Antitrust Chronicle

OCTOBER · FALL 2021 · VOLUME 1(1)

Robinson's Imperfect Competition

CPI COMPETITION POLICY INTERNATIONAL

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LETTER FROM THE EDITOR

Dear Readers,

Sometimes perfection can be the enemy of the good.

Most economists idealize the notion of "perfect competition," whereby any profit-maximizing producer faces a market price equal to its marginal cost. An exception, however is the work of British economist, Joan Robinson, who noted that sometimes imperfect competition can be more welfare-maximizing than the Platonic ideal.

Indeed, in reality, outside economics textbooks, idealized conditions are rarely reproduced. Nonetheless, the theory underlying "perfect competition" informs much competition law and economics.

Resolving the dilemma surrounding what constitutes perfect competition, acceptable competition and a non-competitive market represents the subliminal undercurrent of enforcement policy.

The pieces in this CPI Chronicle address this dilemma from various angles, taking into account enforcement and practice experience from the jurisdictions in which the authors have worked.

They represent a valuable contribution to this discussion, which will be perennial for as long as antitrust rules are enforced.

As always, many thanks to our great panel of authors.

Sincerely,

CPI Team

SUMMARIES

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CPI Talks…

with Elisa Mariscal & Beatriz Yemail

In this edition of CPI Talks we have the pleasure of speaking with Elisa Mariscal & Beatriz Yemail. Elisa Mariscal is a Director with Global Economics Group, Mexico City and Beatriz Yemail is a Director with Global Economics Group, Colombia. The topic of this CPI Antitrust Chronicle concerns Joan Robinson's contribution to competition law and economics, and specifically the notion of "imperfect competition."

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Joan Robinson, Efficiencies from Concentration, and the Evolution of Competition Policy

By Peter Davis

British economist Joan Robinson's profound contributions to industrial economics still resonate across a wide range of subject matter. Her work is particularly relevant in the context of heightened concerns over whether product market concentration in developed Western economies has, in recent decades, resulted in both increased market power and increased buyer power – and whether this, in turn, has led to a rise in inequality and a decline in the share of value accruing to labor. At the same time, many competition agencies around the world remain skeptical about the potential for mergers and acquisitions ("M&A") to result in substantive cost reducing efficiencies. In this article, I highlight, through the lens of Robinson's writing, the tensions between these two stances, and reflect on how Robinson's analysis could influence future competition policy. My hope is that, in the important debate about the future evolution of competition policy, proponents on both sides can ultimately agree that we must collectively ensure worldviews underlying any changes are, at a minimum, consistent.

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A Brief History of Imperfect Competition

By Huw Dixon

I explore the history of the idea of imperfect competition in economics. Its foundations were in the Nineteenth Century, but largely outside the Anglo-sphere. It was only in the 1930s that the idea took off in the U.S. and Britain with Chamberlin and Robinson developing a coherent and well worked out alternative in the form of monopolistic competition, which made it into Samuelson's iconic textbook *Economics* in 1948. In the second half of the twentieth century, the idea gradually caught on in different fields of economics, from industrial organisation to international trade, growth and macroeconomics. Here, it replaced the previous orthodoxy of perfect competition as economists realised that in real life firms had market power and that the theory of competitive markets was unable to capture the features of many important real-world markets. When markets are imperfect, it means that they do not deliver an "optimal" outcome and so there is more scope for government intervention and regulation. However, there are different ways of understanding imperfect competition which do not always give the same answer and mean that it is difficult to provide general lessons about market outcomes and the sort of policies required.

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The Virtue of an Imperfect Competition Law

By Paolo Buccirossi

Imperfect competition is not necessarily a curse. It evokes an environment in which firms compete on multiple dimensions to satisfy heterogeneous consumer preferences. This can create a tension between competing social goals. Inevitably, we must decide which of these goals should guide competition law. In making this decision, we must accept that it is impossible to reconcile these goals or to rank them in an order that applies to everyone, at all times. Thus, the choice of which objective to pursue is a moral choice. However, we can still give competition law a specific goal, since other policies may pursue other goals. The objective of competition law should be selected by considering the main characteristics of competition law rules. These rules are stable, technical, and their violation carries severe penalties. I argue that the value that best fits these characteristics is a narrow notion of total welfare.

SUMMARIES

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Imperfect Competition in Labor Markets

By Hiba Hafiz

President Biden's recent Executive Order on "Promoting Competition in the American Economy" centered employers' monopsony power and anticompetitive conduct as core components of American competition policy. This is long overdue. At least since Joan Robinson's revolutionary theorization of imperfect competition in labor markets in 1933, labor economists and social scientists have theorized and empirically documented the extent as well as micro- and macroeconomic effects of employer monopsony over workers. This essay provides an overview of the empirical evidence of imperfect competition in labor markets and documents the scope and substance of early regulatory enforcement efforts — beginning with the Obama Administration on. It then identifies the primary doctrinal and administrative challenges that antitrust enforcers will face in tackling imperfect labor market competition and makes a series of recommendations on how to clarify legal rules, establish enforcement priorities, and ensure an interagency infrastructure and robust agency expertise for successful enforcement.

WHAT'S NEXT?

For November 2021, we will feature Chronicles focused on issues related to (1) **Complianc**e; and (2) **TechREG**.

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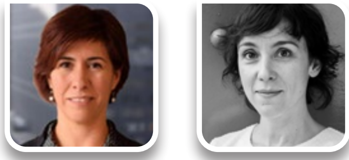
Contributions to the Antitrust Chronicle are about 2,500 – 4,000 words long. They should be lightly cited and not be written as long law-review articles with many in-depth footnotes. As with all CPI publications, articles for the CPI Antitrust Chronicle should be written clearly and with the reader always in mind.

Interested authors should send their contributions to Sam Sadden (ssadden@competitionpolicyinternational.com) with the subject line "Antitrust Chronicle," a short bio and picture(s) of the author(s).

The CPI Editorial Team will evaluate all submissions and will publish the best papers. Authors can submit papers on any topic related to competition and regulation, however, priority will be given to articles addressing the abovementioned topics. Co-authors are always welcome.

CPI TALKS…



…with Elisa Mariscal & Beatriz Yemail

In this edition of CPI Talks we have the pleasure of speaking with Elisa Mariscal & Beatriz Yemail. Elisa Mariscal is a Director with Global Economics Group, Mexico City and Beatriz Yemail is a Director with Global Economics Group, Colombia.

Thank you, Elisa & Beatriz, for taking this time to talk to CPI. The topic of this Chronicle concerns Joan Robinson's contribution to competition law and economics, and specifically the notion of "imperfect competition."

1. To what extent do you think Robinson's analysis has influenced today's competition policy and how could it influence future policy? Are there further lessons to be learned from "The Economics of Imperfect Competition"?

Robinson's work is certainly seminal. Yet, on another level, it simply reflects the hard truths of markets as they exist in reality. For hypothetical "perfect competition" to exist under classical economic theory, a number of assumptions must hold, but they rarely reflect reality. For instance, companies must sell identical products with no product differentiation possible, and they must be able to enter or exit the market without incurring any costs. Markets must contain a sufficiently large number of buyers and sellers so that no company can influence the price it charges. Consumers can set prices (through a perfectly elastic demand) and incur no costs when switching among an infinite number of suppliers. At the other extreme is pure monopoly, where a single producer can set market conditions by capturing a market share such that consumers have to accept the price, quality and, in general, all product conditions that the monopolist offers.

It almost goes without saying that any of such idealized conditions and market outcomes rarely exist in the real world. Robinson's main achievement was to contrast these idealized concepts with the way in which markets actually function, and to contribute to the development of various aspects of law and policy, including, of course, antitrust and competition law thinking. She sought to do so in a pragmatic manner that reflects real-world conditions. In this respect, her work has had an enduring legacy and offers valuable lessons to antitrust policymakers long into the future.

For instance, real world market outcomes do not move from perfect competition to pure monopoly. In fact, both constructs are extremes and the 'truth' usually lies somewhere in between. Robinson found that imperfect market conditions lead to imperfections in factor markets, which in turn imply reductions in productive and allocative efficiency. This result is a central principle that underpins modern competition policy, as it aims to fix inefficiencies arising from imperfect competition.

Robinson certainly went beyond observing the real world and used analytical tools such as differential and integral calculus, and simultaneous algebraic equations to understand and address imperfect market structures. Mixing profound real-world observations with economic theory and adequate analytical tools sets a standard that policymakers and antitrust economists and lawyers should follow today to analyze complex competition issues. Such an approach allows being rigorous about the technical and methodical about the legal, while remaining connected with market realities. We think that this mix should be reflected into the policy implications of what we do.

Finally, and going back to our initial point, we think that is fair to say that Robinson's core interests are no less relevant today than in the past. Current theories explore exploitative conduct by so-called "tech giants" that possess market power in the form of data accumulation and other factors that would perhaps not have been contemplated in Robinson's time. Yet the same principles remain applicable. Products offered by tech companies are highly differentiated, the "price" paid (in terms of user time and attention) is increasingly hard to quantify, transaction costs are increasingly non-transparent, and barriers to entry and exit are similarly becoming stronger and more opaque.

As such, Robinson's critique of classical economics is, if anything, becoming more and more relevant as the world evolves into an increasingly digital future.

2. "Imperfect" competition raises its head in various markets, but some are more obvious than others. What are some of the doctrinal and administrative challenges that antitrust enforcers face in tackling, for example, imperfect labor market competition? How could enforcement be improved?

This is a very interesting question.

Robinson concluded that, when competition is not perfect, production factors end up receiving less than their marginal value in terms of physical products. This leads to allocative inefficiency and has become relevant to analyze labor markets, particularly wage setting under imperfect market conditions.

Indeed, one of Robinson's most enduring contributions is coining the term "monopsony," which, simply put, reflects the buyer flip side of a seller monopoly: if there is only one buyer of a good, she can set her price—as well as other product conditions. The concept of "monopsony" is commonly applied to buyers of labor, particularly where an employer has wage setting power that allows it to exercise so-called "Pigouvian exploitation." Insightfully, and perhaps prophetically, Robinson used the term "monopsony" to describe in particular the wage gap between male and female workers of equal productivity: a theme that continues to rear its head into today's world.

We think that Robinson's extension of such Pigouvian theories of labor exploitation remains of great relevance today. This is despite the fact that competition and labor law have not traditionally being bedfellows. Labor regulation concerns, in essence, collective bargaining which has traditionally been viewed as a way of independently enhancing workers' economic outcomes. However, non-compete clauses, intellectual property that cannot be shared with the employee but only through employers, among other contracts and interactions in the labor market, are changing our assumptions of bargaining power among the different parties to a labor contract. In addition, there is an increasing interest in using competition economics methodologies (e.g. those related to market definition and measuring concentration) to explore whether and how concentration of both sales and labor, can lead to a reduction of wages.

On the other hand, and going back to antitrust, combatting so-called monopsony power remains one of the stated goals of antitrust, as expressed in rules, case law, and guidelines throughout the world.

In the end, we think that enforcers in general can well learn from Robinson's contributions as it its principles are applied to ever more novel situations.

3. What are some of Robinson's impacts on twentieth-century economics? Her most prominent work was published in 1933, but has her influence persisted into contemporary times?

As should be clear from the above, Robinson's work remains of great salience to contemporary enforcement practice. Her work is rarely cited explicitly, but its influence looms large. Enforcers, whether they wish to (or can) admit it, exist in a real-world economic scenario where her critique of classical economics reveals its obvious set of pragmatic truths.

By introducing the notion of imperfect competition, Robinson put on the table debates regarding several themes that persist into contemporary antitrust law. For instance, her attention to the distribution of resources, price setting, and market conditions persists into current debates. In order to analyze these elements, Robinson considered several aspects, including the elasticity of each good, marginal productivity theory, and price-setting under imperfect competition. The use of such analytical tools became widespread during the twentieth century and continues to be used today.

In addition, we think that the remedies offered by companies and accepted by regulators and courts implicitly accept trade-offs between perfect and imperfect competition. The bottom line is that those remedies reflect an acceptance (albeit implicit) that perfect, idealized competition rarely exists. Rather, they reflect the reality that enforcement has its limits, competition has its limits, and the perfect can often be the enemy of the good. This is sound enforcement practice and can trace its lineage to the contributions of Robinson and her contemporaries in the so-called "Cambridge School" of economics.

In addition, Robinson introduced reflections of moral character in order to propose which outcomes were socially desirable. Even though this discussion may deviate from the construct of a "scientifically rigorous world," we think that it highlights the importance of introducing ethical debates into social sciences — and sciences in general. She upheld the validity and the consequences that moral discussions entail; we only need consider the Covid-19 pandemic, the environmental crises, and other crucial debates, to understand how the ethical dimension of economic decisions has been put in the spotlight.

Last, adherents of the Borkian thesis that has held sway since the 1970s may balk at the reality that competition enforcement has limits, but it is nonetheless true. Under a Robinsonian analysis, antitrust is not a "policy at war with itself," but rather a pragmatic reflection of market realities and the imperfectness of competition as a matter of fact. As such, her line of thought has, at least under the surface, long influenced antitrust law and practice for decades, and will continue to do so long into the future.

4. In your view, do enforcers (specifically competition authorities and bodies such as the European Commission and the U.S. FTC/DOJ) take a sufficiently pragmatic approach to the "imperfectness" of competition in certain markets? Do they have something to learn from Joan Robinson in today's economy?

Enforcement trends waver and sway with the times. Yet there is nonetheless a pragmatic undercurrent to them all, as reflected in outcomes seen in cases brought by different enforcers over time.

Such a pragmatic approach is clearly reflected in the European Commission's Better Regulation Toolbox, which recognizes as one of its main objectives to deliver high-quality legislation "designed to facilitate its transposition and practical application." In practice, the Commission and the Member States are using various analytical methods to compare the performance of existing policies and the potential impact of different policy options under particular market conditions. These tools are therefore allowing regulators to assess the costs and benefits that different policy options have on economic, social, and environmental dimensions, to name only a few, before choosing a certain path.

The pragmatic approach of the FTC and DOJ is also evident. This is backed up by their expertise in particular industries and markets, such as healthcare, pharmaceuticals, professional services, food and energy, and, increasingly, digital markets. Their knowledge regarding each industry, combined with their theoretical and empirical expertise, seeks to correct antitrust violations borne by the "imperfectness" of competition in several markets.

However, there is still a lot of ground to cover. Whether or not enforcers wish to take explicit counsel from Robinson or her contemporaries is, in the end, an individual choice. But what is clear to us is that the "imperfectness" of competition in each market should deeply inform the analysis undertaken by any authority. To state otherwise would be to deny reality. In that sense, enforcers, courts, and practitioners still have plenty to learn from the critique that Robinson presciently provided nine decades ago.

5. Finally, Elisa and Beatriz, do you agree with the major premise of Robinson's thesis: namely that most industries are neither perfectly competitive nor complete monopolies? How should competition enforcers adapt this insight to regulating competition in the 21st century, particularly as the economy tilts more towards so-called "digital" businesses?

Like most economists, we concur with Robinson's thesis by which most industries are neither perfectly competitive not complete monopolies. As we mentioned at the beginning of our chat, the presence of perfectly competitive industries is unlikely because of the assumptions that perfect competition lies upon. Competition agencies throughout the world seek to foster competition and prevent a single producer from dominating markets. Regulators continue to strive to influence or directly design market conditions in such a way that competition can thrive where competition is possible.

In this sense, we think that returning to the major premise of Robinson's argument seems almost intuitive. As the economy evolves and diversifies (particularly through the adoption of "digital" modes of business), competition will become more and more "imperfect" in a Robinsonian sense.

Ideally, policy interventions should preserve competition where competition can be preserved and sustained, while keeping elements that have inherent imperfections (externalities, natural monopoly, informational asymmetries, among others) under the watchful eye of a regulator who no longer performs the duty of setting prices or profits but who, in many cases, has multiple purposes and tools in its toolkit.

Among those purposes is, for instance, the need to establish a framework that fosters innovation, while avoiding its harmful potential effects on competition. Mistakes and policy changes are bound to happen, as this wave of innovations is unique in its speed, scalability, and interconnectedness. Disruptive innovations can quickly come to dominate a market or create new markets, making market boundaries unclear and posing further challenges to authorities. One example is Brazil's Pix payment platform, which didn't exist one year ago and now has about 110 million users. The rapid adoption through the country exemplifies the quick, scalable, and interconnected nature of current innovations.

Perhaps, Robinson's lasting legacy is that facts matter. We think that competition is rarely perfect nor inherently flawed. Market realities are constantly evolving. The trick is perhaps to stay connected to these changes and discover the middle ground where the law can stand and consumers, and the public at large, can benefit.

JOAN ROBINSON, EFFICIENCIES FROM CONCENTRATION, AND THE EVOLUTION OF COMPETITION POLICY

BY PETER DAVIS[1]

1 Dr. Peter Davis is Principal and Leader, Europe Antitrust & Competition at The Brattle Group. He is a former Panel Member and economist Deputy Chairman of the UK's Competition Commission, which merged with the Office of Fair Trading (OFT) to form the Competition and Markets Authority (CMA) in 2014. The opinions expressed in this article are those of the author and do not necessarily reflect the views of The Brattle Group or its clients. This article is for general information purposes and is not intended to be, and should not be taken as, legal advice. I would like to thank Mike Walker for helpful comments on an earlier draft. Responsibility for any errors or omissions is mine.

I. INTRODUCTION

The Economics of Imperfect Competition by Joan Robinson is one of those books that any professional competition economist really should read.[2] Robinson was a great British economist who wrote on a wide range of topics, spending a significant amount of time in the early part of her career thinking about competition economics in particular.[3] Later in her career, before the publication of the second edition, Robinson gained practical experience applying competition policy after being appointed in 1949 to the panel of decision makers at the UK's then newly formed competition agency, the Monopolies and Restrictive Practices Commission (which, through various name changes, later became the Competition Commission and now the CMA), during its formative post-war years. The wisdom of allowing an economist to make actual competition decisions was a matter of some debate at the time, with the Board of Trade's Senior Economic Advisor, Sir Alec Cairncross, needing to overrule the objection that economists tend to have "fanatical" views on the subject of monopoly.[4] Joan Robinson became the first economist member of the Commission and, as such, was the first economist decision maker in the UK competition system's history.

For a contemporary reader, much of Robinson's book feels reassuringly familiar, as it is replete with the familiar economists' toolkit: demand curves, cost curves, and discussions of the differences between average and marginal revenues and costs. This is a testament to the fact that a significant amount of its content has survived, contributing to our current understanding of economic theory. Yet, as the saying goes, the past is a foreign country.[5] Our framework for understanding the economics of imperfect competition has developed significantly after nearly a century of thought by subsequent economists, other talented social scientists, and mathematicians. In particular, in her first edition, Robinson was writing before the advent of game theory and contract theory, and she was largely without the benefit of the careful and industry specific empirical work in industrial economics that characterizes our field today. She was writing in the age of heavy industry, oil, and electricity rather than one characterized by data, machine learning, and robotics.

Today, Robinson's contributions still resonate in the context of heightened concerns over whether product market concentration has resulted in both a rise in inequality and a decline in the share of value accruing to labor in developed Western economies in recent decades. Nearly a century after the Great Depression, policymakers once again ask whether product market concentration and the resultant buyer power are the root cause of low investment rates and limited real wage growth experienced by tens of millions of workers in Western economies.[6] Certainly, it is difficult to overstate the profound political and economic importance of the fact that there has been almost no growth in average real wages in the US over the last 40 years, according to data from the US Bureau of Labor Statistics.[7]

Competition policy generally and merger policy in particular have the potential to influence market concentration. If product market concentration and the resultant buyer power were, in fact, at the heart of significantly worse macroeconomic outcomes in labor markets, then it would suggest that concentration through M&A is responsible for material cost efficiencies. However, the experience of many practitioners in private practice is that competition agencies around the world were, as a practical matter in recent decades, highly skeptical about the potential for mergers and acquisitions (M&A) to result in substantive cost reducing efficiencies. If, for the sake of argument, one accepts the idea that there is a problem with the permissiveness of merger control, then the problem would seem necessarily to arise because of other aspects of our analysis of mergers.

2 Robinson, J. *The Economics of Imperfect Competition*. New York: Palgrave Macmillan, 1933. And, in particular, the second edition: Robinson, J. *The Economics of Imperfect Competition*. New York: Palgrave Macmillan, 1967.

3 For biographies, see (i) G C Harcourt & Prue Kerr (2009) "Joan Robinson" in the Great Thinkers in Economics series. Palgrave, McMillan, and (ii) Nahid Aslanbeigui and Guy Oakes "The Provocative Joan Robinson. The Making of a Cambridge Economist." Durham (NC) and London, Duke University Press, 2009, pp. x+302. (Available from https://library.oapen.org/bitstream/handle/20.500.12657/43831/external_content.pdf?sequence=1.)

4 The exchange reported between the Board of Trade's R.C. Bryant, Dame Alix Kilroy and Sir Alec Caincross is notable: Bryant: "It is probably better to have the Economist as an advisor and not as a member of the Commission, since this is a subject on which economists are apt to have fanatical views..." Dame Alix Kilroy: "[W]hat would the world of economists think to a Commission without an economist member?" Sir Alec Cairncross: "I doubt whether economists hold more "fanatical" views of monopoly…They sometimes have a better understanding of industrial organization and a clearer conception of the public interest." See Stephen Wilks, *In the Public Interest: Competition Policy and the Monopolies and Mergers Commission.* Manchester University Press, 1999, page 93.

5 L. P. Hartley. *The Go-Between*. Hamish Hamilton, 1953.

6 Robinson objected to the older descriptor "monopoly buyer" and adopted the term "monopsonist" to avoid it. She explains that the word "monopsony" was derived from the Greek *δψωυειν*, which she describes as meaning "to go marketing." See Robinson, page 215, footnote 1. At least for this non-Greek scholar, this etymology does not provide reassurance that the term captures Robinson's concept very well since we ordinarily think of marketing as being about selling rather than buying. The term buyer power seems to better capture the intended concept.

7 See, for example, https://www.pewresearch.org/fact-tank/2018/08/07/for-most-us-workers-real-wages-have-barely-budged-for-decades/.

In short, one can believe concentration either drives buyer power or does not, but one cannot reasonably believe that it is both a major driver of macroeconomic trends and also irrelevant for the proper analysis of the competitive effects of mergers.

II. ROBINSON'S ANALYSIS

Those who have read *The Economics of Imperfect Competition* may recall that Robinson's analysis proceeds in two steps. First, she analyses the difference between product market outcomes under competition and monopoly. Second, she analyses the effect of product market competition – or a lack of it – for market outcomes in factor input markets, particularly labor markets.

In the first stage, she highlights that marginal incentives (where marginal revenue equals marginal cost) determine firm decision-making under monopoly while, under competition, free entry implies that normal economic profits will be zero (i.e. *average* revenue will equal *average* cost).[8]

Robinson recognizes that using free entry to ensure that average revenues and costs determine market outcomes under perfect competition relies heavily on some assumption sufficient to establish that the free entry condition effectively applies to all firms (rather than only requiring that the marginal firm cannot make profits under free entry).[9] Robinson acknowledges this concern, but believes the profits earned by any infra-marginal firms under perfect competition are best considered "rents," or returns properly earned by scarce factor inputs. Such rents might literally be the rent earned on a highly productive piece of land or, more generally, the return to a factor of production that has some natural advantage (e.g. an entrepreneur that is particularly effective at running a business). For every infra-marginal firm, Robinson considers that the total rents earned by all the factors of production should be considered a lump-sum cost for a firm operating under perfect competition, rather than a part of their profits. As a result, every firm will make exactly zero economic profits under perfect competition and will operate at the scale where average cost – including the fixed costs that arise from scarcity rents – is equal to price.[10]

In the second stage, Robinson traces the implications of the nature of product market competition for outcomes in factor input markets and, in particular, labor markets. The implication of her first stage analysis is that a monopolist benefiting from buyer power (in Robinson's terms, "monopsony power") over some or all factor inputs (labor, capital, land, and entrepreneurs) may sometimes even be in a position to achieve *lower* costs of production for any given level of output compared to firms operating under perfect competition.

In addition, Robinson notes that a monopolist may have differential ability to exercise buyer power in different input markets. As Robinson describes, "by employing less… labor, [the monopolist] may be able to lower the rates of wages he has to pay, and he will substitute capital for labor in circumstances where a competitive producer, for whom the wage is independent of the amount of labor he employs, would not find it profitable to do so."[11] She continues, "If the monopolist knows that when he buys more machines from a subsidiary industry, all the machines which he buys will be cheaper, he is under a greater incentive to substitute capital for labour than are individual competitive producers, who would each individually receive a negligible share in the induced economies resulting from their own purchase of the machinery."[12]

As a result, a monopolist may face different *relative* prices for factor inputs compared to firms in a competitive market and therefore find it profitable to use a different input mix compared to a firm in a perfectly competitive market (i.e. capital/labor ratios may differ). If it is easier to exercise buyer power against labor than capital, the relative price of labor will fall and a monopolist will find it profitable to use more labor intensive production methods, even if each individual worker is less productive as a result. Thus, lower wages resulting from buyer power exercised against employees may mean a monopolist invests less in capital.

8 Marginal revenue, the additional revenue earned from the sale of an additional unit of output, is equal to price under competition and below price for a monopolist. The reason is that the competitive firm takes market prices as fixed while a monopolist realises that market demand falls as prices rise, meaning an additional sale requires that the price charged for all units sold will fall. At competitive quantities, where price equals marginal cost, the monopolist's profits from the last unit produced are negative (since marginal revenues $<$ price $=$ marginal cost). Thus, a monopolist has an incentive to restrict quantities below competitive levels. Under free entry, with identical firms, entrants will compete away profits so that if P is the market price, q^c is firm volumes then $Profits = Pq^c - C(q^c) = 0$ or price equals average cost, $= C(q^c)/q^c$. Since firm revenues $R = Pq^c$, price also equals average revenues, revenues $P = R/q^c$. In equilibrium, supply equals demand so that $Q(P) = Nq^c$, or inverting demand we get $P = P(Nq^c)$ where $P = P(Q)$ is the inverse of the market demand curve, $Q = Q(P)$.

9 One sufficient but strong assumption is that firms are identical (symmetric) so that we can proceed on the basis that there is a representative firm.

10 See in particular the discussion at Robinson, pages 124–125. Robinson explores the properties of the resulting four cost curves – average and marginal costs when respectively including and excluding rent in chapter 10; see Robinson, pages 133–142.

11 Robinson, p. 172.

12 Robinson, p. 173.

In short, for Robinson, market power in product markets has the potential to have real effects on the distribution of income by restricting output (and, hence, employment) with the aim of increasing product market prices and profits and by driving down wages and employment through the exercise of buyer power against workers. Cheaper labor will, in turn, result in reduced investment in physical capital because of the substitution of labor for capital, and this will reduce labor productivity.

Even so, the question of whether society is better off overall under competition or monopoly is purely an empirical one in Robinson's analysis. First, monopsony power can mean a product market monopolist restricting output would pay lower wages than a firm under perfect competition. Lower wages can mean lower marginal cost of output for any given level of output, which may mitigate the extent to which a monopolist would scale back output below competitive levels. If, in addition, a monopolist also benefits from economies of scale, then Robinson argues monopoly output could actually be higher than competitive levels.[13] Thus, Robinson has a notably different starting point from most competition agencies' current working presumption that, if anything, x-inefficiency will mean that firms with market power will almost always have higher costs than those that experience the challenges of competition. Indeed, her description of the position – "The discovery that costs under monopoly are lower than under competition considerably enlarges the class of cases in which monopoly output may exceed competitive output"[14] – is likely to be viewed as almost heretical in many competition agencies today.[15]

III. MACROECONOMIC TRENDS

In recent years, there has been a clear concern expressed in academia and, now, by policymakers that market concentration exists in a substantial number of markets, may have risen markedly,[16] and may have had significant real-world consequences. Specifically, there is a body of academic empirical work that suggests:

- Margins have increased in recent decades[17]
- The share of value going to labor has fallen[18]
- The rate of investment in tangible capital has been low in recent decades[19]

While there is little evidence of an economy-wide decline in employment, empirical work in labor economics during the last two decades does appear to support an important element of Robinson's concern. Namely, the idea that the elasticity of labor supply is quite small when estimated at the firm level, implying a high degree of "monopsony power."[20] Ashenfelter, et al. (2010) argue that, "if exploited by employers, such high rates of monopsony power imply large welfare losses to society through the misallocation of labor and considerable redistribution of income away from workers and to residual claimants."[21] Those authors argue further that, "chronic concerns over 'shortages' are an indicator that firms are exploiting their monopsony power, as are wage discrimination systems that pay lower wages to full time than to part time or contract workers."[22]

13 Specifically, Robinson describes that it will only be so when a monopolist both: (i) experiences economies of scale in production; and (ii) production requires using a 'scarce' factor of production whose price is increasing in the industry volume purchased (i.e. there is at least one input with an imperfectly elastic industry supply curve). See Robinson, page 110 for the definition of scarcity and Robinson, page 153 for the statement of these two conditions.

14 See Robinson, p. 175. Note that Robinson does not believe that concentration could lead to efficiencies beyond those available under perfect competition (where we could have perfect competition) for the simple reason that the industry cost curve under competition must be taken to show the most efficient organization of industry which can be brought about with existing knowledge (except that each firm under perfect competition might have some know-how that would not otherwise be disseminated). See Robinson, p. 169.

15 There is good evidence from the international trade literature on the impact of opening up a market to competition. See for example, Pavcnik, N. "Trade Liberalization, Exit, and Productivity Improvements: Evidence from Chilean Plants" The Review of Economic Studies, Vol. 69, Issue 1, January 2002.

16 See for example Covarrubias, Gutierrez, & Philippon," From Good to Bad Concentration? US Industries over the past 30 years." *NBER Macroeconomics Annual* 34, no. 1 (2020): 1–46 and references therein.

17 See in particular De Loecker, J., Eeckhout, J. & Unger, G. "The Rise of Market Power and the Macroeconomic Implications." *The Quarterly Journal of Economics* 135, no. 2 (2020), 561–664. And De Loecker, J., Eeckhout, J. "Global Market Power" (2020). (Paper available at https://sites.google.com/site/deloeckerjan/research.)

18 See Autor, D., Dorn, D., Katz, L., Patterson, C. and van Reenen, J. (2020) "The Fall of the Labor Share and the Rise of Superstar Firms." *The Quarterly Journal of Economics*, Volume 135, Issue 2, May 2020, Pages 645–709. And the references therein.

19 Haskel, J. and Westlake, S. *Capitalism Without Capital: The Rise of the Intangible Economy* (Princeton, NJ: Princeton University Press, 2017).

20 See Ashenfelter, Orley C.; Farber, Henry S. & Ransom, Michael R., "Modern Models of Monopsony in Labor Markets: A Brief Survey." Journal of Labor Economics, Vol. 28, Number 2 (2010). (A working paper version is available from https://www.econstor.eu/bitstream/10419/36902/1/625315251.pdf.)

21 Ashenfelter, et al. (2010) op. cit, page 8.

22 Ashenfelter, et al. (2010) op. cit, page 8.

Of course, numerous measurement challenges exist when evaluating the evidence based on economy-wide trends and their implications. For example, while the fact of concentration in a substantial number of markets is not very controversial, the direction of the trend in concentration over recent decades is much more so. In seeking to improve upon the previous literature by measuring concentration for markets that are closer to relevant antitrust markets, Benkard, Yurukoglu, & Zhang (2021) found that – while 42.2 percent of the industries in their sample are "highly concentrated" (as defined by the US Horizontal Merger Guidelines), contrary to the previous literature – product market concentration has actually been decreasing since 1994.[23] The measurement of capital investment has similarly been subject to very significant measurement concerns arising from the believed increased importance of intangible capital investment in recent years; the fact that accounting standards mean accounting data understate the extent of intangible accumulation; and the general difficulty in measurements associated with valuing intangible capital, such as brands and know-how.[24]

While the academic debate continues, what is clear is that the available evidence on these macroeconomic trends is not all reassuring. To make progress, we must take the evidence seriously, both as a society and, more specifically, as a competition law and economics community. The interesting question for debate, of course, is whether competition policy should evolve in response and, if it should, how.

IV. THE NEED FOR CONSISTENCY

Robinson's ideas and concerns about the implications of market power in product and labor markets undoubtedly still resonate. Given the emerging empirical evidence, renewed interest in her important contributions to this area is natural. While she studies the polar cases of perfect competition and monopoly, her work also provides useful intuition for what may happen in the more common intermediate cases.

First, Robinson's analysis suggests that buyer power from concentration has the potential to play a significant role when assessing whether a concentration is desirable under a consumer welfare standard. As a general matter, it is probably fair to say that the distinction between averages (under competition) and marginal costs (under monopoly) no longer shines through in competition agency guidelines with quite the same gusto that it once did. And some concentrations, if allowed to proceed, would undoubtedly result in worse outcomes for consumers. And yet, Robinson's economic analysis does suggest that a combination of efficiencies from monopsony power combined with efficiencies from another source (say) economies of scale can sometimes lead to consumers being better off after a merger. Revisiting Robinson underlines Williamson's (1968) message that competition authorities should allow the evidence of potential efficiencies to guide their decisions on whether concentrations are, overall, good for customers or not.[25] Such efficiencies should therefore be properly weighed in the balance by competition agencies when applying the currently applicable legislation.

And yet, in merger investigations, efficiencies defenses often face high hurdles to success. In this respect, I offer the anecdote that I have over the years attended multiple round-tables of senior European competition lawyers agreeing that, to the best of their collective knowledge, the European Commission has never, yes never, approved a merger on the basis that the resulting efficiencies would more than compensate for what would otherwise be an anti-competitive merger effect.

Second, the evidence from industrial economics is that there are at least a sizable minority of markets where concentration is at material levels, and the evidence from labor economics does appear consistent with the potential for buyer power to play a significant role in labor markets. The empirical evidence on macroeconomic trends is more controversial and still under debate within academia, although – as noted previously – what we are currently seeing is not altogether reassuring. Without a doubt, the current macroeconomic debate over the causes of reduced rates of tangible capital investment and its consequences for labor productivity and wages is an extremely important one for the future of our societies, as well as for competition law and economics practice.

In the debate over the implication of Robinson's analysis for optimal future competition policy, one side argues that we do not see efficiencies in merger control so that competition policy can comfortably take an aggressive antitrust stance to control product market concentration. The other side may argue that the evidence from merger control does not support the idea that buyer power from concentration is a major cause of the macroeconomic trends we are observing. What is clear is that buyer power simply cannot simultaneously be a minor driver of efficiencies in the context of merger control – and have been so for decades – while also being responsible for low rates of capital investment and keeping wages depressed for the majority of the population. Such an inconsistency is untenable. Hopefully, both sides in this important ongoing debate can, at a minimum, agree that the world view underlying any future policy change should be internally consistent.

23 Benkard, L. Yurukoglu, A., & Zhang, A. L. "Concentration in Product Markets." *NBER* working paper 28745 (2010). (Available at https://www.nber.org/system/files/working_papers/w28745/w28745.pdf.)

24 Haskel, J. & Westlake, S. *Capitalism Without Capital: The Rise of the Intangible Economy* (Princeton, NJ: Princeton University Press, 2017).

25 Williamson, O. "Economics as an Antitrust Defense: The Welfare Tradeoffs." *American Economic Review* 58, no. 1 (March 1968), pp. 18–36.

I close with the observation that that there is a different, wider, competition system design question about whether wage savings should in fact be treated as efficiencies in competition policy assessments. Robinson's analysis suggests that customers may sometimes benefit at workers' expense when monopsony power in labor markets is weighed in the balance in merger assessment. Governments could decide to remove the exclusive focus on product market outcomes embedded in the legislation defining the competition system in many jurisdictions. Assessing whether such a change would be desirable involves a variety of considerations, including whether concerns about the exploitation of labor are properly addressed using interventions in labor markets to protect workers' rights and bargaining positions, rather than via the competition system. If competition agencies are asked to do both, it will involve making political decisions that require balancing the interests of consumers and workers. Competition agencies have historically tried hard to avoid making such trade-offs between groups in society in the interest of maintaining bi-partisan and broad based public support for the competition system. If future legislation requires they must, competition agencies will require instruction from democratic governments about how they should do so.

A BRIEF HISTORY OF IMPERFECT COMPETITION

BY HUW DIXON[1]

1 Professor Huw Dixon, Cardiff Business School. Research lead on Economic Measurement, National Institute of Economic and Social research (London), Research Fellow, CESifo (Munich).Huw Dixon completed his PhD at Oxford University in 1984 under the supervision of Sir James Mirrlees, on Bertrand-Edgeworth oligopoly. He went on to apply imperfect competition in a macroeconomic general equilibrium framework, being one of the first new Keynesian economists. Later in his career he started to delve into the empirical and theoretical aspects of price data for modelling nominal rigidity, working with the ECB, the Banque de France and Bank of England. He has always been an advocate of the need for using models of imperfect competition.

I. THE EARLY YEARS

The model of Perfect Competition has formed the historical framework for economics and how most economists think about markets. As the old quip goes: "Teach a parrot to say "supply and demand" and there, you have an economist." Traditional economics textbooks use several criteria for markets to be perfectly competitive. You need a lot of firms, firms treat the market price as given (that is, their actions have no effect on the price), the products produced by firms are the same (homogeneous), there is free entry and exit and so on. The roots of alternative, non-perfectly competitive models go back a long time. Perhaps the most important was Augustine Cournot's 1838 book *Researches into the Mathematical Principles of Wealth* (published in French, translated and published in English only in 1897).[2] There is also Francis Edgeworth's "Pure theory of monopoly," (published in Italian in 1897 and in English in 1925).[3] The important point to note is that these were not widely read until long after they were written. Both of them looked primarily at the case where there are two firms competing and selling a homogeneous product: for Cournot output was the variable chosen, for Edgeworth the Price. Marshall's *Principles of Economics* (1890) only had one chapter on imperfect competition, chapter 14 of Book 5 entitled "On Monopoly" and looked at what happened when there was just one firm selling the output.

The 1930's showed a pick-up in developments in imperfect competition. In 1934 Heinrich von Stackelberg published his "Market Structure and Equilibrium" which developed Cournot's model (and was published in German).[4] However, most significantly, in 1933 Edward Chamberlin and Joan Robinson both published books which developed the theory of imperfect competition by introducing the concept of monopolistic competition, where there are many firms (as in perfect competition), but they sell different products.[5] The firms are "small" in that they treat the aggregate (industry) price as given but can influence the price of their own output. This theory was a generalization of perfect competition in that as the products of firms become closer and closer substitutes, the equilibrium become closer to the perfectly competitive outcome. In the same year of 1933, Michael Kalecki wrote *An Attempt at the Theory of the Business Cycle* (published in Polish and a later updated version published in English in 1937)[6] which introduced the theory of imperfect competition into the macroeconomic framework for explaining income distribution (imperfect competition in the product market lowers real wages and tends to reduce the share of labor in total income).

One of the mysteries of the history of economic thought is why John Maynard Keynes did not look to imperfect competition when formulating his *General Theory* in the 1930s. He was a colleague of Joan Robinson and so was aware of her work on imperfect competition. However, his theory had perfect competition as a special case when prices were at their competitive level and Keynes sought to develop his theory of effective demand when trades took place at price that did not equate supply and demand. For him it was enough to observe that prices did not in general adjust in the short-run to explain the mass unemployment he observed in the 1930s. He did not see it as necessary to explain why the prices did not adjust, but simply took it as a fact. Once all price and wages had adjusted, he was happy to stick with the notion of the perfectly competitive equilibrium.

In the first half of the twentieth century, most people studying economics at university would have spent most or all of their time looking at perfectly competitive models, with a brief aside to consider monopoly. Most economists would have adopted the framework of perfect competition in their research and to frame their advice to governments. The contributions to imperfect competition remained outside of the main textbooks and unknown to all but a few specialist academics. There were a few reasons for this. First, the early contributions were from outside the "Anglo-sphere": although Edgeworth was British, he was driven to publish in an Italian journal because the English journals did not publish "mathematical economics" at that time – there was more mathematical economics in France and Italy. Second, there were huge developments going on in the theory of perfect competition, most notably in the realm of general equilibrium (for example Hick's monumental *Value and Capital* published in 1939) and macroeconomics (Keynes *General Theory* of 1936).

2 Augustin Cournot, Researches into the Mathematical Principles of Wealth, Translated by Nathaniel T Bacon with Mathematical Appendix by Irving Fischer, New York, Macmillan, 1897.

3 Francis Ysidro Edgeworth, Papers Relating to Political Economy, Volume 1, section 2 part E (pages 111-142), London, Macmillan 1925.

4 Heinrich von Stackelberg, Marktform und Gleichgewicht, Vienna 1934.

5 Edaward Chamberlin "The Theory of Monopolistic Competition: A Re-orientation of the Theory of Value, Harvard University Press, 1933. Joan Robinson The Economics of Imperfect Competition, London, Macmillan 1933.

6 Michal Kalecki, A Theory of the Business Cycle, Review of Economic Studies, volume 4, 1937, Pages 77–97.

II. INTO THE MAINSTREAM

The theory of imperfect competition did not enter mainstream economics until the second half of the century. The theory of monopolistic competition featured as part of a chapter in Paul Samuelson's *Economics: An Introductory Analysis* in 1948[7]. However, a key publication was Martin Shubik's *Strategy and Market Structure: Competition, Oligopoly, and the Theory of Games*, published in 1959. Shubik's work combined the older tradition of Cournot and Edgeworth with the new ideas of Game Theory that were developing rapidly (his PhD supervisor was Oskar Morgenstern who had written *Theory of games and economic Behaviour* with John Von Neumann, published in 1944). Cournot's 1838 model of duopoly was developed to a more general setting with more than two firms and general cost structures: the firm's power to influence prices depended on its market share. Perfect competition represented a limiting case of Cournot oligopoly when the market share of all firms tended to zero. The emphasis on market share had a major influence on the formulation of competition law in many countries with a large market share being an indicator of excessive market power.

However, there was an alternative approach. In 1883 Joseph Bertrand had reviewed Cournot's book and argued that if firms set prices, you could get the perfectly competitive outcome. This relied on the assumption that consumers purchased from the cheapest producer and so if a firm priced above the cost of production, a competitor could undercut it and capture all of the market. Edgeworth's model of duopoly showed that this result was not general: if firms had a limited capacity to supply the market, then a firm might choose a price above its competitor and supply the residual demand not served by its lower price competitor. Edgeworth formulated the idea of his "Edgeworth cycle," based on the idea that firms took turns to set prices. Starting from a high price, firms each firm would undercut the other leading to a fall in prices, until at a bottom price one of the firms would choose to raise its price above the other ad start the whole process again. In modern game-theoretic terms, there was no "pure strategy" equilibrium in the Edgeworth game if there were binding capacity constraints on how much an individual firm could produce. In *Strategy and Market structure* Martin Shubik showed that when one allowed for general cost structures, the only possible pure-strategy equilibrium to exist was the perfectly competitive price. If that was not an equilibrium, none other could exist. This led to the application of the idea of a mixed-strategy Nash equilibrium to the "Bertrand-Edgeworth" model. However, the difficulty in saying much concrete about the mixed-strategy equilibrium in the Bertrand-Edgeworth model led to its neglect relative to what became the standard workhorse models of Cournot and monopolistic competition.

Things changed in 1982 with the publication of *The Theory of Contestable Markets* written by William Baumol, John Panzar & Robert Willig. This kept the idea of Bertrand & Edgeworth of firms setting prices and consumers buying from the lowest priced firm, but had a crucial difference. Rather than assuming a fixed set of "incumbents" operating in the market, it focused instead on the potential competition from potential entrants not yet in the market. Incumbents were unable to set prices above costs because otherwise a new entrant could come in and undercut them (this was rather colorfully called "hit and run entry"). The timing of the book was perfect: Ronald Reagan and Margaret Thatcher had just started their incumbency as President and Prime Minister respectively and both wanted to de-regulate markets. Attention shifted from looking primarily at market shares to making entry barriers as small as possible to facilitate "hit and run" entry. For example, for airline travel, access to landing slots could be opened up to the highest bidder allowing new entrants to undercut the existing incumbents. In Britain, this idea was applied to the Thatcher privatization program including long-distance buses, energy suppliers and telephony and later to railways. One implication of the theory was that an incumbent could claim that despite a large market share, its price was still not excessive due to the threat of potential entry.

Another strand of imperfect competition shifted focus from "static models" in which there was a one-off game to repeated games: firms would face each other over many periods. In the mid 1970s onwards, many models were developed to examine the effect of competition over time on both competition between incumbents and between incumbents and new or potential entrants. The models became ever more complex, but there was no general conclusion. Cooperation between incumbents could arise, whereby they maintained a high price by "punishing" firms who "defected" by starting a price war. More importantly, incumbent firms could threaten potential entrants with highly competitive behavior to deter entry and so maintain their high prices. This notion of "exclusionary pricing" formed a way of understanding the 1975 "Areeda-Turner test" which focused on the notion of the incumbent trading off the loss of short-term profits by pricing below cost with the maintenance of monopoly profits later on. There were some very high-profile cases of "predatory pricing" in the airline industry that ended up in court in the 1980s (notably cases bought as a result of the Laker Airway's "no frills" transatlantic flights being driven out of business by the established airlines and a later case between Virgin Atlantic and British Airways).

Whilst the theory of imperfect competition was developing in some parts of economics, progress in others was slower. This was for a variety of reasons. Not least, the model of perfect competition was much easier to model due to its assumption that all agents are "price takers." However, these technical difficulties were gradually overcome an imperfect competition began to be applied in more and more fields of economics. Paul Krugman and others developed the "new international economics" and "new economic geography" in the 1980s, part of the "newness"

7 It occurs in the brief Chapter 21, amongst a total of 26 chapters.

in both cases being the use if imperfectly competitive models. Similarly, the "new" theories of economic growth and new Keynesian economics also started at this time.[8]

III. THE DECLINE AND FALL OF PERFECT COMPETITION

However, there was a backlash. In the realm of macroeconomics, the model of perfect competition was revived in the form of Real Business Cycle Theory (associated with Robert Lucas and Ed Prescott). This largely reflected ideological factors. Perfect competition is associated with a Pareto optimal outcome (under certain assumptions) and so is attractive to *laissez faire* economists who see the "invisible hand" guiding markets. Imperfect competition will in general lead to a sub-optimal outcome that leaves a space for possible improvement through regulation or some other form of government action.

Perfect competition, however, has a logical flaw. This was pointed out long ago by Kenneth Arrow in his 1959 article *Toward a theory of price adjustment*.[9] In a perfectly competitive model, all agents are price takers, no one can influence market prices. However, the model assumes that prices adjust to equate supply and demand. Who adjusts the prices in an economy where no one sets the price? Leon Walras had famously addressed this issue in his *Elements of Pure Economics* (written in French in 1877 and published in English in 1954).[10] His solution was to invent the fictitious "auctioneer" who altered prices in response to excess demands and supplies, his "tâtonnement" process. Walras' auctioneer was based on his observations of the market traders in the Paris Bourse (Stock exchange). Many of the greatest minds of the 1960s tried to resolve this logical flaw, but with little success.[11]

However, it was not this logical flaw that killed off real business cycle theory. The final nail in the coffin of Real Business cycle theory was the need to explain nominal price rigidity. In perfectly competitive markets, prices can adjust all of the time. Whilst we do observe some markets where prices are very flexible (for example airline tickets, car rentals, gas prices), for many goods and especially services we see the money prices remain fixed for long periods of time: weeks, months and even years. The price of a bottle of Coke is the most famous example: between 1886 to 1959, the price of a regular bottle of coke remained at 5 cents, or one "nickel." Whilst there had been some empirical studies of actual prices prior to 2000, these were often restricted to specific markets. However, in the first decade of the new millennium, a huge amount of price-data became available from the millions of price quotes collected to produce the Consumer Price Inflation measure. In addition, with the growth of online shopping it was possible to collect large amounts of data online, and in 2008 Alberto Carvallo & Roberto Rigobon set up the Billion Prices Project. This data showed that there was great heterogeneity in the way prices behaved across the economy, and in many markets prices persisted for long periods.

It is not possible to explain why money prices might remain fixed over time unless you have agents who set the prices. You need to explain why the agent setting the price might find it as an optimal policy to leave the price unchanged even when costs and demand change. The model of monopolistic competition was extended into a dynamic setting and lump-sum costs of price change were introduced to explain why the monopolist might keep prices constant even when cost or demand changed. Although the theory had been developed in the 1970s and 80s, it became the standard theory in macroeconomics in the 1990s, replacing perfect competition with imperfect competition.

IV. THE MANY WAYS TO BE IMPERFECT

I have focused on the areas of economics with which I am most familiar from my own research and teaching. As a general point, we can see that although the great minds of Augustin Cournot and Francis Edgeworth developed early theories of imperfect competition in the Nineteenth Century, it was not until much later that it spread across most fields of economics. Economists needed to develop the mathematical and theoretical tools to model imperfect competition and apply it to particular fields of economics. The main driver was the science, the need to explain real world phenomena. Perfect competition relies on some very special assumptions. Whilst it may be a good model for commodity markets such as oil and wheat, or financial markets, it was clearly not good model for many other markets where firms (or unions) had market power and could even deter entry.

8 Huw Dixon, New Keynesian Economics, New Palgrave Dictionary of Economics, 2nd Edition. (2008).

9 Kenneth Arrow "Toward a theory of price adjustment," in Abramovitz, Moses; et al. (eds.), The allocation of economic resources: essays in honor of Bernard Francis Haley, Stanford, California: Stanford University Press (1959)

10 Léon Walras Elements of Pure Economics: Or the Theory of Social Wealth, translated by William Jaffe, London: George Allen and Unwin Ltd (1954).

11 The alternatives developed by Takashi Negishi and Frank Hahn and others were called "Non- tâtonnement" processes which allowed for trading at prices before the competitive equilibrium price had been reached.

However, once one departs from the simple world of perfect competition, one has a range of imperfectly competitive models to choose from and they might have different implications for welfare and the behavior of markets. There are many ways to be imperfect. It is often hard to formulate general principles which hold across a range of imperfectly competitive models. One good example of this is whether you have too many firms or too few firms in equilibrium. This question was posed by Avinash Dixit & Joseph Stiglitz in their 1987 model of "optimal variety" in monopolistic competition.[12] In general, we can observe that consumers like variety, they like to have a range of options to choose from, from what sort of bread they buy to the design of their sofa or car. If we assume that each firm is a monopolistic competitor supplying its own brand, will we end up with too many varieties or too few? Each new monopolistic firm brings with it a fixed set up cost (overhead). If we allow firms to enter freely the monopolistic equilibrium will involve zero profits. If there is little or no love of variety by consumers, it can be shown that there will be too many firms and too much variety. Welfare could be improved by restricting the entry of firms. If there is a great love of variety, we can get the opposite result that the market equilibrium delivers too little variety. In this case, we can see that the removal of barriers to entry can lead to a decrease in welfare (when there is little love of variety) or an increase (when there is a great love of variety). So, although we can say that reducing barriers to entry might increase competition, we cannot say in a monopolistic model that it will increase welfare.

The rise of imperfect competition has been driven partly by logic, the need to explain how economic agents set prices. It has also been driven by the empirical need to explain why we observe nominal prices persisting through time. Perfect competition is at best a short-cut or approximation, which provides a simple model which is intuitive. The world, however, is often not at all like the competitive model and behaves in a very different manner. Whilst imperfect competition is now an integral part of economics, it raises many challenges and does not necessarily give us easy answers. However, in my experience, even though the answers may not be simple, imperfect competition gives us a much richer insight into the complexities of how real-world markets work. It can therefore provide a much better foundation for guiding competition policy.

12 Avinash Dixit & Joseph Stiglitz (1977), Monopolistic Competition and Optimum Product Diversity, American Economic Review, Vol. 67, No. 3 , pp. 297-308.

THE VIRTUE OF AN IMPERFECT COMPETITION LAW

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"Imperfect" is an adjective loaded with a negative sentiment: something undesirable as opposed to what is perfect. At first glance, this is also true when "imperfect" is associated with "competition." The ideal market is one in which competition is perfect, since this would lead to an outcome that guarantees the maximization of social welfare. Departing from this setting would imply a waste of resources. Yet, Joan Robinson in her *Imperfect Competition* explains that competition is imperfect because consumers have "a number of good reasons for preferring one seller to another."[2] This leads to a situation where "rival producers compete against each other in quality, in facilities, and in advertisement, as well as in price."[3] So, how can an imperfectly competitive market be undesirable if it emerges from decisions that consumers make for *good* reasons? And do we really dislike markets where firms compete in quality, facilities, and advertisement? These questions have obvious answers if we recognize that "imperfect competition" only indicates an environment in which competition is more nuanced, as it has many dimensions, and is therefore richer. This does not contradict the statement that perfect competition, in a static setting, achieves an optimal allocation of resources, defined as allocative efficiency. It only implies that there are other ways of describing a socially desirable market outcome that are based on and relate to other values. We can refer to other notions of efficiency, such as productive efficiency or dynamic efficiency, or consider values that are not normally put in terms of efficiency, such as fairness, liberty, equality, etc.

This richness poses a question that has been debated for decades and has recently returned to the forefront.[4] What is the goal that competition law should pursue? This is not (only) a philosophical question, as it has implications on the interpretation of the prescriptive rules that make up competition law, the boundaries of the prohibitions and the tools that can be used to distinguish between legal and illegal conducts.[5] Since leading scholars have participated in the debate, my attempt to contribute to it is probably presumptuous. However, i think that some crucial aspects have been overlooked. Therefore, I will try to fill in some gaps and, hopefully, give the debate a new perspective.

The first point to make is that the various goals that can be pursued are irreconcilable with each other. If this were not true, the whole debate would be futile because there would be only one goal that sums up all the others. I find ridiculous those bold and oversimplifying statements (typically made by politicians) that claim that competition guarantees that consumers will get the best quality at the lowest price. Unfortunately, this is untrue: some modes of competition will induce firms to provide a better "quality," others will force them to charge a lower price. Most of the time, we cannot attain both and so we have to decide which is the outcome we like best.

The second observation is that an order of these goals that is generally valid does not exist. Indeed, if such an order existed then the debate would only last because some of us are blind or ignorant, in that we do not see or understand that one of them is more important or valuable than the others. I assume this is not the case.

These two preliminary statements form what I consider to be one of the impossibility theorems of the twentieth century. I would name it after one of the most prominent political philosophers of the last century, Isaiah Berlin, and so I refer to it as Berlin's "impossibility theorem." Berlin states that: "The world that we encounter in ordinary experience is one in which we are faced with choices between ends equally ultimate, and claims equally absolute, the realization of some of which must inevitably involve the sacrifice of others."[6] In another passage he observes: "To assume that all values can be graded on one scale, so that it is a mere matter of inspection to determine the highest, seems to me to falsify our knowledge that men are free agents, to represent moral decision as an operation which a slide rule could, in principle, perform."[7] Thus, Berlin's impossibility theorem states that: "It is impossible to completely reconcile values or to rank them according to an order that is valid to anyone at any time." I call this statement a "theorem" because I believe that its validity or truthfulness should be accepted as we do for a mathematical theorem.

2 Robinson Joan, Imperfect Competition, 1933, St. Martin Press, 2nd ed. 1966, p. 89.

3 *Ibidem* p. 90.

4 The literature on this topic is indeed so wide that it is impossible to provide a comprehensive list of references. Limiting it to some recent contributions I can refer to Baker Jonathan B. and Steven C. Salop, "Antitrust, Competition Policy and Inequality," 2015, 104 Georgetown law Journal, 1; Crane Daniel, "Antitrust and Wealth Inequality," 2016, Cornell L. Rev. 101, no. 5, 1171; Hovenkamp, Herbert J., "Antitrust Policy and Inequality of Wealth," 2017, CPI Antitrust Chronicle, October, 1; Lina Khan & Sandeep Vaheesan, "Market Power and Inequality: The Antitrust Counterrevolution and Its Discontents," 2017, 11 Harv. L. & Pol'y Rev. 235; Lianos Ioannis, "The Poverty of Competition Law - The Long Story," 2018, CLES Research Paper Series 2/2018, Available at SSRN: https://ssrn.com/abstract=3160054; Ducci Francesco & Michael Trebilcock, "The Revival of Fairness Discourse in Competition Policy," 2019, The Antitrust Bulletin, 64(1), 79; Ezrachi,et al., "The Effects of Competition Law on Inequality – Incidental By-Product or a Path for Societal Change?," 2021, CCLP(L)55 Working Paper, Available at SSRN: https://ssrn.com/abstract=3870375.

5 The question concerns other aspects of competition law enforcement and in particular the decision about the agencies' priorities, provided that not all potential infringements can be prosecuted, due to resource limitations. However, in my discussion I will only consider how the goal of competition law can affect the interpretation of its rules and therefore the distinction between illegal and legal conducts.

6 Isaiah Berlin, "Two Concepts of Liberty" in Four Essays On Liberty, 1969 Oxford: Oxford University Press, p. 168.

7 *Ibidem* p. 171.

Choosing between goals that inevitably conflict with each other and that cannot be ordered on a scale is a moral decision. Interestingly, Robinson devotes a chapter in her book to discussing the welfare effects of price discrimination. That chapter is entitled "The moral of price discrimination." And indeed, she does not provide any conclusions about whether price discrimination is desirable or not, but only points out the welfare conflicts that this practice inevitably entails. Robinson also shows that even if we consider the narrow value of consumers' welfare a conflict exists, so that the choice depends on whether we value the well-being of some consumers more than that of others.

Berlin's impossibility theorem may be perceived as the tombstone of the debate: if we cannot summarize all goals into one, or grade them, there is no point in discussing which goal should competition law pursue, as this is a moral decision that people, as free agents, must make. However, although I believe this conclusion to be correct, it actually opens up other questions for scholars or pundits to address. Well, Heisenberg's uncertainty principle did not end physics, mathematicians still work on their theories despite Gödel's incompleteness theorems, and economists and political scientists do discuss about electoral systems even if Arrow's impossibility theorem applies. We just have to take the impossibility as a truth and move on.

The first step we can take, now that we are aware of the impossibility, is to consider that competition law is not the only government intervention that can influence how market competition unfolds. Although this is obvious, we tend to forget it and try to identify the virtue or virtues of competition that we think are the most desirable and attribute to competition law the role of defending them, as if competition law were the only available instrument or the one that has to be tasked with the responsibility of protecting what we deem the best property or feature of a competitive market. There is no reason to do so. Competition law may have an objective that conflicts with that of another intervention on competition, and the latter, on the basis of a moral or political decision, may trump the former. Perhaps a useful way to clarify this point is as follows: competition is "imperfect," but so is competition policy, where this expression refers to the existence of a broad set of interventions that affect market competition and includes competition law as one of them. Imperfect competition policy simply means a rich, multidimensional, human endeavor to shape the way firms compete.

Having an imperfect competition policy (in the sense we are using this expression) is something of a relief: even if we assign a goal to competition law that is not the most valuable (according to our moral decision) or that conflicts with other ends that we believe are worth pursuing, this is not a problem, since other components of the competition policy will play their role. Berlin's impossibility theorem lightens the baggage we carry on our journey, so that we are nimbler in the next steps.

A different way to approach the question of what goal we want to assign to competition law might be: what is the objective that best suits competition law, given its characteristics? I must admit that, in theory, this is not the most rational way to proceed. A better, or more consequential, approach would be to identify an objective to be attributed to a specific intervention or set of rules and then design the rules and the institutional set-up so that they are fit for purpose. But competition law has its own legacy. Indeed, in many jurisdictions competition law provisions are very old and limited corrections have been made since they were enacted. Similarly, the institutions that preside over their enforcement show surprising stability. Thus, I will consider this stability as the first prominent feature that we consider when selecting the goal of competition law.

A second feature is that, although the prescriptive content of competition law provisions is very vague (this is a reason for their longevity), their violation carries very severe consequences: criminal sanctions in some cases, penalties that have a criminal nature in others, treble damages in some jurisdictions.

A third important feature is that competition law has a technical content.[8] At least in recent decades, it has been suggested that a particular technical expertise, i.e. economics, is necessary (and sufficient) for the identification of which conducts infringe competition law. This is an objective orientation that is evidenced by the institutional decision (adopted in many jurisdictions) to entrust competition law enforcement to specialized independent agencies that are not subject to political control.

Certainly, there are other relevant elements that characterize competition law, but I will stop here. Thus, competition law rules are stable, technical and their violation carries severe penalties.

Now we can ask: what goal justifies or is most compatible with rules that have these characteristics? I think that the objective that is justified or more compatible with these features is one that most (if not all) people agree or do not have reasons to disagree about and that this agreement or lack of disagreement is not (or is less) based on values that may change over time.

8 See Crane Daniel, "Technocracy and Antitrust," 2008, 86 Tex. L. Rev, 1159.

Now we can proceed with the analysis and reflect on the following three additional questions: 1) what is the *object* of competition law, that is, what is the human sphere or institution with which competition law is intended to interfere? 2) What virtues can this institution generate? 3) Do any of these virtues have the characteristic of involving less disagreement and being more time invariant?

Competition law provides (some of) the main and essential rules of one of the most important social institutions: Markets. I use here the capital "m" for a reason. While markets differ greatly depending on the product being traded and have changed enormously over time, the function they perform is the same and has not changed over time. This function is to allow sellers and buyers to trade. Hence, I use "Markets" to identify a single yet fragmented and dispersed institution that performs this function. To be sure, there are other institutions that serve a similar function, in that they provide access to goods and services. For instance, in most countries (probably all) people obtained their Covid-19 vaccine not in a market but through the public health system (even though the latter purchased vaccines in a market). Thus, I do not include in Markets all institutions that enable the provision of goods and services. Markets form a dispersed institution that enables the *trade* of goods and services.

The function of Markets can also be described as that of selecting the transactions that occur and, in so doing, selecting the sellers who can sell and the buyers who can buy. The flipside of the coin is that Markets prevent some potential sellers from selling and some potential buyers from buying. In short, Markets select (meaning that they include and exclude) buyers, sellers, and transactions. Competition law consists of a set of rules whose purpose is to prevent market participants from engaging in behavior that renders Markets incapable of "properly" performing this important selection function.

To be more specific, we need to understand that the selection of transactions (and the parties to them) is important to society for two main reasons. First, because of its direct effect on what products are exchanged and between whom at a given time. Second, because the way this institution performs its selection function influences market participants' incentives and their future position. Buyers and sellers try to anticipate how Markets will act in the future, also by observing their current behavior, and make decisions that they believe will improve their probability of being selected. In addition, the feasibility of future transactions depends on the transactions that are selected today. For instance, a famer will not be able to sell her crop tomorrow, if she is not allowed to buy seeds today. Hence, Markets influence the investments that are made and ultimately the set of transactions that will be possible in the future.

Thus, we may want to set rules that prevent market participants from engaging in conducts that are likely to affect Markets in such a way that their influence on current and future transactions is undesirable.

We can now address the second question: what virtues can Markets (the selection process) generate? Well, there are many. Markets can generate efficiency, fairness, equality and so on. There are many ways in which we can determine whether we prefer a certain set of transactions (now and in the future) to another. We may prefer transaction set A to transaction set B, because in a world in which the transactions in A occur production is more efficient, or because wealth is more equally distributed or because people enjoy more freedom, or simply because that world is more beautiful. If the Berlin theorem holds, it is impossible to reconcile or order all of these virtues. Thus, if we want to identify any of them as the proper goal of competition law (and accept the method I propose) we must answer the third question: is there a virtue that the process of transaction selection can achieve that we think is stable over time and generates less or no disagreement? I maintain that such a virtue exists, and it is the maximization of a narrow notion of total welfare. Let me clarify and demonstrate my claim.

Total welfare is the sum of the individual welfare enjoyed by all persons belonging to a society. This welfare can come from many activities. Reading a book might be a source of welfare. However, I will restrict my attention to the act of trading. Buyers and sellers obtain a benefit from trading. If I buy a book, I get a benefit even if I do not read it. So, let us focus on the welfare generated by economic transactions, that is the first reason why the notion of welfare I am using is narrow.

This welfare is typically described as the sum of consumer's and producer's surplus, where the consumer's surplus is the difference between the price a consumer would be willing to pay to obtain a product and the price that she has to pay, and the producer's surplus is the difference between the price that a firm obtains and the one that it would be willing to accept to sell the product. While this description is technically correct, it can be misleading. A better way to name the two components is buyer's surplus and seller's surplus, as this avoids the confusion that many people make between consumer surplus and the end consumers welfare. One should always remember that in most transactions the buyer is not an end consumer but a firm, or the government or other organizations. Moreover, there is no need to define the two components and then sum them up, because when we do that the price that is paid cancels out. Hence, the total welfare of a transaction is just the difference between the maximum price the buyer would be willing to pay and the minimum price the seller would be willing to accept. We also refer to this as "gain from trade."

One of the advantages of this measure is that it is expressed in monetary terms. Therefore, the total welfare of a set of transaction is just the sum of welfares generated by each transaction in the set. However, this notion of total welfare is narrow for another reason. It considers only the welfare of the parties to the transaction and ignores any benefit or cost that others may enjoy or bear. These are externalities because the parties to the transaction do not consider them in deciding whether they want to trade or not. In conclusion the notion of total welfare I use is narrow in two ways: it only concerns welfare from trade, and it excludes externalities. This is what I have in mind even if, from now on, I will not specify these two restrictions.

Total welfare is a value. We can say that we prefer a certain set of transaction over another because the total welfare generated by the former is greater than that of the latter. My claim is that this value is more stable over time and does not generate disagreement. Why? The reason is that total welfare is built on individual preferences. These preferences may change over time, but this does not affect the validity of total welfare, as this metric, by definition, will reflect these changes. Similarly, preferences over economic goods may differ among individuals, but this does not undermine the possibility of computing a measure of welfare that includes all of these divergent preferences. Thus, people have no reasons to disagree on this measure of welfare. The latter point is delicate, and I want to avoid any misunderstanding. Thus, let me make my position crystal clear.

Suppose that there are two set of transactions, A and B. What I maintain is that if one were asked to rank these two set of transaction in terms of total welfare, everyone would come up with the same ranking. This ranking implies no judgement, since it is totally based on judgements made by the parties to the transactions included in A and B. The second point I make is that all people agree that total welfare represents something good, so that the higher the better. What I am not saying is that everybody must prefer A to B if total welfare is higher in the former. A person may have other reasons for preferring B to A, notwithstanding the lower level of total welfare. For instance, she might believe that the distribution of wealth is fairer or more just in B.

Now, are there other economic values that share the same properties of total welfare applied to Markets? I do not think so; at least not among those that are typically used to identify the goals of competition law. Take, for example, consumer welfare (i.e. buyer surplus). Even if an objective ranking is feasible, people will not agree on that higher consumer welfare is better than lower consumer welfare. Or take equality, we can objectively measure how far a certain income distribution deviates from a perfectly even distribution, yet people will disagree about which is more desirable. Or think about fairness. Even if we all agreed that more fairness is better than less fairness, there is no objective way to measure the degree of fairness, and we will probably disagree on how to rank two different situations with respect to fairness.

My conclusion is that (narrow) total welfare generated by institution that presides the trade of economic goods and services is the ultimate goal that should guide the interpretation and the enforcement of the rules that form competition law. This is the objective that best fits the main features of these rules. Indeed, they are severe, because the institution they regulate has an extraordinary importance in our societies; they are stable and technical because the goal they pursue is one that does not change over time and because it does not generate disagreement.

Some will certainly disagree with my analysis, and I reserve the right to change my mind if the reasons for this disagreement are meritorious. In closing, however, let me clarify what my argument is not asserting, so that any criticism is not directed at the wrong target.

I am not arguing that competition law is incapable of contributing to the achievement of other goals. On the contrary, I believe that competition law enforcement has redistributive effects that improve equality, that competition law removes barriers that would otherwise limit freedom, and that it leads to outcomes that most people would consider fairer. However, this does not affect my conclusion. Sooner or later these values will clash with that of total welfare. My point is that when that happens total welfare should prevail in the interpretation of competition law.

I do not argue that total welfare should trump other values in any policy decision, for the simple reason that I do not think that competition law should always trump other laws or policies. In fact, when total welfare, liberty, equality, fairness, and other value conflict with each other a moral decision must be made. This decision requires a political mandate that most competition agencies lack; a political decision that, in our societies, cannot be subtracted to a democratic process. Thus, my claim is not disproved by evidence that shows that inequality is a serious problem and that the way competition law is enforced is to some extent responsible for this inequality. My position is that assigning competition law the goal of solving this problem is not the right response. It is more appropriate to limit the unintended negative effects of a properly enforced competition law through the prioritization of other policies that are specifically meant to cure the problem of inequality.

Finally, I do not argue that the interpretation and the enforcement of competition law involves no human judgement or that this role could be assigned to an algorithm or a "slide rule." Our understanding of how firms' behavior can alter the functioning of Markets and affect total welfare is still "imperfect." Thus, my argument is not contradicted by the observation that the actual competition law enforcement has failed to achieve the total welfare objective to the extent it has not prevented the formation of inefficient market power. This means only that the theory we use to distinguish between legal and illegal conduct can (and should) be improved and that much human judgement is needed to achieve these improvements. This is what makes this subject so fascinating to me.

IMPERFECT COMPETITION IN LABOR MARKETS

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In her foundational book, *The Economics of Imperfect Competition* (1933), Joan Robinson made a radical and contrarian claim: the "real world" of labor markets does "not fulfil the assumptions of perfect competition"; labor markets should instead be modeled on *imperfect* competition. Heterogeneous preferences, information asymmetries, and search and mobility costs naturally generate inelastic demand for workers' labor, creating employer buyer, or monopsony, power that prevents workers "from reacting to differences in the earnings" they could obtain from alternative sources of employment. The endemic nature of monopsony in labor markets would require an ongoing regulatory response throughout the economy, and she called on economists to "us[e] their tools upon observed facts" to "build up that working model of the *actual* world which it is their aim to construct" in order to better predict labor market competition outcomes.

But for decades that call went unheeded in traditional Industrial Organization ("IO") economics that has informed antitrust policy, even if labor, industrial relations, and institutional economists continued to recognize labor market frictions that contribute to employer monopsony. Antitrust agency policy and enforcement has ignored imperfect labor market competition, failing to investigate or challenge employer dominance, anticompetitive agreements and collusion, and they've ignored any labor market competition effects in merger reviews. Both the agencies and the courts seemed to presume that labor markets functioned on a model of perfect competition, focusing exclusively on product market competition issues and downstream consumer welfare.

I. EVIDENCE OF IMPERFECT COMPETITION IN LABOR MARKETS

Due in part to an "empirical turn" in antitrust economics and scholarship (as well as changing political winds), the antitrust agencies — and the Executive branch more generally — have recently begun to take seriously the existence and harms of employer monopsony on hiring, wages, and workplace quality, but also on labor market dynamism and growth, workers' purchasing power, and labor's share of national income. First, IO economists have shown that, even under traditional antitrust metrics, average labor markets in the United States are highly concentrated at Herfindahl-Hirschman Index (HHI) levels that exceed antitrust thresholds, and workers suffer lower wages as a result. Economists have also shown that labor markets are more inelastic than product markets, with median product elasticity at 4.5 and labor supply elasticities ranging between 0.1 and 1, meaning that the same HHI in a labor market as a product market would result in a larger markdown in the labor market as compared to the corresponding markup in a product market. There is also increasing evidence of employers' anticompetitive conduct in labor markets, including wage-fixing, reaching no-poach and information-sharing agreements, and pervasively using non-competes that reduce labor market competition.

In addition to traditional antitrust evidence of employer monopsony — and evidence of employer conduct that has emerged from government investigations and private enforcement — labor economists have presented evidence of employer monopsony, even in thick markets and over low-wage workers, due to labor market frictions like search and mobility costs, job differentiation, heterogeneous preferences, and information asymmetries. Research in behavioral economics has also identified sources of employer monopsony in workers' behavioral assumptions, heuristics, and beliefs about the employment bargain. More broadly, the systemic failure of labor market institutions — whether government institutions and labor law or labor market institutions like unions that support and bolster workers' countervailing power — contribute to employers' bargaining leverage relative to workers. Finally, public economists, labor economists, and macroeconomists have identified employer monopsony as contributing to the decline of labor's share of national income despite increases in worker productivity, exacerbating inequality.

II. REGULATING IMPERFECT COMPETITION IN LABOR MARKETS

The Obama Administration was the first to respond to these labor market realities, taking a more aggressive approach to increasing awareness and developing policy to respond to imperfect labor market competition. President Obama appointed as Chairs to his Council of Economic Advisors ("CEA") Alan Krueger and Jason Furman, two leading economists that highlighted employer monopsony and anticompetitive conduct—and their adverse micro- and macroeconomic effects — as subjects of national attention and as policy priorities within the Executive Branch and its agencies. Between 2015 and 2016, President Obama issued Executive Order 13,725 on "Steps to Increase Competition and Better Inform Consumers and Workers to Support Continued Growth of the American Economy" and his Administration issued White House Reports, a State Call to Action, CEA Issue Briefs, and Treasury Department Office of Economic Policy Reports highlighting, analyzing, and announcing policy to challenge employer monopsony and labor market competition issues, concentrating on employer collusion, pervasive use of non-competes, and the abuses of occupational licensing. During this period, the Department of Justice ("DOJ") and Federal Trade Commission ("FTC") also issued their Antitrust Guidance for Human Resource Professionals ("HR Guidance") to alert regulated parties of their position that wage-fixing, no-poaching agreements, and information-sharing about wages and other terms and conditions of work can violate the antitrust laws. The DOJ only began launching investigations and filing criminal cases challenging "hard-core" wage-fixing and market allocation agreements between employers during the Trump Administration, but the Trump DOJ also intervened in private actions challenging the use of no-poaching agreements in franchising to argue that such vertical agreements should be evaluated under the rule of reason.

The Biden Administration dramatically accelerated the pace of challenging employer monopsony, starting with its July 2021 issuance of Executive Order 14,036 on "Promoting Competition in the American Economy" ("Biden EO"). The Biden EO establishes broad policy goals and a "whole-of-government" approach to combat "excessive market concentration" that "threatens" worker welfare. It focuses on the three labor market abuses that the Obama Administration had targeted: occupational licensing restrictions, no-poaching agreements, and non-compete provisions in employment contracts, "encourag[ing]" the DOJ and FTC to strengthen its HR Guidance, presumably with regard to non-competes which the HR Guidance had not addressed. The EO also encourages the FTC to engage in rulemakings on non-competes and occupational licensing restrictions and asks the DOJ and FTC to review and consider revisions to their Merger Guidelines. Finally, the EO establishes a White House Competition Council to review and take on a wider set of labor market competition issues, including implementing the EO, developing "procedures and best practices for agency cooperation and coordination," and identifying further agency and legislative actions that might be needed to further the EO's policies. Biden's DOJ has since filed the first criminal no-poaching case and has taken on an active amicus strategy to clarify its legal positions in existing private enforcement actions on vertical franchising agreements and franchisor-franchisee collusion.

In all, since 2016, the antitrust agencies have shown a commitment to enforcing and engaging in policymaking against employers' anticompetitive agreements, but they have focused on "hard-core" wage-fixing, market allocation, and no-poaching agreements, not agreements that may be subject to "quick look" or rule of reason analysis. While they have publicly stated that they intend to review the labor market effects of mergers (and did so in cursory form in the *Sprint/T-Mobile* merger), they have issued no clear guidance and taken no clear positions on exactly how they'll assess the labor market effects of mergers, how they'll balance labor and product market effects, if at all, or what theories of harm they may consider beyond hiring and wage reductions, like reduced bargaining leverage. Nor have the agencies waded into enforcing against or intervening in unlawful monopsony cases or commented on state-level antitrust reforms targeting employer dominance. Finally, the agencies have not been clear on the nature and extent of expertise they intend to bring to their policymaking and enforcement, including the methods they will apply when analyzing labor market competition issues and whether they intend to look beyond IO economic modeling and evidence to incorporate labor economics, behavioral economics, industrial relations expertise, or labor agency expertise from the National Labor Relations Board, Department of Labor, and Equal Employment Opportunity Commission.

Still, the Executive Branch has by far been the leading government regulator of imperfect labor market competition. Congress has remained on the sidelines with regard to tackling labor antitrust reforms, even if the House and Senate have put forward a number of non-antitrust reform bills to increase worker power, ease union organizing, and set higher wage floors and social benefits to strengthen workers' outside options to monopsonistic employers. While the courts have begun to come around to labor antitrust claims against unlawful employer agreements and even employer dominance, their reasoning and analysis has been confused and incoherent at best. For example, in the context of unlawful agreements as well as merger and monopsony challenges, courts have applied a consumer welfare standard, allowing employers to successfully defend labor market restraints or product market restraints with labor market effects based on downstream consumer efficiencies. In the most recent high-profile consideration of how to review labor market restraints, the Supreme Court in *NCAA v. Alston* punted on deciding the question of whether and how to weigh labor market and consumer effects of labor market restraints.

All of these developments make clear that while we are in a revolutionary moment in taking on imperfect labor market competition, we are still in the early days of building an infrastructure for policymaking and enforcement and constructing a labor antitrust canon — there remains considerable uncertainty. So, what *should* we expect from antitrust enforcement and developing doctrine moving forward in order to most effectively ensure labor market competition?

Given our current empirical knowledge about imperfect labor market competition, even in unconcentrated markets, as well as the level of legal uncertainty surrounding labor antitrust claims, there is both a substantial risk of false negatives — or erroneous exonerations — and high micro- and macroeconomic costs of mistakenly concluding that employers' anticompetitive exercise of their wage-setting power is not in fact anticompetitive. This heightened risk should instruct our analysis of the appropriate legal rules to apply to labor competition issues to avoid unnecessary, resource-intensive economic inquiries and reduce error costs in enforcement decisions and judicial outcomes.

III. ANTITRUST ENFORCEMENT: EMPLOYER AGREEMENTS

The antitrust agencies have been most proactive in challenging *per se* unlawful employment agreements to wage-fix, allocate markets, and not poach each others' workers. Where the agencies have not taken clear or consistent positions, and where the courts have also been equivocal and even ill-reasoned, is in evaluating employer agreements that do not amount to "hard-core" unlawful conduct, like vertical agreements in the franchising context, information-sharing agreements, and non-compete agreements. With regard to these types of agreements, there remain a number of issues that could be clarified, like:

- Whether the standards for inferring agreements should be the same in labor market as in product market cases;
- Whether employers' use of non-compete agreements can contravene the antitrust laws;
- Whether plaintiffs must define a relevant market or prove employers' market power, especially where they present direct evidence of employers' wage-setting power;
- Whether such agreements should be subject to "quick look" or rule of reason analysis;
- What kinds of procompetitive benefits are cognizable for labor market restraints; and
- When such agreements will be found unlawful based on balancing their anticompetitive effects and procompetitive benefits.

The choice of default rules and presumptions regarding employer agreements subject to "quick look" or rule of reason analysis should be sensitive to the empirical realities of imperfect competition in labor markets and the substantial risk of false negatives. So, for example, when inferring agreements in concentrated labor markets, we may reconsider the assumptions that have informed our current resolution of the "oligopoly problem" — in other words, erring on the side of rejecting conscious parallelism as tacit agreements unless the evidence shows more likely than not that purported colluders reached an agreement. Labor markets are unique in facing two-sided matching costs, so heterogeneous preferences by *both* employers and employees affect the terms of the employment bargain. Compounding this fact, search costs and imperfect information are endemic to labor markets' functioning. So when oligopsonistic employers share information or do not compete on hiring each others' workers through mechanisms not shared or made available to workers as well — like, say, through incorporating no-poach provisions in agreements with franchisees that employees are not parties to — they reduce *their* uncertainties in matching while increasing information asymmetries with workers and workers' search costs in a way that exclusively advantages their cartel and disadvantage workers. For example, if employers aggregate even anonymized data on labor costs in a way not made available to counterparties — their workers — they can stabilize a cartel in a way that disadvantages workers and increases their monopsony power. Thus, it may be that, in those settings, tacit agreements should be presumed. Further, due to employers' pervasive use of non-compete agreements — even in low-wage employment — and empirical evidence of their adverse effects on job mobility and wages, they should be banned or at least presumed to be unlawful.

Additionally, there are strong reasons to allow plaintiffs that present direct evidence of employers' wage-setting power to obviate the need to define a relevant market or rely on indirect or circumstantial evidence of market power. The Supreme Court's decision in *AmEx* suggested that enforcers must define the market before establishing defendants' market power in vertical agreements cases. But its reasoning was based on the assumption that "[v]ertical restraints often pose no risk to competition unless the entity imposing them has market power." That assumption can be rejected where enforcers provide direct evidence of employers' wage-setting power in the form of artificially suppressed wages or reduced hiring. So a rule requiring market definition or indirect evidence of market power just adds unnecessary costs to enforcement without any offsetting benefits.

On applying "quick look" or rule of reason analysis to employer agreements, case law from *Philadelphia National Bank* on has been clear that courts should not engage in cross-market balancing — or weighing anticompetitive effects against procompetitive benefits in different antitrust markets. But courts have nevertheless done so in labor antitrust cases. *NCAA v. Alston* failed to squarely resolve the question of whether such balancing is appropriate in such cases. But for the reasons stated in both case law and the antitrust agencies' Merger Guidelines — the complexity of comparing effects across markets, administrability challenges, and the difficulties and political judgments involved in trading off welfare between workers and consumers or between classes of consumers — courts should not balance harms to labor markets against benefits to consumers nor should they require a showing of harm to downstream consumers where harm to workers in labor markets is shown.

IV. ANTITRUST ENFORCEMENT: MERGERS

While the agencies have publicly stated their intent to review the labor market effects of mergers, they have never blocked a merger under Section 7 on grounds that it may substantially lessen labor market competition. Moving forward, key unresolved questions on the agencies' merger enforcement concern whether and how they intend to review the labor market effects of mergers and whether they intend to amend their Merger Guidelines to formally alert regulated parties of their policy positions. There are a number of areas for the agencies to clarify, including:

- Whether they intend to maintain the same HHI thresholds for triggering merger enforcement in labor markets as they do in product markets, given the level of imperfect competition in even unconcentrated labor markets
- Whether they will engage in cross-market balancing when analyzing the anticompetitive effects and procompetitive benefits of mergers in labor and product markets; and
- If so, whether and when product market effects can trump labor market effects for the purposes of their enforcement.

There are compelling reasons for the agencies to revise their Horizontal Merger Guidelines to lower thresholds that trigger labor market enforcement because buyer power can be more harmful than seller power and wage suppression has multiplier effects impacting the entire economy. Further, the agencies should incorporate into their modeling of HHI thresholds IO and labor economics innovations in determining labor market concentration levels, including incorporating labor market frictions into traditional IO HHI analyses, looking at job-to-job flows across industries pre- and post-merger, combining flows across firms with shares of payroll, and measuring concentration based on wage bargaining models in relation to workers' outside options.

With respect to cross-market balancing and allowing product market effects to trump labor market effects, for statutory, administrative, and public policy reasons, the agencies should block mergers that lessen labor market competition or create local monopsony power and use conduct remedies to ensure that, even where product market effects favor approving a merger, labor market competition is protected. Section 7 of the Clayton Act prohibits merger and acquisitions "in *any* line of commerce" where their effect "may be substantially to lessen competition, or tend to create a monopoly," so adverse labor market effects are alone sufficient to block a merger under the statute. The agencies have made clear in their Merger Guidelines that they will "assess competition in each relevant market affected by a merger independently and normally will challenge the merger if it is likely to be anticompetitive in *any* relevant market," but they reserve prosecutorial discretion to "consider efficiencies not strictly in the relevant market" if they are "inextricably linked with it that a partial divestiture or other remedy could not feasibly eliminate the anticompetitive effect in the relevant market without sacrificing the efficiencies in the other market(s)." Again, in light of the complexity and administrability concerns of engaging in cross-market balancing, current labor market realities, the high risk of false negatives, and broader federal labor and economic policy goals of ensuring equal bargaining power between employers and employees, the agencies should exercise their prosecutorial discretion to ensure that any merger or acquisition they approve does not lessen labor market competition.

V. ANTITRUST ENFORCEMENT: EMPLOYER MONOPSONY

The antitrust agencies have yet to bring an enforcement action for unlawful monopsony despite empirical evidence of its prevalence. In addition to bringing enforcement actions, the agencies could take significant steps to clear up doctrinal questions that remain thorny with regard to establishing unlawful employer dominance, including:

- The thresholds for proving employer monopsony; and
- The range of anticompetitive conduct in labor markets that can subject employers to liability.

Similar to the merger context, there are strong arguments favoring lower thresholds for establishing monopsony power in labor markets than current thresholds understood to be sufficient for establishing monopoly power in product markets. As discussed, empirical evidence of labor market inelasticity relative to product markets, institutional and social constraints on workers' ability to switch jobs, and labor market frictions allow significant monopsony power even without barriers to entry or employer collusion. Combined, these labor market realities favor finding market share thresholds lower than 50 percent sufficient to establish monopsony power. Additionally, as in the agreement and merger contexts, the agencies and courts should review direct evidence of wage-setting power as well as innovative IO and labor economics metrics for discerning market power in their analysis, including evidence of labor market frictions that contribute to monopsony power.

Additionally, the range of conduct that may subject dominant employers to antitrust liability is highly underdetermined, and both agency and court guidance is needed. At the very least, agencies and courts should make clear that where employers unlawfully acquire or maintain their monopsony power through mergers and acquisitions, collusion with other employers through information-sharing or other schemes, using mobility and litigation restrictions in employment contracts (including employment contracts within their supply chains), restricting worker information-sharing on wages and benefits, committing work law violations, shutting down or displacing work from unionized plants and divisions in favor of non-union production, permanently replacing striking workers, or committing other actions that reduce worker bargaining leverage but that are currently lawful under the National Labor Relations Act, they can violate anti-monopsony law.

VI. GOVERNMENT ADMINISTRATION OF LABOR MARKET REGULATION

Finally, government enforcement against unlawful employer monopsony and anticompetitive conduct could substantially benefit from a stronger administrative infrastructure and expertise at the agency and interagency levels. As an initial matter, as have agencies like the Consumer Financial Protection Bureau, the DOJ and FTC should expand their expertise and stakeholder engagement — in this case, with non-IO economists, workers, and labor organizations — to inform their enforcement. They could first expand the ranks of their Economic Analysis Group and Bureau of Economics, respectively, to include a broader range of social scientific experts such as experts in labor economics, behavioral science, industrial relations, and even economic sociology and organization studies. Introducing more expansive methodologies and metrics of detecting and assessing employer buyer power will be critical for the agencies' work in the investigative, liability, and remedial phases of antitrust enforcement. The agencies could also rely on and solicit labor market expertise and worker participation in Tunney Act proceedings as part of courts' "public interest" review of their settlements with employer defendants. Such expertise would better inform the agencies' use of structural and conduct remedies to ensure workers' countervailing power. The agencies could even establish Remedial Task Forces with worker representation to monitor the administration of consent decrees. The dramatic decline of union density in the telecommunications industry following the breakup of AT&T and the Bell System — from 56 percent then to 14.3 percent today — ought to be an abiding lesson: firm breakups, or structural relief, must be fortified by aggressive government involvement maintaining workers' countervailing power, including through creative use of conduct remedies to, for example, establish card-check neutrality agreements with labor organizations, timelines for reaching first collective bargaining agreements that bind subsidiaries and divisions, reporting requirements for work law violations like worker misclassification, posting notice of employee rights, and establishing rules for labor organization access to employer property and employee lists.

Second, while the Biden EO's "whole-of-government" approach to combatting employer monopsony proposed specific priorities for the antitrust agencies and a role for the Labor and Treasury Departments in setting economic policy and encouraging labor market competition, it could better institutionalize and integrate labor agency involvement into anti-monopsony enforcement. The EO envisioned no role for the National Labor Relations Board (NLRB) beyond "encourag[ing]" its compliance with the EO and invited no role by its lead officials in competition policymaking, even though the NLRB is the agency tasked with ensuring workers' equal bargaining power with employers. There is currently no memorandum of understanding establishing interagency coordination between the antitrust and labor agencies to share information, gather labor market data and analysis, or engage in joint investigations, joint enforcement, and joint policymaking regarding monopsonistic employers and their conduct or merger reviews. As I've argued elsewhere, the antitrust agencies should collaborate with the NLRB in their analysis of the labor market effects of mergers and in designing and monitoring remedies to employers' anticompetitive conduct that reduces workers' bargaining power.

To conclude, we are in a transformational moment of labor market regulation where, for the first time, antitrust enforcement has taken on the challenge of imperfect labor market competition as a core component of competition policy. While there are many doctrinal and administrative challenges and uncertainties moving forward with labor antitrust enforcement, clarifying substantive legal rules and standards, legal decision rules, and ensuring a robust and expert agency and interagency infrastructure will be critical next steps for antitrust enforcers and the courts.

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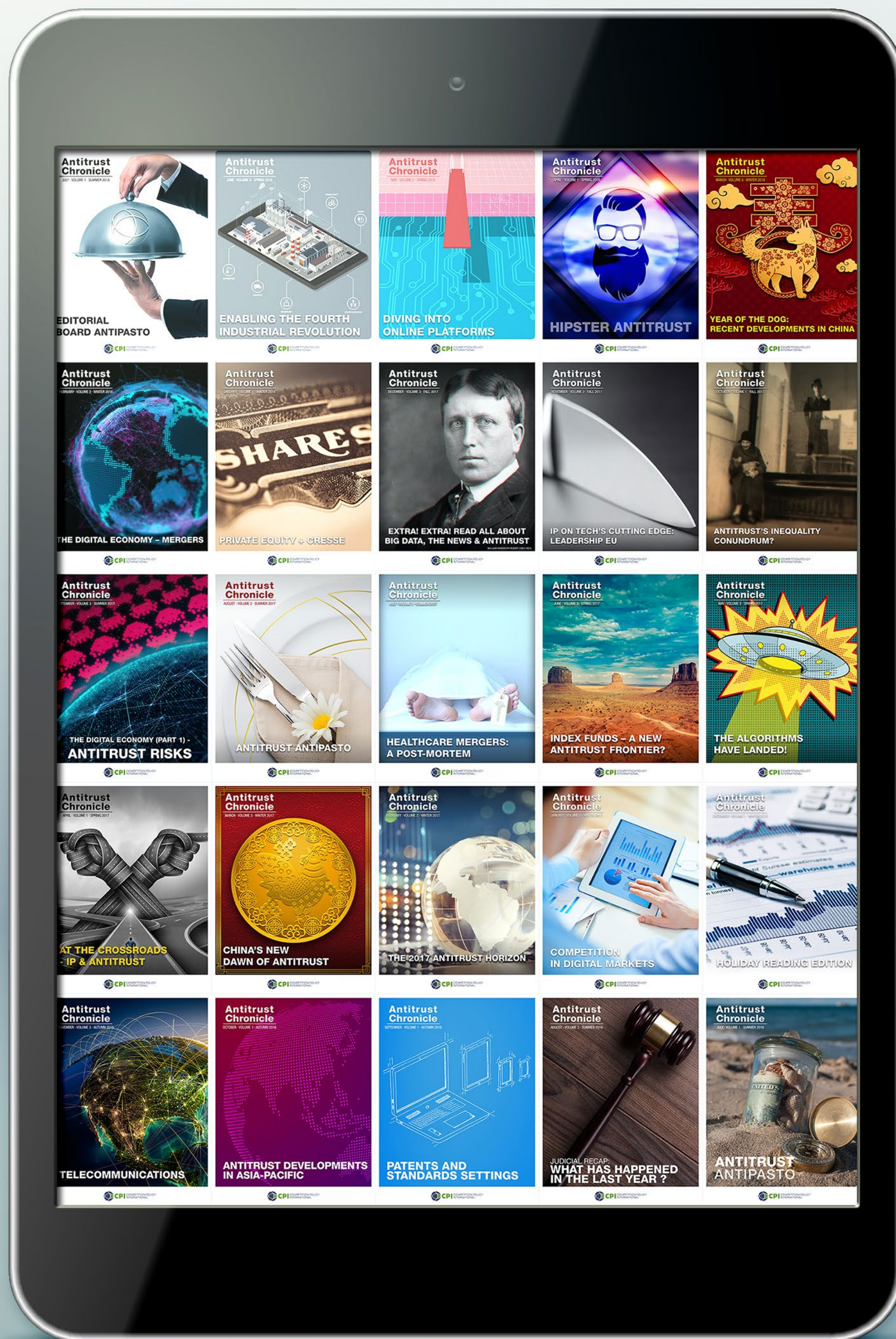

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