, Weyl has unnecessarily (and unhelpfully) conceded the fundamental orientation of economics to paradigms that place social control in the foreground and social comprehension in the background. He appears to accept the premise that the purpose of economics is discovering optimal solutions to planner-problem analyses, relegating the economist to the position of an efficiency expert.

Optimal policy is an important topic, but it should not be the driving force behind economics. We do not need to know how to improve social interactions in order to comprehend them and make predictions about them. In fact, focusing too much on improvement stifles comprehension and muddies predictions. Weyl is right that there is a connection between price theory and pragmatism, but that pragmatism pertains to the nature of the problem at hand, not the scope of economics. We cannot agree that price theory is one useful tool, along with reductionist models and empirical techniques, in the toolbox of economics. Price theory *is* economics; the others are not.

Peter Boettke offers a more satisfying perspective on price theory. His important paper, titled “Don’t Be a Jibbering Idiot” (Boettke 2017), is both striking and amusing. The phrase comes from a lecture by James Buchanan, whose monumental contributions to political economy have strong price-theoretic foundations. Like Weyl, Boettke recognizes the problem with non-price-theoretic economics: “Economics without price theory is not *economic theory*, and measurement without theory isn’t *empirically meaningful*” (p. 10). However, Boettke does not classify price theory as an intermediate form of economic analysis between high formalism and brute empiricism. He recognizes that price-theoretic economics is economics simpliciter.

Boettke (2017, p. 10) makes a needed and impassioned plea for the “basic principles of the science.” These principles may be succinctly stated: “We live in a world of scarcity, and as a result, individuals must choose. In choosing, individuals face tradeoffs, and in negotiating those trade-offs, they need aids to the human mind to guide them. Prices serve this guiding role, profits lure them, losses discipline them, and all of that is made possible due to an institutional environment of property, contract, and consent” (p. 13).

The job of economists is to communicate, to their scholarly peers and to the general public, the important ways that “(1) individuals in the market are constantly adapting and adjusting, (2) coordinative processes of adjustment align the production plans of some with the consumption demands of others, and (3) the unintended yet reliable orderliness of this coordinative process emerges spontaneously because of the role that property, prices, and profit and loss play in guiding, cajoling, and disciplining individuals” (Boettke 2017, p. 14).

For Boettke, price theory illuminates reality most clearly when institutions and processes are in the foreground and equilibrium and comparative statics are in the background. In a coauthored paper

with Rosolino Candela, Boettke makes the important point that price theory must serve as a “prophylactic against popular fallacies” (Boettke and Candela 2017): one of its most important functions is refuting the folk economics of both the man on the street and the underlettered intellectual.

Boettke and Candela add important nuance to the standard narrative regarding price theory’s historical prominence and decline. They argue that the Chicago tradition also includes important insights from scholars associated with the University of California, Los Angeles and the University of Virginia. The UCLA school emphasizes property rights and the Virginia school emphasizes political economy and law and economics, but both schools approach these subfields with strong prior commitments to price-theoretic reasoning. Furthermore, Chicago itself can be divided into an old Chicago school, associated with scholars such as Frank Knight and Henry Simons, and the more familiar new Chicago school of Gary Becker, Milton Friedman, and George Stigler. While these approaches are complementary in our view, Boettke and Candela (2017, pp. 728–29, citation omitted) rightly point out significant differences:

Chicago price theory in the Friedman/Stigler/Becker generation became an exercise in defining the optimality conditions given any situation within which human actors find themselves. Moreover, it was not characterized by comparative analysis of the institutional conditions within which constant adjustments and adaptations to changing conditions by economic actors produce a tendency toward equilibrium, as it had been under the Knight/Viner/Simons generation.

Due to this subtle shift in approach, the Alchian/Buchanan/Coase branch of price theory . . . provides the more effective “prophylactic against popular fallacies” of pervasive market failure and the implication that government provides a corrective to such failures. Rather than explain away the notion of market failures by way of the TPE [tight prior equilibrium] assumption, this “neglected branch of Chicago price theory” emphasized the importance of comparative institutional arrangements, namely that changes in rules and property rights assignments generate market processes, which ameliorate “market failures”—such as externalities, asymmetric information, and monopoly power—through entrepreneurial action, adaptation, and adjustments guided by relative prices.

Boettke and Candela (2017, p. 749) are surely correct that models of competitive equilibrium and the method of comparative statics, by themselves, do “not invite an inquiry into the diversity of institutions that arise to ameliorate our human imperfections and potentially turn situations of conflict into opportunities for social cooperation.” Yet a properly trained economist must be familiar with these models and methods. Putting them to work is still necessary for answering many practical questions. More importantly, we cannot fully appreciate the role of institutions without formal models as foils (Albrecht and Kogelmann 2020).

We draw three conclusions from these recent works: (1) There has been a decline in price theory, to the detriment of the profession. (2) Price theory is *not* one among several valid approaches to economics; it *is* economics. (3) Economists should be comfortable with formal price-theoretic reasoning, whether verbal or mathematical, because these skills are immediately useful in solving problems and because they are a necessary input for answering broader questions about property rights, law, politics, and other governing institutions.

IV. Reintroducing Price Theory

Revitalizing price theory means focusing on the enduring themes that reveal themselves when we put the economic way of thinking to work. Rather than present anything so specific as a syllabus, we briefly survey what we view as the indispensable points.

A. The Nature and Scope of Economics

Economists often define economics in terms of how we study human behavior rather than by its subject matter. For example, David Friedman (1986) defines economics as “that way of understanding behavior that starts from the assumption that people have objectives and tend to choose the correct way to achieve them” (p. 2).

The first part of the definition—that people have goals—is evident from introspection. Economists assume these goals are reasonably simple, even though they vary considerably. We make this assumption because if we did not, then all behavior could be “explained” by people’s goals. For example, most people drink coffee every morning. What explains this behavior? One answer is that people do so because they like it. While we do not doubt that people like coffee, this answer does not truly explain why they drink it every

morning. To explain human behavior, we must go beyond trivializations.

The second part of the definition—people “tend to choose the correct way” to achieve their objectives—is what economists call *rationality*. While most people associate rationality with notions of reason or logic, we do not assume that people choose their objectives or the means of achieving them through reason and logic. While some people may act this way, the economist’s conception of rational behavior does not require it. Indeed, other mechanisms, such as evolution or trial and error, could produce rational behavior (Alchian 1950). Whatever its source, rationality is a foundational component of the economic approach to human behavior. Note that rationality is an assumption about individuals, not groups. What is in the interest of an individual might not be best for the group to whom they belong. Thus, the individual pursuit of self-interest might not result in socially beneficial outcomes in such cases.

The rationality assumption’s role in price theory differs from that in microeconomic analysis. The emphasis in price theory is on aggregate phenomena—for example, the market demand for gasoline rather than a particular individual’s demand for gasoline—while in microeconomics, the emphasis is on modeling the behavior of optimizing agents. However, individual actions are the source of aggregate phenomena. Thus, studying the latter requires us to make assumptions about the former. Hence the assumption that people act rationally. Nonetheless, price theory’s analytical framework and principal conclusions do not require everyone to act rationally. All they require is that people behave rationally on average.

Even if we leave this qualification aside, other factors will likely produce rational behavior—namely, selection effects and feedback mechanisms. When analyzing the behavior of a profit-maximizing firm, we are not dealing with a random sample of the population. The individuals responsible for determining a firm’s behavior are in that position because they possess specific characteristics—for example, superior managerial ability. Thus, these individuals are more likely to behave rationally, as they have a strong incentive to do so. Nonetheless, people make mistakes, but when they do, feedback mechanisms punish them in some way (despite what some people think, mistakes are not inconsistent with rational behavior). Returning to our example of the firm, a manager that consistently fails to act rationally will eventually be displaced by one who does.

Thus, selection effects and, over time, feedback mechanisms will tend to ensure rational behavior.

Nothing in Friedman's definition limits the study of economics to what many people regard as narrow economic behavior. Instead, the definition implies that economics applies to all human actions, whether in the market, politics, the family, or anything else. Consequently, the subject-matter boundaries between economics and other social sciences are largely indistinct. Where the fields differ is in the economist's assumption of rational goal-oriented action. This methodological difference has extended the boundaries of economics beyond its traditional subject matter, yielding insights into both the humanities and economics' sister social sciences—a phenomenon called *economic imperialism* by both its proponents and critics (see Lazear [2000] for a survey of the contributions of the economic approach to human behavior to other fields).

Nonetheless, the core of economics consists of a few topics—namely, those dealing with individuals', households', and firms' decisions and the mechanisms by which these individual actions become mutually consistent. Studying these mechanisms would be pointless in a world with unlimited resources, as the unlimited abundance would ensure mutual cooperation among the individuals in that world regardless of their decisions. That world is not the one we occupy. The essential feature of the world we occupy is scarcity.

B. Price Theory Is a Science

The starting point of price theory is the real world. We apply price theory to the real world through models to deal with its complexity. Models simplify the real world by allowing us to focus on the factors relevant to the problem we are trying to solve. They consist of several components, including our assumptions about people's goals and constraints and the environment within which people pursue these goals. While simplification is unavoidable, our models must not become too abstract; otherwise, they become empirically and practically useless. These models produce testable hypotheses, meaning that price theory is a science. However, applying price theory to real-world problems is also an art requiring practice to master.

There are several methods of testing a model. The first is whether the model's predictions follow logically from its assumptions. For example, the assumption that firms' sole objective is to maximize profits is inconsistent with the notion that firms engage in race or

gender discrimination (assuming that doing so is at odds with maximizing profits). In this case, the assumption and the predicted behavior are logically contradictory. A related method of testing a model is whether the model's assumptions are logically consistent. Thus, if a model's assumptions and predictions are inconsistent, or if the assumptions are mutually inconsistent, the model will not be useful.

Ideally, our models should be as general as possible. A model explaining the behavior of many consumers is superior to one that explains the behavior of a single consumer. Nonetheless, generality involves a trade-off, as the more general a model becomes, the less accurate it will be. Thus, the goal is to find the appropriate level of generality and predictability for the problem at hand, recognizing that there will always be a trade-off between the two. Thus, as noted above, there is an artistic component to constructing models that ignore the irrelevant and unimportant details while focusing on those critical for understanding the problem at hand.

C. Scarcity and Competition

Scarcity exists whenever and wherever we must decide how to allocate scarce means to competing ends. Both parts of this definition of scarcity are critical. If means are scarce, but there is only one end, we do not have an economic problem. Instead, we have a technological problem, which, while potentially challenging to solve, does not require value judgments. Likewise, if there are competing ends but unlimited means, we do not have an economic problem, as the existence of unlimited means means we can achieve all ends.

Since we live in a world of scarcity, we must decide which ends to pursue and the extent to which we will pursue them. Complicating this situation is that we must compete with others, as they, too, want to use the available means to satisfy their ends, which often differ from our own. As a result, our choices and the choices of others will conflict. Competition for using scarce means emerges between individuals to resolve this conflict. Thus, competition exists wherever and whenever there is scarcity, and since scarcity exists in every social system, there will be competition in every social system, be it capitalism, socialism, or any other system.

The question we must consider, then, is not whether there will be competition but what type of competition there will be and its effects on people's behavior. Competition can take numerous forms, including might makes right; first come, first served; and offers of

mutual exchange. Each form discriminates in some way, which is the purpose of competition—namely, determining who will get the right to use scarce means for their desired ends. For example, if we compete for scarce means through offers of mutual exchange, as is common in market economies, those who make the best offer will have greater influence over which ends will be pursued.

A person's productivity affects a person's willingness to pay for scarce means. The higher a person's productivity, the more he or she will typically be willing to pay. Hence, a system that allocates scarce means through offers of mutual exchange will tend to discriminate in favor of the most productive individuals, incentivizing people to invest in their productivity. As a result, productivity will increase over time and on average, thereby increasing the size of the economy. Thus, market economies are prosperous not only because they efficiently allocate resources but because the dominant competitive criteria reward productivity.

The general principle, however, is more broad. All forms of competition incentivize the acquisition of whatever the competitive criteria are. Some competitive criteria encourage behaviors that grow the economy; others encourage behaviors that do not affect the economy or shrink the economy, leaving us all poorer.

D. The Tasks of an Economic System

Since all societies, irrespective of their economic system, must confront the consequence of scarcity, all economic systems must perform four tasks:

1. Determine which goods to produce and in what quantities
2. Determine which inputs and processes producers will use to do so
3. Determine the distribution of goods among society's members
4. Determine the share of those goods allocated toward producing future goods

In a market economy, the price system performs these tasks by transmitting information about supply and demand conditions to market participants and providing incentives to use this information in a manner consistent with the behavior of others.

Market prices reflect people's willingness to pay for goods. From the producer's perspective, market prices for goods guide production by communicating which goods consumers value the most, while

market prices for inputs, such as labor and capital, do so by communicating their value in alternative uses. Input owners, including workers, sell their services to firms in exchange for a claim on the economy's total output, which, along with the distribution of resource ownership, determines the distribution of income. Finally, market prices—in this case, interest rates—determine the share of current output set aside for future production. While the pattern of production, income distribution, and rate of economic growth that emerge in a market economy are the product of human action, they are not the product of human design. Instead, these phenomena emerge spontaneously.

E. Property Rights

Property rights must be secure for market prices to perform these tasks effectively. These rights consist of two components: the right to authorize the uses of the owned resources and the right to sell the owned resources to others. This definition implies that property rights ensure that market exchange is voluntary. Indeed, a market economy is a system of exchangeable property rights. The prices that emerge from the voluntary exchange of property rights serve to generate the knowledge and incentives necessary to perform the four tasks performed by an economic system. Thus, the less secure property rights are, the less effectively the price system will perform these tasks.

To understand the relationship between property rights and prices, we must recognize that any action's cost is the most valuable forsaken alternative. Since many actions require that we give up things other than money, cost includes more than monetary expenditure. The full cost of any choice consists of the monetary outlay (if any) and whatever nonmonetary costs we incur making the choice. Property rights internalize the costs of our choices by ensuring that we bear more of the full costs. The less secure property rights are, the lower the cost to the individual chooser but not necessarily to society. When we do not bear the full costs of our choices, we behave differently from when we bear the full costs.

The prices that emerge through exchange when we do not bear the full costs of our actions differ from those that would emerge if we did. Thus, the knowledge and incentives embodied in these prices will lead to a different production pattern, income distribution, and economic growth rate than would occur if property rights were complete. However, defining and enforcing property rights is costly,

so sometimes leaving some resources unowned or in the public domain will make sense, implying that the full cost of nearly every action is more than the money cost.

F. The Invisible-Hand Conjecture

Whenever and wherever property rights are generally secure, the price system performs the four tasks of the economic system by harnessing people's self-interest, resulting in peaceful, specialized, and productive activities. Market economies reward people with higher incomes for working for the good of one another, enabling greater control over scarce means. Moreover, the price system accomplishes these tasks without centralized control over the economic system. Instead, order emerges through the millions of interactions between people in the market pursuing their objectives. We call this phenomenon the *invisible-hand conjecture*.

We call it a conjecture because it is contingent on certain institutional constraints—namely, secure property rights. Absent these rights, self-interest might not result in desirable outcomes, as people do not bear the full costs of their decisions. When they do not, the behavioral patterns will differ from those that emerge when they do. Thus, the invisible-hand conjecture depends on secure property rights, which create incentives that channel self-interest toward wealth creation. Without secure property rights, self-interest can lead to actions that do the opposite.

This perspective on human behavior shifts the analytical focus away from individual intentions toward the incentives created by the institutions within which people choose. Good institutions create incentives that ensure that self-interest promotes the general welfare. Indeed, the invisible-hand conjecture implies that people can do good for others without consciously intending to do so. For example, by saving a fraction of their income, a person may reduce poverty more than by donating the amount saved to charity, as the latter may be less effective in a world characterized by scarcity. Whether that is so is ultimately an empirical question, however. The point is that self-interested behavior can generate order and promote the general welfare under the appropriate institutional constraints.

G. Types of Economic Activity

Economic activity consists of three categories. The first is consumption, the ultimate economic activity that drives the others. Be careful not to interpret consumption as narrowly materialistic.

While consumption certainly entails the consumption of material goods, it also includes nonmaterial components. For instance, people may acquire more resources in order to consume more time with their friends or family. Consumption provides what we misleadingly refer to as utility, essentially a stand-in for what economists assume people pursue.

The second type of economic activity is production. It includes those activities that most people associate with production but also activities that transport goods over time and space. Investment refers to the transportation of goods over time. Economists call these goods capital goods, which produce future goods. Transporting goods over space is also a form of production. Thus, production refers to a class of activities much broader than the name implies.

Productive activities involve using resources—goods or services used in production. We refer to these resources as inputs. For our purposes, we assume there are only two inputs: capital and labor. Labor refers to human effort, both physical and mental. Capital refers to the services provided by equipment, buildings, inventories, and raw materials. Economists generally treat labor and capital as flows—for example, labor hours or machine hours—rather than stocks. Thus, the wage rate and rental rate on capital refer to the unit prices of labor and capital services, respectively.

Productive activities also involve technology, which refers to the stock of knowledge about physical and social phenomena, the application of this knowledge to production, and the knowledge regarding day-to-day production operations. Technology differs from pure science in that the latter's purpose is understanding, whereas the former's purpose is use. Technology determines the amount and types of goods the available resources can produce.

The third type of economic activity is exchange. Like production, exchange involves conversion, but instead of modifying the physical characteristics of inputs to produce goods, exchange reallocates property rights over goods to their highest-valued uses. In addition to this allocative function, exchange also enables specialization.

H. Normative versus Positive Efficiency

Students of economics know the difference between normative and positive analysis. Economics can tell us about how the world works and whether a person's means are consistent with achieving their desired ends, but it cannot speak to the ends themselves. Despite this distinction, economists frequently evaluate public policies in terms of

their efficiency. For example, many economists contend that price ceilings are bad because they are inefficient. They typically argue that this inefficiency comes from two sources. The first is that by preventing the price from rising, people are unable to fully exhaust the gains from exchange, creating deadweight loss. The second is that because a price ceiling creates a shortage, the price-controlled good may be rationed by queuing, dissipating even more of the consumers' and producers' surplus.

This analysis is fine as far as it goes, but a moment's reflection suggests it is incomplete in important ways. Let us begin with the obvious issue. The time we spend waiting in line to acquire the price-controlled good does not get added to the life span of the suppliers. That is, our loss is *not* their gain. Clever suppliers will quickly recognize that accepting bribes (or other side payments) from their customers wanting to avoid waiting in line is superior to rationing by waiting because it leaves their customers no worse off while also increasing their own incomes. Under this scheme, their customers' loss becomes their gain, as the bribes enable them to capture the surplus that would have otherwise been dissipated by waiting.

The outcome under this scenario is efficient in the sense that there is no deadweight loss. The possibility of bribery ensures that the price-controlled good is allocated to its highest-valued use. Such schemes are likely to emerge under price controls because the inefficiency the price controls create is essentially a profit opportunity. The assumption of maximizing behavior by individuals and firms implies that such opportunities will only persist for a short time, as both groups can benefit by finding a way to capture the surplus. Viewed this way, whatever is, is efficient because if it were not, people could make themselves better off by changing their behavior. In short, the problem with the standard price-control story is that it stops the analysis too early.

Of course, there is a difference between saying a particular solution is efficient, as we did with the price-control example, and saying markets without price controls are efficient. The logic of constrained maximization implies that every particular situation is efficient, but it does not imply that the gains from trade are equally large. And it certainly does not imply one situation is more desirable than another. Many, if not most, participants in markets would prefer permitting the price system to function because open and uncontrolled markets are easier to navigate and fit moral intuitions about justice, among other things. But now we are doing normative

analysis, not positive analysis—which is fine, but remains beyond the scope of price theory.

It is easy to imagine alternative institutional arrangements that create more wealth than currently exists. Yet imagining possible worlds does not help us understand the existing one. The emphasis must be on *feasible* alternatives. Otherwise, such comparisons amount to little more than wishful thinking.

V. Conclusion

As our survey suggests, we think a new direction in graduate economic education and economics research is necessary. We argued for recentering economics on price theory. Of course, doing so is easier said than done. While we think the University of Chicago's Price Theory Summer Camp and our own Free Market Institute Price Theory Seminar are steps in the right direction, they are far from sufficient to bring about the revival we seek. Those of us who share this perspective must find ways to build on these efforts.

Doing so requires answering a couple of important questions. First, how do we get a resurgence of price theory in the leading economics journals, which primarily publish highly abstract theory divorced from real-world applications or largely atheoretical causal-inference studies? The professional incentives in contemporary economics are such that price theory will never become the dominant approach to research unless there are professional rewards for those who use it. However, we are unsure whether those in charge of the leading journals have any interest in a price-theory revival.

A related question is whether it is possible to elevate the status of other economics journals by publishing price-theoretic research. The challenge with this strategy is that the professional incentives to publish in nonleading journals are weak. This approach is not likely to be in the interest of graduate students and junior faculty. However, raising the relative status of nonelite journals is almost certainly easier than persuading the editorial boards of elite journals. Hence this strategy offers the best option for publishing, and boosting the status of, price-theory-driven research.

In order to support such research, there must also be an emphasis on shifting the focus of graduate economics textbooks and instruction. One goal of our price-theory seminar is to contribute to this effort, but this type of effort must be supported by graduate textbooks and other teaching materials that emphasize price theory and by professors committed to teaching this approach to their

graduate students. Our hope is that this survey acts as a call to action for those economists who believe in the analytical power that price theory offers.

References

- Albrecht, Brian C., and Brian Kogelmann. 2020. "Coasean Causal Inference: Using Models as Foils." Working paper.
- Alchian, Armen A. 1950. "Uncertainty, Evolution, and Economic Theory." *Journal of Political Economy* 58 (3): 211–21.
- Alchian, Armen A. 1977. *Economic Forces at Work*. Indianapolis, IN: Liberty Fund.
- Alchian, Armen A., and William Richard Allen. 2018. *Universal Economics*, ed. Jerry Jordan. Indianapolis, IN: Liberty Fund.
- Becker, Gary. (1971) 2007. *Economic Theory*. New York: Routledge.
- Boettke, Peter J. 2017. "Don't Be a 'Jibbering Idiot': Economic Principles and the Properly Trained Economist." GMU Working Paper in Economics No. 17-20, George Mason University.
- Boettke, Peter J., and Rosolino A. Candela. 2017. "Price Theory as a Prophylactic against Popular Fallacies." *Journal of Institutional Economics* 13 (3): 725–52.
- Friedman, David. 1986. *Price Theory: An Intermediate Text*. Dallas, TX: South-Western Publishing.
- Friedman, Milton. (1962) 2017. *Price Theory*. New York: Routledge.
- Harris, Colin, Andrew Myers, Christienne Briol, and Sam Carlen. 2022. "The Binding Forces of Economics." In *Contemporary Methods and Austrian Economics*, eds. Daniel J. D'Amico and Adam G. Martin, 69–103. Vol. 26 of *Advances in Austrian Economics*.
- Hayek, Friedrich A. 1948. *Individualism and Economic Order*. Chicago: University of Chicago Press.
- Hendrickson, Joshua, and Brian Albrecht. 2020. *Economic Forces* (blog).
- Jaffe, Sonia, Robert Minton, Casey B. Mulligan, and Kevin M. Murphy. 2019. *Chicago Price Theory*. Princeton, NJ: Princeton University Press.
- Jehle, Geoffrey A., and Philip J. Reny. 2010. *Advanced Microeconomic Theory*. Pearson.
- Kreps, David M. 1990. *A Course in Microeconomic Theory*. Princeton, NJ: Princeton University Press.
- Lazear, Edward P. 2000. "Economic Imperialism." *Quarterly Journal of Economics* 115 (1): 99–146.
- Mas-Colell, Andreu, Michael D. Whinston, and Jerry R. Green. 1995. *Microeconomic Theory*. New York: Oxford University Press.
- Minton, Robert, and Casey B. Mulligan. 2024. "Difference-in-Differences in the Market Place." Finance and Economic Discussion Series 2024-008. Washington, DC: Board of Governors of the Federal Reserve System.
- Mises, Ludwig von. (1949) 2008. *Human Action: A Treatise on Economics*. Auburn, AL: Ludwig von Mises Institute.
- Mulligan, Casey. 2023. "Beyond Pigou: Externalities and Civil Society in the Supply-Demand Framework." *Public Choice* 196: 1–18.
- Stigler, George J. 1966. *The Theory of Price*. New York: The Macmillan Company.
- Varian, Hal R. 1992. *Microeconomic Analysis*. New York: W. W. Norton & Company.
- Weyl, E. Glen. 2019. "Price Theory." *Journal of Economic Literature* 57 (2) 329–84.