

**GUIDANCE ON ACCOUNTING FOR COMPETITION EFFECTS  
WHEN DEVELOPING AND ANALYZING REGULATORY  
ACTIONS**

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## **Introduction**

All markets are shaped by regulation. Regulation may lead markets to be more competitive or less competitive. Shaping markets to be more competitive has many benefits. Firms that compete pressure one another to improve product quality or lower prices, offer workers better wages and benefits, invest in new technologies, and develop and bring to market new products and services. Such outcomes can boost economic growth and dynamism and increase standards of living. Markets can also be shaped in a way that constrains competition, resulting in higher prices, fewer options for consumers, lower wages for workers, and (all else equal) reduced social welfare. Analyzing how regulations influence competition can provide insights critical to crafting policy, including how to achieve other policy goals while also increasing competition.

As agencies design, develop, and analyze regulations, this guidance is designed to help them better account for how potential regulatory alternatives shape markets, affect firms' opportunities and incentives to compete with one another, and have different effects depending on the degree of market competitiveness. Part I of this guidance provides an overview of why considering these effects is important, a list of questions to help agencies determine if a regulation may have significant effects on market structure and the competitive process, and some suggestions on designing regulations to accomplish other policy goals while promoting competition. Part II provides more technical background for analysts on the factors that influence the competitiveness of markets and additional concepts relevant to assessing competition effects in regulatory analyses. Regulators should consider the types of questions discussed in Part I when developing a regulatory policy, even in circumstances where the data and resources needed to pursue the more extensive analytic approaches discussed in Part II are not available. Even when a regulatory analysis cannot estimate important competition effects quantitatively, it should describe any such effects qualitatively. Regulatory actions must be developed consistent with applicable law; by appropriately considering competition in policy design and impact analyses, agencies can improve their regulatory analyses and help identify among the legally available regulatory options those that are most pro-competitive.

Regulatory agencies may benefit from consulting with competition experts in the Department of Justice and the Federal Trade Commission. These consultations could include whether regulatory alternatives may have important competition effects, whether regulatory alternatives would better promote competition, or how competition effects could be analyzed qualitatively or quantitatively. These consultations could also include how best to ensure effective enforcement of regulations that prohibit anticompetitive conduct, including, when appropriate, through referrals to the Department of Justice. Your Office of Information and Regulatory Affairs (OIRA) desk officers and branch economists can help connect you to a relevant point of contact at these agencies if you do not already have one.

This guidance elaborates on Office of Management and Budget (OMB) Circular No. A-4,<sup>1</sup> which provides guidance to agencies regarding their analysis of regulations consistent with

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<sup>1</sup> A revision to Circular A-4 has been proposed and will be finalized in light of public comments and peer review. See Request for Comments on Proposed OMB Circular No. A-4, "Regulatory Analysis," 88 Fed. Reg. 20915 (Apr.

Executive Orders 12866, 13563, and 14094. As OMB Circular No. A-4 notes, agencies must analyze many potential factors when developing regulations, and should generally consider the tradeoff between the benefits and costs of more analysis by focusing on important potential regulatory effects. Not all regulatory actions will have substantial effects on competition or the competitive process. This guidance provides recommendations to agencies, does not impose any requirements on them, and applies only to the extent consistent with applicable law.

OMB developed this guidance document in collaboration with the National Economic Council, the Council of Economic Advisers, and other members of the White House Competition Council. It was informed by interagency review, and OMB is grateful for feedback from all interagency reviewers. OMB itself is solely responsible for the content of this guidance.

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7, 2023). This guidance is intended to elaborate on, and to be consistent with, both the current and the revised Circular A-4.

## **Part I: Competition and Regulation – Key Considerations**

*Competition* is, among other things, the process by which individuals or firms vie to win customers' business for goods or services, to purchase suppliers' goods or services, or to hire workers for their labor services. Competitive markets are characterized by (but not exclusively characterized by) the presence of independent and rival buyers and sellers such that each market participant has many potential options to turn to. Encouraging competitive markets is an important policy goal. Competitive markets are associated with lower prices for consumers, higher wages for workers, more innovative products and services, more business formation, and greater resilience to unexpected events. When markets are less competitive, we say that certain market participants have *market power*. Firms with market power have the ability to change their behavior so as to increase their own profits or advance their other interests at the expense of others. Because competition works differently in different markets, this change in behavior may play out in a variety of ways. For example, in a less competitive market, a firm with market power may increase prices above the competitive level, strategically reduce production, or invest less in quality, customer service, or innovation.

In many cases, agencies regulate without intending to influence competition. They may primarily be seeking to reduce environmental harms, improve workplace safety, or lower costs for consumers. Nonetheless, regulatory actions may influence how markets are structured, affecting the incentives of firms, consumers, workers, and others, and shaping the “rules of the road” that influence how firms compete. Some assume—erroneously—that new regulation in a market will always lead to a less competitive market. This is not the case; just as antitrust enforcement can increase competition in markets, properly designed regulations can enhance competition too. This guidance seeks to help agencies design regulations that promote competition—or choose more pro-competitive regulatory alternatives—while also achieving or enhancing other important policy goals.

The most important time for an agency to consider potential effects on market structure and competition, as appropriate, is when the agency is developing regulatory options; during the development of a proposed rule, for example. It is generally advisable for agencies to develop regulatory alternatives that enhance competition more (or burden competition less) as they explore available policy approaches. In some cases, a slight modification of a regulation's design will substantially enhance competition while achieving the other regulatory benefits of the policy. For example, crafting a regulation that protects data portability or ensures other forms of *interoperability* can make it easier for customers to switch to other producers' products.<sup>2</sup> When switching costs and the costs of using multiple competing networks simultaneously (multi-homing) are low, there is more incentive for firms to compete on product quality and price, rather than relying on switching or multi-homing costs to protect their market share.<sup>3</sup> In other cases, slight design modification may preserve the regulation's benefits while providing substantially greater competition benefits (or substantially reduced competition harms). For example, changing a regulation based on a specific *design* standard to one based on a general

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<sup>2</sup> See, e.g., Fiona M. Scott Morton et al., “Equitable Interoperability: The ‘Supertool’ of Digital Platform Governance,” *Yale Journal on Regulation* 40, no. 3 (2023): 1013–1055.

<sup>3</sup> See, e.g., V. Brian Viard, “Do Switching Costs Make Markets More or Less Competitive?: The Case of 800-Number Portability,” *RAND Journal of Economics* 38, no. 1 (2007): 146–163.

*performance* standard may increase competition by allowing firms to produce products with innovative designs that meet or exceed that performance standard but have lower costs.<sup>4</sup>

Procompetitive and anticompetitive regulatory effects may come about in many different ways. For example:

- In the past, individuals who are deaf or hard of hearing needed to see a specialist in order to purchase a hearing aid, and the device purchase was generally bundled with professional services. This reduced competition in the hearing aid market by limiting market entry from potential competitors. In 2022, the Food and Drug Administration established a category for over-the-counter purchases of hearing aids that address mild-to-moderate hearing loss.<sup>5</sup> This has increased competition among providers of hearing aids for those with mild to moderate hearing loss, increasing the variety of products available to them.
- In order to help ensure that the use of building materials—such as concrete—minimize unnecessary greenhouse gas emissions, a regulator could specify detailed prescriptive technical requirements identifying which lower-emission building materials should be used. However, technical requirements that are too specific may entrench the market power of incumbent firms or prevent entry by firms with innovative products that do not meet the requirements but produce equivalent or lower emissions. In this case, regulators could consider whether a performance standard based on the quantity of greenhouse gas emissions released in production and use of the building material would lead to comparable greenhouse gas emissions reductions with more market entry and more rapid technological development.

Robust competition—or the lack thereof—can influence outcomes not only in the market directly affected by a regulation, but also can influence related markets, including those upstream or downstream of that market on the supply chain. For example, regulations on trucks crossing U.S. borders may increase the cost of transporting goods across borders. This, in turn, may make it more difficult for firms that produce certain goods in the U.S. to compete in Canada or Latin America with foreign suppliers of those goods. As a result of such effects, regulations that reduce competition in a market can have effects that may be removed from—or at odds with—the outcomes intended.

The impacts of competition go beyond its effects on the market power of sellers, or its effect on consumer prices. Purchasers of inputs and employers may also have market power. Labor markets, in particular, may require special consideration given the multifaceted relationship between employer and employee. Many of the same key questions agencies should

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<sup>4</sup> See, e.g., Wesley A. Magat, “The Effects of Environmental Regulation on Innovation,” *Law and Contemporary Problems* 43, no. 1 (1979): 4–25. The competition harms of design standards are likely to be particularly acute when they can be met only with a technology that is produced by one firm. A performance standard could also give rise to the same problem, if specified narrowly.

<sup>5</sup> Medical Devices; Ear, Nose, and Throat Devices; Establishing Over-the-Counter Hearing Aids, 87 Fed. Reg. 50698 (Aug. 17, 2022).

ask about producers when evaluating the competitive effects of potential regulations also apply to employers and other purchasers of inputs.

Digital markets require special consideration in light of common features such as network effects, platform operators who are also platform participants, and the use of platform data to confer competitive advantages. In these markets, competitive harms may manifest in dimensions such as job amenities, consumer privacy, or data security, in addition to consumer prices and workers' wages.

### ***When Does Competition Tend to Promote Social Welfare and Other Policy Goals?***

As noted in the Introduction, regulations that make otherwise functional markets more competitive tend to improve social welfare. However, when there are multiple significant distortions in a market, a regulation that enhances competition without simultaneously addressing those distortions may instead diminish social welfare.<sup>6</sup> Conversely, a regulation increasing barriers to entry—which might be anticompetitive in an otherwise well-functioning market—could increase social welfare in a market with challenging information asymmetry problems, by ensuring that the options available to consumers meet a minimum standard of quality.<sup>7</sup> For example, registration and licensing requirements in the pharmaceutical industry that increase barriers to entry may be welfare-enhancing in the context of information asymmetry problems between patients or doctors and pharmaceutical manufacturers. The rest of this guidance does not discuss regulatory contexts in which increasing competition is not welfare-enhancing, but agencies should bear in mind that these circumstances are important to identify.

In other cases, a good or service is not allocated by traditional markets at all, but rather is delivered wholly or primarily by the public sector (such as public transportation, policing, and K-12 schools). While it may be welfare-enhancing for aspects of these goods or services to be delivered by private firms, there may be other important policy considerations involved in shifting provision from the public sector to the private sector (or vice versa)—including how public provision may align incentives in these sectors—that warrant consideration.<sup>8</sup> Those other important policy considerations should be considered in a particular policy context, when appropriate, but are not the focus of this guidance.

### ***Determine How a Regulation May Affect Market Structure and Competition***

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<sup>6</sup> See, e.g., Peter J. Hammer, “Antitrust Beyond Competition: Market Failures, Total Welfare, and the Challenge of Intramarket Second-Best Tradeoffs,” *Michigan Law Review* 98, no. 4 (2000): 849–925; Simon Cowan, “Regulation of Several Market Failures: The Water Industry in England and Wales,” *Oxford Review of Economic Policy* 9, no. 4 (1993): 14–23; R. G. Lipsey and Kelvin Lancaster, “The General Theory of Second Best,” *The Review of Economic Studies* 24, no. 1 (1956): 11–32.

<sup>7</sup> For more detail on information asymmetries and other distortions, consult OMB Circular No. A-4.

<sup>8</sup> For further discussion of these tradeoffs, see Oliver Hart, Andrei Shleifer, and Robert W. Vishny, “The Proper Scope of Government: Theory and an Application to Prisons,” *The Quarterly Journal of Economics* 112, no. 4 (1997): 1127–1161; Patrick Francois, “‘Public Service Motivation’ as an Argument for Government Provision,” *Journal of Public Economics* 78, no. 3 (2000): 275–299; Timothy Besley and Maitreesh Ghatak, “Incentives, Choice, and Accountability in the Provision of Public Services,” *Oxford Review of Economic Policy* 19, no. 2 (2003): 235–249.

When evaluating the impact of a regulation, the following questions are a useful guide to assessing the competitive landscape and detecting potential effects on competition that warrant further inquiry.<sup>9</sup>

**Key Questions:**

- A. How Competitive Are the Affected Markets in the Baseline?**
- B. Would This Action Potentially Induce a Change in the Number or Range of Competitors?**
  - 1. *Does this action grant exclusive rights to one firm or a particular type of firm, or does this action make exclusive arrangements more difficult?*
  - 2. *Does this action establish or significantly change a license or permit system for either businesses or workers?*
  - 3. *Does this action limit or expand the ability of either particular firms or certain types of firms to compete (e.g., geographic restrictions, quotas, or subsidies)?*
  - 4. *Does this action raise or lower the cost of entry or exit?*
  - 5. *Does this action restrict or increase the flows of goods, services, or labor across state—or other jurisdictional—lines?*
- C. Would This Action Limit or Enhance the Ability of Firms To Compete?**
  - 1. *Does this action affect firms' ability to set prices and market or advertise goods and services?*
  - 2. *Does this action impose/remove standards that benefit/harm some firms but not others?*
  - 3. *Does this action disproportionately raise or lower the costs of some firms but not others?*
- D. Would This Action Weaken or Strengthen the Incentives for Firms To Compete Vigorously?**
  - 1. *Does this action allow or encourage firms to “self-regulate” or “co-regulate”?*
  - 2. *Does this action require firms to publish information on prices, outputs, sales, or wages?*
  - 3. *Does this action provide exemptions from competition laws or preempt their enforcement?*
  - 4. *Does this action increase or decrease switching costs for customers?*
  - 5. *Does this action change the information available to consumers as they are making choices about which products and services to purchase?*
- E. How Does This Action Affect—or How Is It Affected by—the Supply Chain?**
- F. How Does This Action Affect—or How Is It Affected by—Labor Market Competition?**
  - 1. *Does this action limit or expand the ability of workers to change their employer or seek new employment?*
  - 2. *Does this action impact the ability of workers or employers to bargain over wages or terms of employment?*
  - 3. *Does this action limit or expand the employment opportunities for a specific occupation, or in a specific geography where certain occupations may be concentrated?*

The relevance of each of these questions may vary depending on the regulatory context, industry characteristics, and agency authorities. In considering these questions, and this guidance as a whole, in the context of developing any particular agency action, agency analysts and policymakers should consult their economists and legal counsel.

**How Competitive Are Markets in the Baseline?**

Before assessing how a proposed change in regulation may affect competition, it is useful to identify the potentially affected markets: the products or services affected by the regulation,

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<sup>9</sup> See also “Competition Assessment Toolkit: Volume 1. Principles,” OECD, 2019, <https://www.oecd.org/daf/competition/46193173.pdf>.

and—when applicable—the geographies and times<sup>10</sup> in which producers of those products and services compete. Analysts can then consider how competitive those markets currently are, including how many firms are present, the market share of those firms, and how easy it is for new firms to enter and successfully remain in the market. When identifying affected markets, it is important to consider not only the markets that regulated entities participate in, but also adjacent markets that the regulation may impact. For more detail, see “How to Identify Markets” in Part II. In general, more competitive markets have:

- more producers, so buyers have more options for where to purchase;
- more buyers, so producers have more options for where to sell;
- reduced frictions for buyers to comparison shop and switch across potential producers, and for sellers to comparison shop and switch across potential buyers; and
- low costs of entry and exit for buyers and sellers.

When the procompetitive conditions listed above are present, producers are less likely to be able to earn large economic profits by charging higher prices or offering lower-quality products or services, because of the prospect of losing sales to competitors. Producers earning economic profits will tend to face challenges from new firms entering the market to compete away these profits; for example, by offering lower prices. Similarly, buyers of inputs who face more competition from other buyers tend to be less able to offer an inefficiently low price for inputs, as input sellers can more readily switch to another input buyer. For example, employers who face more competition for employees from other employers tend to be less able to offer inefficiently low wages or poor working conditions to employees, as workers can more readily switch to another employer. Competition also makes markets more resilient, as buyers are not dependent on oligopolistic producers or input suppliers. When competition increases, net gains for market participants who benefit will generally exceed the net losses for market participants who will be made worse off, increasing social welfare (in the absence other considerations).

The practical consequence of a change in market conditions may depend on how competitive the market currently is. For example, a regulation that increases producers’ costs and causes some firms to exit the market could have a more significant impact if the baseline number of firms is small, as the remaining firms will find it easier to raise prices or reduce product quality. By contrast, if the baseline number of firms is large then the exit of the same number of firms will tend to have a less significant impact, as the remaining firms will find it more difficult to raise prices or reduce product quality. The number of firms in a market is only a starting point in assessing the competitiveness of a market; there may be reasons why a market with a large number of firms in the baseline could be significantly affected by a regulation that causes some firms to exit the market or raise barriers to entry or innovation, or reasons why a market with a small number of firms in the baseline could be relatively unaffected by a regulation that causes some firms to exit the market or raise barriers to entry or innovation. For more details on measuring competitiveness, see Part II of this document.

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<sup>10</sup> See, e.g., Robert S. Pindyck and Daniel L. Rubinfeld, *Microeconomics*, 7th ed. (Upper Saddle River, N.J.: Pearson/Prentice Hall, 2009), 25, who introduce market modeling with a statement that the “horizontal axis shows the total quantity demanded and supplied... measured in number of units *per period*” (emphasis added). Although this definition is general, the practical implications of various time-period precision levels may vary. For instance, market power may exist for some parts of the agricultural supply chain only near harvest time; this type of example, where there is such analytic importance of attending to precise monthly or weekly conditions, is somewhat rare.

Finally, it is important to note that the phrase “relevant market” is a legal term of art in antitrust analysis. Finding a “relevant market” in that technical meaning of the phrase is an intensive and fact-specific exercise that may not be necessary for a regulatory analysis. To avoid confusion that could undermine future antitrust law enforcement efforts, agencies are thus encouraged to avoid use of the phrase “relevant market.”<sup>11</sup>

### Would This Action Potentially Induce a Change in the Number or Range of Competitors?

Reducing or limiting the number of sellers in a given market increases the probability that remaining sellers will be able to increase prices or reduce quality without facing sufficient competitive pressure from their rivals. Reducing or limiting the number of buyers in a given market increases the probability that remaining buyers will be able to reduce prices paid to producers or offer producers worse terms.<sup>12</sup> Reducing or limiting the number of sellers or buyers in a given market can also lead to sellers and buyers in that market decreasing investment in products<sup>13</sup> or reducing wages, benefits, or training for workers.<sup>14</sup> Conversely, increasing the number of sellers or buyers in a given market can lead to the opposite effects, and in many cases, greater innovation.<sup>15</sup> Some regulations can directly or indirectly induce changes in the number of competitors in a market. For example, the Federal Trade Commission’s (FTC) 1977 eyeglass rule required optometrists to provide patients with a prescription that could be used to obtain eyeglasses at the provider of their choice.<sup>16</sup> Previously, optometrists often sold eye examinations and eyeglasses as a package or charged fees for prescriptions. The FTC’s rule incentivized new types of providers to enter the eyeglasses market, including providers offering cheaper alternatives.<sup>17</sup> A regulatory analysis should consider and explain such competitive benefits when appropriate, even in cases where further effects on prices, number of providers, and other factors cannot be readily quantified.

The following set of questions are a guide for considering the potential for such competitive effects:

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<sup>11</sup> If the phrase “relevant market” must be used in a public-facing document, agencies should include a disclaimer that the market definition is not for law enforcement purposes and should not limit law enforcement efforts.

<sup>12</sup> The general term “price” may include wages and other compensation, which is the price for labor.

<sup>13</sup> Investment in this context could include spending on production capacity, research and development, or any other expenditures to improve the competitiveness of a product in the market.

<sup>14</sup> In some cases, increased product market competitiveness can also lower wages. Stephen Nickell, “Product Markets and Labour Markets,” *Labour Economics* 6, no. 1 (1999): 1–20.

<sup>15</sup> In some cases, such as by granting patents, limiting the number of firms that can effectively compete in a market may be able to increase innovation. Even in such cases, “patent breadth should be high enough to guarantee adequate rents to innovators, but not so high that it prevents innovation by new entrants.” Philippe Aghion and Rachel Griffith, *Competition and Growth: Reconciling Theory and Evidence* (Cambridge, Mass.: MIT Press, 2008), 86.

<sup>16</sup> Advertising of Ophthalmic Goods and Services, 43 Fed. Reg. 23992 (June 2, 1978).

<sup>17</sup> Federal Trade Commission, “Staff Report on Advertising of Ophthalmic Goods and Services and Proposed Trade Regulation Rule (16 CFR Part 456)” (1977), [https://www.ftc.gov/system/files/documents/reports/staff-report-advertising-ophthalmic-goods-services-proposed-trade-regulation-rule-16-cfr-part-456/r611003\\_-\\_staff\\_report\\_on\\_advertising\\_of\\_ophthalmic\\_goods\\_and\\_services\\_and\\_proposed\\_trade\\_regulation.pdf](https://www.ftc.gov/system/files/documents/reports/staff-report-advertising-ophthalmic-goods-services-proposed-trade-regulation-rule-16-cfr-part-456/r611003_-_staff_report_on_advertising_of_ophthalmic_goods_and_services_and_proposed_trade_regulation.pdf).

1. *Does this action grant exclusive rights to one firm or a particular type of firm, or does this action make exclusive arrangements more difficult?*

Granting exclusive rights to operate in a market to a single firm is an extreme example of limiting the number of competitors in a market. When granting exclusive rights to a single firm, agencies should consider limiting the firm's ability to exert market power to reduce adverse impacts to consumers. For example, a regulator might grant exclusive rights to a public utility because the cost to a competitor of building the infrastructure required to compete would exceed the expected benefits from competition. The regulator could also limit the prices the utility can impose and prescribe the services it must provide to prevent it from raising prices significantly above those anticipated in a similar, hypothetical competitive market (i.e., marginal cost), or from failing to provide adequate service. Therefore, when considering a regulatory scheme that would grant exclusive rights to a single firm, regulators should consider how competitive the market currently is, the effect of the regulation on the market, available alternatives, and how the firm with exclusive rights would be regulated within the market. In addition, agencies should consider the benefits of awarding any exclusive rights through a competitive process.

Conversely, some regulations may decrease exclusive arrangements or make them more difficult; for example, so-called "right to repair" regulations that expand the rights of legal owners of electronics and other devices to repair or modify hardware. Such arrangements tend to increase competition in the marketplace by obligating manufacturers to ensure that the items they produce can be easily repaired by third parties and spare parts are made available to these third-party repair firms, allowing competition for repair services beyond the original manufacturer.<sup>18</sup>

2. *Does this action establish or significantly change a license or permit system?*

Requiring that firms or workers obtain a license or permit in order to participate in a market can reduce the number or type of active firms or workers, limiting the overall level of competition. There are cases in which licensing requirements improve public health and safety as well as quality of service, potentially even increasing demand for the product. But in such cases, regulators should also consider the impact of a potential reduction in the number of competitors as a result of the licensing requirements. Changing the requirements of the licensing system could limit or expand the number and type of firms or workers in the market. Additionally, the time, cost, and complexity involved in meeting the licensing requirements could create barriers to entry for new or smaller firms, or workers without the skills or resources to navigate the licensing process.

3. *Does this action limit or expand the ability of either particular firms or certain types of firms to compete (e.g., geographic restrictions, quotas, or subsidies)?*

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<sup>18</sup> However, agencies may need to consider manufacturers' arguments that repair restrictions should be allowed in order to protect their intellectual property rights and to prevent negative consequences from improper repairs. See Federal Trade Commission, "Nixing the Fix: An FTC Report to Congress on Repair Restrictions" (2021), [https://www.ftc.gov/system/files/documents/reports/nixing-fix-ftc-report-congress-repair-restrictions/nixing\\_the\\_fix\\_report\\_final\\_5521\\_630pm-508\\_002.pdf](https://www.ftc.gov/system/files/documents/reports/nixing-fix-ftc-report-congress-repair-restrictions/nixing_the_fix_report_final_5521_630pm-508_002.pdf).

If a regulation places requirements or restrictions on certain firms or individuals in a market, it can limit the number of firms that are legally able to participate. For example, if a regulation stipulates that only small businesses are eligible to compete for a government contract, then there will be fewer firms able to participate in that market. However, there may be cases where, in the absence of set-asides for small businesses, the requirements of a government contract preclude small businesses from participating in the market and reduce the pool of potential suppliers overall. Conversely, the elimination of a restriction or the granting of a new subsidy may expand the pool of potential competitors in a market, but depending on the size and form of the subsidy, may result in subsidized entrants displacing unsubsidized incumbents with lower true costs.

4. *Does this action raise or lower the cost of entry or exit?*

The number of competitors in a market may be constrained if it is costly or time consuming to enter or exit the market. Regulation can increase the cost of (or entirely prevent) entry in numerous ways, such as through registration, licensing, and permitting requirements; time-consuming or resource-intensive approval processes; restrictive land-use regulations; or occupational licensing requirements. Examples of measures that increase the cost of entry in the health care sector include conditioning entry on obtaining a government-issued “certificate of need” or the absence of reciprocal licensing of health care professionals across states. Regulation can also increase the cost of exit. For example, when a plant or facility closes, the owners may be required to pay penalties in order to terminate contracts. Such costs can reduce the willingness of firms to enter the market in the first place. Licensing requirements and other policies can have positive effects on quality of service or reduce a variety of negative externalities, but may also impose costs on firms and consumers, including costs that stem from a reduction in competition. Conversely, when licensing requirements or other barriers to entry or exit are lowered, the corresponding increase in competition may generate social benefits, but quality of service may decline or negative externalities may increase.

5. *Does this action restrict or increase the flows of goods, services, or labor across state— or other jurisdictional—lines?*

Any policy that limits movement across borders reduces the number of individuals or firms that can compete in a market. For example, if a regulation requires that workers for a given construction project must be residents of a particular geographic area, the pool of available workers will generally shrink. This may raise workers’ wages (or contractor profits); however, as a result, it may also increase the cost of the project. While there may be reasons for such restrictions (*e.g.*, concerns about discrimination, the quality of goods or services procured, or achieving a specific distribution of regulatory benefits and costs), they may also reduce competition, and lead to corresponding negative consequences such as increases in product prices or decreases in product quality. Conversely, some policies may increase the number of individuals or firms that can compete in a market. For example, federal preemption of two or more incompatible state regulatory product standards with one federal standard will expand the

pool of firms that can sell that product across those states.<sup>19</sup> Similarly, international harmonization or convergence of regulatory requirements may expand the pool of firms that can sell goods or services in the relevant countries.<sup>20</sup>

### Would This Action Limit or Enhance the Ability of Firms To Compete?

Even in markets with many competitors, regulations can affect the degree to which firms can compete with each other. When competition is limited, one or more firms will face less pressure to offer lower prices, higher quality products, or greater product variety, or to otherwise increase their efforts to improve the goods and/or services they provide, such as through investment in additional production capacity. This section discusses regulations that impact the ability of all firms to compete with one another, as well as regulations that might have a disproportionate impact on some firms but not others.

#### *1. Does this action affect firms' ability to set prices?*

Price regulations affect firms' ability to independently set prices for goods or services. Such regulations can take many forms, including price ceilings, price floors, or restrictions on other dimensions along which prices can vary (e.g., the amount that prices can vary over time). A price ceiling sets a maximum price a firm can charge, as in the case of rent controls. A price floor sets a minimum price, as in the case of the imposition of a minimum wage per hour of work. Price controls may reduce competition by limiting the ability for firms to enter the market with a higher-quality, higher-price offering (if a price ceiling is binding) or a lower-cost offering (if a price floor is binding).

#### *2. Does this action impose/remove standards that benefit/harm some firms but not others?*

A regulation could impose standards that are easier for some firms to meet than others. Consider a worker health and safety regulation that applies only to firms with more than a certain number of employees or annual revenue. This regulation would be less costly for the exempted smaller firms than for larger ones, possibly giving smaller firms a competitive advantage in this respect. Similar problems may arise when regulations exempt existing firms in the market, under the logic that the immediate compliance would be particularly burdensome for them.<sup>21</sup> Such exemptions will make it harder for new firms to compete with existing firms that are not subject to the same standards. While exempting small or existing firms from such requirements may have certain benefits, it may pose other costs and risks related to its effects on competition (as well as reducing health- or safety-related regulatory benefits), relative to an alternative regulation that applied to all firms.

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<sup>19</sup> Howard K. Gruenspecht, "Differentiated Regulation: The Case of Auto Emissions Standards," *The American Economic Review* 72, no. 2 (1982): 328–331. For more discussion of the benefits and costs of such preemption, see OMB Circular No. A-4.

<sup>20</sup> See Exec. Order No. 13609, 77 Fed. Reg. 26413 (May 4, 2012).

<sup>21</sup> For more discussion of this regulatory approach, often called "grandfathering" or "vintage-differentiated regulation," see Maria Damon, Daniel H. Cole, Elinor Ostrom, and Thomas Sterner, "Grandfathering: Environmental Uses and Impacts," *Review of Environmental Economics and Policy* 13, no. 1 (2019): 23–42; Robert N. Stavins, "Vintage-Differentiated Environmental Regulation," *Stanford Environmental Law Journal* 25, no. 1 (2006): 29–63.

3. *Does this action disproportionately raise or lower the costs of some firms but not others?*

If a regulation imposes financial costs or other burdens on some firms while exempting others (either directly or indirectly), then the burdened firms may have difficulty competing effectively with the exempted firms. For example, if a negative externality is regulated in one region but left unregulated in another region, firms in the former region may struggle to compete effectively with firms in the latter region.<sup>22</sup> And as noted above, exempting existing firms from new regulatory costs will disadvantage new firms. Conversely, a health and safety regulation that requires all firms to pay a fixed fine for each violation, instead of a fine that varies with the cost of the harm caused by the violation, may inappropriately advantage larger producers of a product over smaller producers of that product.<sup>23</sup> Determining what forms of regulation optimally treat firms equally versus differentially requires context-specific analysis, including careful consideration of the benefits of the regulation beyond its potential effects on competition.

Would This Action Weaken or Strengthen the Incentives for Firms To Compete Vigorously?

Even in highly competitive markets, insufficient incentives for firms to compete may mean higher prices and lower quality goods and services for consumers. These outcomes can occur in circumstances in which regulation allows for—or does not adequately prevent—coordination among firms. This coordination can take the form of explicit collusion on price, output, wages or other input prices, or quality. It can also manifest as more subtle or tacit coordination among competing firms. In addition, regulation can make it difficult—or fail to prohibit firms from making it difficult—for customers, workers, or other market participants to switch to competing firms that offer better prices or quality of goods or services. For example, firms also may not face adequate incentives to compete with one another for workers, which can depress wages and adversely affect working conditions.

1. *Does this action allow or encourage firms to “self-regulate” or “co-regulate”?*

Self-regulation or co-regulation occurs when an industry is responsible for crafting and enforcing its own regulation. While there can be benefits to this approach stemming from the expertise of firms and their employees, this type of regulation can lead to anticompetitive outcomes through explicit or implicit collusion among existing firms. For example, a self-regulated industry might introduce regulations that make it more difficult for new firms to enter the market, such as through excessive required training to receive an occupational license, reducing competition by limiting new competitors.

2. *Does this action require firms to publish information on prices, outputs, sales, or wages?*

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<sup>22</sup> However, regulation of a negative externality may appropriately advantage firms that do not produce that negative externality in their production process over firms that do.

<sup>23</sup> However, such a fixed cost could be appropriate where the harm regulated occurs equally across firms. For discussion of how regulation affects economies of scale in the environmental context, see Daniel L. Millimet, Santanu Roy, and Aditi Sengupta, “Environmental Regulations and Economic Activity: Influence on Market Structure,” *Annual Review of Resource Economics* 1, no. 1 (2009): 99–118. Separately, note that there are cases where small firms—due to their lack of assets and the structure of limited liability—have a greater incentive to engage in harmful regulatory violations than larger firms with more assets at risk.

Regulations that require the publication of prices, output, sales, quality metrics or other relevant information can provide governments and the public with information to help make informed regulatory or consumption decisions. For example, requiring hospitals to publish the cost of procedures can reduce consumer search costs, which may ultimately lead to lower prices. However, requirements that firms publish price information can also lead to collusion among competitors, if the competitors were not already able to monitor each other's prices at reasonable cost. For example, when Denmark published firm-specific prices of ready-mixed concrete, it appears to have led to collusive price increases among ready-mixed concrete producers.<sup>24</sup> In general, information that is easy for consumers to access and use directly, such as “apples-to-apples” price comparisons, will tend to increase competition, while information on production measures—or information that is easier for producers to access than consumers—is less likely to be procompetitive.<sup>25</sup>

3. *Does this action provide exemptions from competition laws or preempt their enforcement?*

In the United States, there are several laws restricting the anticompetitive activities firms can undertake.<sup>26</sup> In some circumstances, agencies may have the statutory authority to provide exemptions or immunity from those laws in order to limit the number of applicable requirements on firms in a particular setting, increase innovative collaboration, or incentivize production. For example, the Department of Transportation (DOT) has the authority to approve agreements relating to international air transportation and shield them from scrutiny under certain antitrust laws.<sup>27</sup> The goal of such exemptions is to allow carriers to expand their geographic reach in ways that they otherwise could not, due to economic, operational, or legal difficulties. However, such alliances could increase the ability of firms to collude on prices or otherwise reduce competition.

Historically, regulated firms have often attempted to argue that a regulatory scheme preempts or otherwise limits antitrust enforcement beyond the scope of the preemption desired by the regulator. Including explicit language clarifying that continued antitrust enforcement in the industry is not preempted or otherwise limited by regulations that relate to competition can discourage the opportunistic misuse of competition-related regulations by covered firms.

4. *Does this action increase or decrease switching costs for customers?*

Regulations that raise the cost to consumers of switching among providers of goods or services are likely to reduce competition. As switching costs decrease, more consumers will be willing to move their business in reaction to changes in prices or product quality. For example,

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<sup>24</sup> Svend Albæk, Peter Møllgaard, and Per B. Overgaard, “Government-Assisted Oligopoly Coordination? A Concrete Case,” *The Journal of Industrial Economics* 45, no. 4 (1997): 429–443.

<sup>25</sup> Fernando Luco, “Who Benefits from Information Disclosure? The Case of Retail Gasoline,” *American Economic Journal: Microeconomics* 11, no. 2 (2019): 277–305.

<sup>26</sup> See, e.g., “The Antitrust Laws,” U.S. Federal Trade Commission, accessed Sept. 22, 2023, <https://www.ftc.gov/advice-guidance/competition-guidance/guide-antitrust-laws/antitrust-laws>.

<sup>27</sup> “Airline Alliances Operating with Active Antitrust Immunity,” U.S. Department of Transportation, last modified April 3, 2019, <https://www.transportation.gov/office-policy/aviation-policy/airline-alliances-operating-active-antitrust-immunity>.

regulations that allowed customers to keep the same mobile phone number when changing service providers lowered the cost of switching service providers, leading to increased competition among carriers.

5. *Does this action change the information available to consumers as they are making choices about which products and services to purchase?*

Regulations can affect the information that is available to consumers and can alter their decision-making. For example, the introduction of food nutrition labels where such labels had previously been absent better equipped consumers to make more informed decisions that affect their health and nutrition. This helped ensure that consumers could select among products on the basis of affected product characteristics. (Such labels may have important behavioral “nudge” benefits as well.)

#### How Does This Action Affect—or How Is It Affected By—the Supply Chain?

A full assessment of a new regulation’s potential effects on competition would extend beyond the market directly affected to the entire supply chain. Competitive bottlenecks can exist in markets that are inputs to the market being regulated (“upstream” markets), or the market being regulated can be an input to other markets (“downstream” markets), or the market being regulated can be affected by another type of intermediary (such as a platform). Competitive bottlenecks in these other markets can dampen, enhance, or create otherwise unanticipated competition effects.

One example is regulating electricity producers differently on the basis of the method by which they generate electricity. This can lead to effects on upstream markets, such as markets for relevant fuels, potentially reducing competition by favoring one type of fuel over another. Ultimately this will usually dampen competition relative to an approach that regulates electricity producers by measuring the relevant characteristics of the electricity production methods directly (for example, by limiting emissions).

#### How Does This Action Affect—or How Is It Affected By—Labor Market Competition?

Regulatory actions may affect competition among firms for workers, and in particular, change sources of employers’ market power in relevant labor markets. For instance, agencies might consider asking whether available quantitative and qualitative evidence, such as specific demographic and geography data, sheds light on whether an action would increase or decrease:

- the number of employers that workers can choose from in labor markets;
- the information and search frictions inhibiting workers from finding and comparing potential employment opportunities (for instance, information about pay and working conditions that allow for easy comparison of job offers);
- firms’ ability to use wage-setting power (for example, by setting minimum standards for wages, benefits, or working conditions); or
- access to labor union representation.

Just as importantly, the presence of employers' labor market power may affect the impact of a potential regulatory action, for example, by changing its effects on wages or employment. As discussed more in Part II of this guidance, the employment impacts of some regulatory actions may depend on the degree of employer and worker market power present in the affected markets.

### ***Gathering Information on Competition Effects***

Often, due to a lack of previous research and available data sources, accounting for competition effects when developing and analyzing regulatory effects may require—or be facilitated by—developing new evidence. Such evidence may be quantitative or qualitative, and may include estimates of willingness to pay, market prices, product quantities, interviews, case studies of past market behavior, surveys, or submissions in public comment or public hearing processes. Qualitative evidence, while less precise than quantitative evidence, can still be useful in indicating the likely direction (positive or negative) of a regulation's effects on competition.

Developing new information may involve information collections. Generally, the Paperwork Reduction Act (PRA) applies to collections of information using identical questions posed to ten or more persons.<sup>28</sup> OIRA has provided guidance on pursuing information collections consistent with the PRA,<sup>29</sup> and you are encouraged to reach out to your OIRA desk officer regarding information collections that would facilitate consideration of competition effects. Proactively developing and soliciting such information may be especially important to help ensure that the evidence you consider accurately reflects impacts on new potential entrants and smaller firms, given that existing market incumbents may be able to use their greater resources and regulatory sophistication to present only one side of the story in great detail. In addition, OIRA's guidance on public participation<sup>30</sup> details key steps that agencies can consider to engage members of the public in assembling evidence for regulatory impact analyses.

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<sup>28</sup> 44 U.S.C. § 3502(3)(A)(i).

<sup>29</sup> OFF. OF MGMT. & BUDGET, EXEC OFF. OF THE PRESIDENT, INFORMATION COLLECTION UNDER THE PAPERWORK REDUCTION ACT (2010), [https://www.whitehouse.gov/wp-content/uploads/legacy\\_drupal\\_files/omb/assets/inforeg/PRAPrimer\\_04072010.pdf](https://www.whitehouse.gov/wp-content/uploads/legacy_drupal_files/omb/assets/inforeg/PRAPrimer_04072010.pdf); OFF. OF MGMT. & BUDGET, EXEC OFF. OF THE PRESIDENT, FLEXIBILITIES UNDER THE PAPERWORK REDUCTION ACT FOR COMPLIANCE WITH INFORMATION COLLECTION REQUIREMENTS (2016), [https://www.whitehouse.gov/wp-content/uploads/legacy\\_drupal\\_files/omb/inforeg/inforeg/pra\\_flexibilities\\_memo\\_7\\_22\\_16\\_final.pdf](https://www.whitehouse.gov/wp-content/uploads/legacy_drupal_files/omb/inforeg/inforeg/pra_flexibilities_memo_7_22_16_final.pdf).

<sup>30</sup> OFF. OF MGMT. & BUDGET, EXEC OFF. OF THE PRESIDENT, BROADENING PUBLIC PARTICIPATION AND COMMUNITY ENGAGEMENT IN THE REGULATORY PROCESS (2023), <https://www.whitehouse.gov/wp-content/uploads/2023/07/Broadening-Public-Participation-and-Community-Engagement-in-the-Regulatory-Process.pdf>.

## **Part II: Additional Background for Analysts**

This section provides additional background on options for assessing how a regulation might impact the competitiveness of a market. While agencies should consider which legally available regulatory alternatives promote competition (or minimize harm to competition), the specific analyses described here are not necessary or appropriate for every regulatory analysis. The background material in this section is intended to provide agencies with an introduction to some methods and technical considerations relevant to considering competition effects when designing and analyzing regulations, consistent with applicable law.

### ***Analyzing Market Competitiveness***

#### **How To Identify Markets**

To identify a specific market affected by a regulation, you should consider both the products, services, or inputs involved, and the geographic scope of the market for those items. The affected products, services, or inputs may be long-haul trucking services, organic peanut butter, salon employees, or prescription medication to treat migraine headaches; whatever is affected—as noted in Part I, whether directly or indirectly—by the requirements in a regulation you are considering. Once each affected product, service, or input is identified, you should consider what would happen if all producers in that market decided to raise prices, reduce quality, or lower wages. What would their customers, employees, or other input providers do? Would customers be able to substitute some other good or service? In the case of long-haul trucking services, would shippers switch to shipping by rail? For organic peanut butter, would customers switch to non-organic peanut butter, or perhaps almond butter? Would salon employees switch to working at another salon, or to another occupation entirely? And for prescription medication that have an over-the-counter alternative, would customers switch to over-the-counter pain medications to treat migraines? When thinking about substitutes, you should consider how much firms could increase prices or reduce quality before customers switch. Shoppers at a supermarket might be willing to choose Fuji apples if they found that the price of Gala apples was too high, but they might be less willing to switch from apples to bananas even if the prices of all types of apples were high. Similarly, a worker whose wages were cut might be less likely to leave if their only job options were in a different occupation than the one for which they were licensed.

After identifying close substitutes for the affected product or service consider how far customers might travel to find an alternative if producers in an area raised prices or decreased quality. Markets may be quite localized. For example, if a regulation led to reduction in the number of nearby veterinarians, an individual seeking veterinary care for a pet is not likely to travel to a veterinarian located in a distant state. This illustrates why merely demonstrating that, for example, the regulation will result in no significant change in the *nationwide* number of veterinarians may not be sufficient to analyze the competition effects of such a regulation. If veterinarians in that area raised their prices or started providing a poorer quality of service, people living in that area would not have good alternatives. Similarly, for products that are highly perishable or have high transportation costs relative to the cost of the product, customers may find it too costly to purchase from other areas. In the case of labor markets, a job outside a

reasonable commuting distance that that cannot be performed remotely is often a less viable substitute for one’s current employment than an alternative job within a reasonable commuting distance or that can be performed remotely.

Often there is more than one market that is applicable when analyzing the competitive effects of regulation. For example, a regulation that would require current physicians to meet additional onerous licensing requirements not only could potentially increase barriers to entry and raise prices in the market for physician services, but also may affect markets for related or complementary services—such as those provided by nurses and support staff—as well as submarkets, such as physicians within a certain geographic region or with particular medical specializations.

One way to identify markets is by considering direct evidence of head-to-head competition among firms or more qualitative indications of competition. For example, industries or the public may recognize a market as distinct; a product’s characteristics and uses may make identification of the market obvious; or producers in competition with one another may be identifiable by considering differences and similarities in their production facilities, customers, prices, sensitivity to price changes, and suppliers. Less formal means of identifying markets are worth pursuing when the benefits of more formal analysis are not likely to yield sufficiently valuable insight to justify the costs of pursuing such analysis.

In practice, information to inform market identification may be collected in a variety of ways. Market identification may be assisted by formal or informal surveys of consumers of the affected product or service. Econometric estimation of demand elasticities—the ratio of the percentage change in the demand for a product when there is a percentage increase in price—can provide more robust evidence of substitutability when data and resources are available.<sup>31</sup> In the case of some markets, existing market studies or econometric studies of demand elasticity may provide useful information.<sup>32</sup>

### Evaluating Market Competitiveness

Analyses of market competitiveness often begin by considering the number and size of market participants. This can be an important analytic tool but does not conclusively determine how competitive a market currently is. Concentration is just one type of evidence of how competitive the market is likely to be; other factors can inform conclusions about whether and to what degree firms have market power. A critical factor, in many cases, is the degree to which there are barriers to entry for new competitors. Other considerations may provide strong

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<sup>31</sup> See Jonathan B. Baker and Timothy F. Bresnahan, “Economic Evidence in Antitrust: Defining Markets and Measuring Market Power,” in *Handbook of Antitrust Economics*, ed. Paolo Buccirossi (Cambridge, Mass.: MIT Press, 2008), 1–42, for a discussion of this in the antitrust context. In the case of labor markets or other input markets, the relevant elasticities are the supply elasticity of the seller(s) and the demand elasticity of the purchaser(s).

<sup>32</sup> Diversion ratios are an alternative measure of substitutability which may be useful if available. Diversion ratios can be calculated in a variety of ways, including from estimated demand models or observed from consumer survey or firm data (e.g., customer win-loss or switching data). Once obtained, estimates of diversion ratios can be used as inputs into further analyses quantifying competitive effects. See Christopher Conlon and Julie Holland Mortimer, “Empirical Properties of Diversion Ratios,” *The RAND Journal of Economics* 53, no. 4 (2021): 693–726.

evidence of a lack of competitiveness, even where measures of concentration are low. For example, markets with a history of collusion may not be competitive even where there are many firms, and no firm has a large market share. Alternatively, high ratios of prices charged for goods or services to costs incurred to produce those goods and services may be evidence of a lack of competition in a market, even when other indicators of a lack of competitiveness in a market are difficult to discern.

The information on market competitiveness that you gather can be a critical input to estimating the competition effects of a regulatory action, either quantitatively or qualitatively. For example, it may help inform estimates of relevant price elasticities (the ratio of the percentage change in supply of, or demand for, a product when there is a percentage increase in price), or likely changes in firm behavior in response to a regulatory action.

### Measuring Concentration

Once markets are identified, it may be possible to identify competitors in the market, estimate their market shares (for example, the percentage of market sales that each firm holds), and measure market concentration. Information about market shares could be identified by looking at firms' annual reports, trade press articles, or academic journal articles. However, analysts should consider whether the markets assumed in these sources match the market that is appropriate to use in the regulatory analysis of competition. In markets that are geographically localized, this will generally not be the case, as most sources generally report information about nationwide market shares.

Market concentration is a measure of the degree to which market share is in the hands of a small number of firms. It provides an important indication of how competitive a market is but is not always conclusive or sufficient. For example, firms in a highly concentrated market may behave competitively if barriers to entry are very low and there are many potential competitors outside the market. Conversely, market features such as high search costs, network effects, or product differentiation may give firms market power. Firms may also actively acquire market power if they are able to find a way to successfully collude, erect barriers to entry that protect incumbents, or otherwise exclude competitors.<sup>33</sup>

Two commonly used measures of market concentration are the concentration ratio (CR) and the Herfindahl-Hirschman Index (HHI). The concentration ratio (CR) requires information on the number of firms and the market shares of the largest firms. The N-firm concentration ratio measures the market share of the top N firms in the market. The index approaches zero for an infinite number of equally sized firms, and equals one if the firms included in the calculation make up the entire market.<sup>34</sup> A concentration ratio is calculated by summing the market share for

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<sup>33</sup> For example, research suggests that labor market concentration is only one of several potential sources of employers' labor market power, and so measuring concentration may provide an incomplete picture of the extent of competition. See, e.g., Suresh Naidu, Eric A. Posner, and Glen Weyl, "Antitrust Remedies for Labor Market Power," *Harvard Law Review* 132, no. 2 (2018): 536–601.

<sup>34</sup> "Methodologies to Measure Market Competition," OECD, 2021, <https://www.oecd.org/daf/competition/methodologies-to-measure-market-competition-2021.pdf>.

the largest N firms in the market.<sup>35</sup> By focusing only on the market share of the top N firms, however, the concentration ratio takes no account of the market share distribution of the remaining firms.

The HHI, by contrast, accounts for the market shares of all firms in a market and also accounts for disparities in shares among the largest firms by giving greater weight to larger shares. It is calculated by squaring the market share of each firm competing in a particular market and summing the results.<sup>36</sup> In their 2023 Draft Merger Guidelines, the Department of Justice and the Federal Trade Commission describe markets with an HHI of above 1,800 as being “highly concentrated markets,” while markets with a HHI between 1,000 and 1,800 are described as being “concentrated markets.”<sup>37</sup> The Department of Justice and the Federal Trade Commission are currently in the process of considering public feedback on these draft guidelines.<sup>38</sup>

### ***Factors that Influence Market Power***

In addition to the material in Part I’s “Determining if a Regulation May Have Relevant Effects on Market Structure and the Competitive Process,” an analyst could more specifically look at certain factors in a market to help them evaluate the impact of a regulation. Several factors influence the degree to which firms can exercise power in a market, for example, by raising prices of the products they sell or diminishing product quality. Some particularly important ones are highlighted below.

#### **1. Number of Sellers**

When there are few producers in a market, they may be able to charge prices in excess of the marginal cost of production. In some cases, producers may do this by colluding: agreeing to set prices above what they otherwise would be in a competitive market. In other cases, producers may not need to explicitly collude in order to set high prices. For example, each producer may recognize that, because buyers have few options, they are able to profitably raise prices<sup>39</sup> above the competitive market price. This can lead to profits that exceed those in the competitive market

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<sup>35</sup> The concentration ratio for the largest four firms, called “CR4” is commonly used, and is calculated as:

$$CR4 = s_1 + s_2 + s_3 + s_4$$

where  $s_i$  is the market share of the  $i$ th largest firm, in shares out of 100, rather than decimal, terms.

<sup>36</sup> The HHI is calculated for a market with  $n$  firms as:

$$HHI = s_1^2 + s_2^2 + s_3^2 + \dots + s_n^2$$

where  $s_i$  is the market share of the  $i$ th largest firm, in shares out of 100, rather than decimal, terms. So, for example, if a single monopolist had the whole market, the HHI would be  $(100)^2 = 10,000$ , the highest HHI possible.

<sup>37</sup> U.S. DEP’T OF JUST. AND THE FED. TRADE COMM’N, MERGER GUIDELINES (2023), <https://www.justice.gov/d9/2023-07/2023-draft-merger-guidelines.pdf>.

<sup>38</sup> U.S. Department of Justice and the Federal Trade Commission, Draft Merger Guidelines for Public Comment (July 19, 2023), <https://www.regulations.gov/docket/FTC-2023-0043>.

<sup>39</sup> *I.e.*, the increased revenue in inframarginal sales exceeds any lost revenue from extramarginal sales.

case. The result is a reduction in social welfare. Having fewer sellers may also reduce pressure on sellers to produce higher quality goods and services or to engage in innovation.

## 2. Number of Buyers

The number of buyers in a market can also hinder competition. If there are few buyers in a market, buyers may be able to drive the prices they pay down below what they would be in a competitive market. This can occur, for example, in meatpacking markets when a small number of meatpackers can use their market power to lower the price of the cattle they purchase. If there are few other options for cattle ranchers to sell to, a dominant meatpacker may be able to offer low prices and still purchase cattle. A labor market example of this is a dominant employer in a rural area. If there are few local employment options, the dominant employer may be able to offer low wages or unsafe working conditions while still being able to recruit or retain employees.

## 3. Differentiated Products

Products are described as “differentiated” when they are not identical, despite their similarities. In markets for differentiated products, the degree of competition can be affected by how similar the products that the sellers offer (or buyers purchase) are to each other. For example, in the market for denim jeans, regulators may want to think about the product market as comprised of the number of sellers who make jeans that are similar to each other in style and quality, even if no firm makes jeans that are identical to those of another firm. Similarly, regulators may consider a labor market more competitive if there are more employers offering positions with similar job tasks, working conditions, and skill requirements, even if the jobs are not identical.

## 4. Search Costs and Other Comparison Frictions

In general, markets are more competitive if it is easier for buyers to comparison shop (easily compare the price and quality of goods or services on offer across sellers) and if it is easier for workers or other input or output sellers to compare prices, wages, working conditions, or other characteristics relevant to transaction across buyers. There are numerous factors that can make it harder to comparison shop:

- *High search costs*: burdens (whether financial or nonfinancial) that buyers must shoulder to discover the relevant information about the price or quality of goods or services on offer. One example of a practice that causes high implicit search costs is “hidden prices,” such as when online retailers reveal the true price of a product only later in (or after) the purchasing process.
- *Complexity*: the degree to which additional analysis of available price or quality of the goods or services on offer are required to be accurately valued. Measures that reduce complexity make it easier for consumers to compare prices and quality across products. For example, consumers may be able to better comprehend prices when sellers list prices per pound (or a different appropriate unit) alongside the price per package when packages of the same item come in varying sizes.

- *Clarity*: the degree to which information about the price or quality of the goods or services on offer can be easily understood by consumers. Because individuals often rely on heuristics when making decisions, even situations where search costs and complexity are low can still give rise to difficulties of comparison shopping if the information presented is not clear, or the information can even be actively misleading. For example, consumers may be confused or misled by “junk fees”—hidden fees not included in a base price—or “teaser rates,” a practice of presenting a low initial installment payment for an introductory period while de-emphasizing a substantially higher installment payment owed after the introductory period expires.<sup>40</sup>

In these cases, the reduction in competition that stems from difficulties in comparison shopping tends to have the effect of changing output prices or input prices (e.g., wages)—increasing them where lack of competition is among sellers, decreasing them where lack of competition is among buyers—or reducing quality in the market.

## 5. Switching Costs

In general, markets will be more competitive if it is easier for buyers to switch among producers in the event that they find a more desirable product or service. For example, switching costs will be higher if contracts explicitly charge buyers for switching, as occurs with early termination fees. Switching costs can also be created by increasing the cost for consumers of moving from a previous producer to a new producer, such as by rewards programs.<sup>41</sup> They also can also arise due to incompatibility—or reduced synergies—with complementary products. Switching costs can further arise when consumers are unable to move something of value to them across firms, as was the case when consumers were unable to transfer their phone number across cellular providers. As another example, consumers’ inability to take their data with them may create switching costs in technology, banking, or health care markets. Switching costs can raise prices among existing firms by making demand less price-sensitive and can also create a barrier to entry by making it harder for potential entrants to acquire the customer base needed to achieve sufficient scale in the market.

In the labor market, high switching costs may make it difficult for workers to switch from their current job to one with better wages or working conditions. For example, a non-compete agreement may prevent an employee from taking a job with another employer in the same occupation, industry, or geographic area, giving them limited options to switch to a job that better compensates them for their skill or experience. Similarly, a license or permit that is tied to a specific employer or geography may greatly increase switching costs by requiring a worker to obtain a new permit in order to switch jobs.

## 6. Asymmetric Information Between Buyers and Sellers

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<sup>40</sup> For a recent review of the relevant literature, see discussion in Unfair or Deceptive Fees Trade Regulation Rule Commission Matter No. R207011, 87 Fed. Reg. 67413 (Nov. 8, 2022).

<sup>41</sup> Paul Klemperer, “The Competitiveness of Markets with Switching Costs,” *The RAND Journal of Economics* 18, no. 1 (1987): 138–150.

When buyers know more than sellers about the likely costs of a given contract, or when sellers know more than buyers about the quality of a product for sale, this can lead markets to become less efficient or even unravel. An example of asymmetric information occurs in insurance markets, where a provider cannot observe the buyer's privately known insurance risk. Similarly, in some markets, buyers care about seller's private information. For example, in the used car market, a seller generally knows more than the buyer about the quality and history of the vehicle on offer (although newer technology-enabled applications may help close this information gap). Markets characterized by an information asymmetry between buyers and sellers can become less efficient or unravel. Such markets may stand to benefit from regulations that reduce such an information asymmetry. While this increased market efficiency created by regulation does not result from greater competition per se, similar issues involving asymmetric information are often at issue in the competition context, and it is natural to consider asymmetric information and competition issues together in many cases.<sup>42</sup>

## 7. Barriers to Entry

Barriers to entering a market can also reduce competition. If it is easy and inexpensive for new firms to enter (and exit) a market, it will be harder for firms currently in the market to engage in anticompetitive behavior (such as charging excessively high prices or producing lower-quality products to increase economic profits). If the profits earned by participants in a market are high and barriers to entry are low, other firms likely will be attracted to the market, thereby lowering the prices charged by firms already in the market. These market conditions will tend to drive prices down, closer to the competitive level. Low barriers to entry may also encourage innovation and improved quality, as firms can more easily introduce new and better types of products to compete against existing offerings or develop new production technologies so that they can produce similar products at a lower cost.

Agencies should consider what specific barriers to entry may be present in a given market. Barriers to entry may be unique to a particular market or differ greatly across current or potential entrant firms. Examples of types of barriers to entry include:

- patents or proprietary technologies needed to produce the product;
- large capital investments that must be made to begin production;
- product lock-in for consumers, due to factors such as switching costs and network effects, that makes buyers reluctant to try new products or to purchase from new entrants;<sup>43</sup>
- government regulations that prohibit or limit new firms from entering or regulatory requirements that delay or increase the costs of entry;
- government regulations that apply fully for new firms, but fully or partially exempt existing firms from complying with costly regulatory requirements; and
- inaccessibility of data that are necessary to compete effectively or for consumers to switch easily.

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<sup>42</sup> Gregory S. Crawford, Nicola Pavanini, and Fabiano Schivardi, "Asymmetric Information and Imperfect Competition in Lending Markets," *The American Economic Review* 108, no. 7 (2018): 1659–1701.

<sup>43</sup> See Joseph Farrell and Paul Klemperer, "Coordination and Lock-in: Competition with Switching Costs and Network Effects," *Handbook of Industrial Organization* 3 (2007): 1967–2072.

## ***Additional Information on Labor Market Competition and Implications for Regulation***

Many of the barriers to competition discussed above are relevant in the labor market, which can generate market power for firms as employers of workers.<sup>44</sup> For example, research indicates that some labor markets in the United States are concentrated, with workers facing limited options for potential employers.<sup>45</sup> This can permit employers to reduce their costs in those markets by worsening job quality (reducing wages, non-wage compensation, and other job characteristics), in a manner that reduces social welfare.<sup>46</sup>

### **Factors that Influence Labor Market Power**

Unlike many product markets—where products are highly similar and buyers (consumers) are indifferent to the identity of the seller (and vice versa)—in some labor markets both sellers (workers) and buyers (employers) offer highly differentiated bundles of characteristics (labor/jobs) that are valued differently across different workers and employers. In addition, employers and workers often care about the others’ identity, due to—for example—workers’ accumulation of job-specific human capital or firm-specific amenities, such as commuting distance or company culture. These sources of differentiation may also be sources of employers’ labor market power.<sup>47</sup>

The significant frictions of the job search process for workers may also result in employer power in the labor market. These frictions come from many sources: for example, it is costly for workers to learn about and compare each additional employment opportunity, workers may not be able to learn many important features of an employment opportunity until they are on the job, and workers may not be able to spend much time searching for the best job while unemployed (due to lack of income to pay for regular expenses that creates an incentive to quickly accept a lower-paying—and likely lower productivity—job<sup>48</sup>). Contractual terms that limit workers’ mobility, such as non-compete agreements, can also provide employers with labor market power.<sup>49</sup> To some degree, frictions for employers may offset this market power; examples include costs of learning about and comparing potential new workers. However, as

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<sup>44</sup> See, e.g., Joan Robinson, *The Economics of Imperfect Competition* (London: Macmillan and Co., Ltd., 1933); Alan Manning, *Monopsony in Motion: Imperfect Competition in Labor Markets* (Princeton, N.J.: Princeton University Press, 2003).

<sup>45</sup> See, e.g., U.S. DEP’T OF THE TREASURY, THE STATE OF LABOR MARKET COMPETITION (2022), <https://home.treasury.gov/system/files/136/State-of-Labor-Market-Competition-2022.pdf>.

<sup>46</sup> See, e.g., Elizabeth Weber Handwerker and Matthew Dey, “Some Facts about Concentrated Labor Markets in the United States,” *Industrial Relations* (forthcoming), <https://onlinelibrary.wiley.com/doi/abs/10.1111/irel.12341>; José Azar, Ioana Marinescu, and Marshall Steinbaum, “Labor Market Concentration,” *Journal of Human Resources* 57, no. S (2022): S167–S199; Yue Qiu and Aaron Sojourner, “Labor-Market Concentration and Labor Compensation,” *ILR Review* 76, no. 3 (2022): 475–503.

<sup>47</sup> David Card, Ana Rute Cardoso, Joerg Heining, and Patrick Kline, “Firms and Labor Market Inequality: Evidence and Some Theory,” *Journal of Labor Economics* 36, no. S1 (2018): S13–S70.

<sup>48</sup> See, e.g., Daron Acemoglu and Robert Shimer, “Efficient Unemployment Insurance,” *Journal of Political Economy* 107, No. 5 (1999): 893–928; Ammar Farooq, Adriana D. Kugler, and Umberto Muratori, “Do Unemployment Insurance Benefits Improve Match and Employer Quality? Evidence from Recent U.S. Recessions,” NBER Working Paper 27574 (2022), [https://www.nber.org/system/files/working\\_papers/w27574/w27574.pdf](https://www.nber.org/system/files/working_papers/w27574/w27574.pdf).

<sup>49</sup> See, e.g., Evan Starr, “Consider This: Training, Wages, and the Enforceability of Covenants Not to Compete,” *ILR Review* 72, no. 4 (2019): 783–817.

noted previously, a growing body of research suggests that employers have non-negligible wage-setting power, though the degree may vary across contexts. This research also shows that employer market power varies over the business cycle: employers have comparatively more market power in the aftermath of recessions, when labor markets are slack, than when an economy is closer to full employment.<sup>50</sup>

An implication of the presence of employers' labor market power is that regulatory actions taken to curb certain forms of employer wage-setting power—for instance, policies that set minimum standards for wages, benefits, and working conditions—may not reduce employment.<sup>51</sup> More generally, a regulation may have differing impacts depending on how it interacts with labor market conditions.<sup>52</sup> For example, if a regulation would have intermediate effects on unionization, the accompanying analysis might estimate varying regulatory effects, with lower employment in competitive labor markets or markets with ready substitutes for unionized labor (which are less common),<sup>53</sup> but higher employment in uncompetitive labor markets (which are much more common).<sup>54</sup>

Agencies are encouraged to consider evidence regarding the degree of employers' labor market power in the relevant labor market. Moreover, it may be worthwhile for agencies considering regulations with particularly large effects on labor markets to conduct a relatively formal analysis of labor market effects. Key to such analysis would be market-specific evidence indicating whether employers' labor market power is present and—especially if so—whether regulations could reduce or exacerbate that power in that market or other markets; the quantitative details of such evidence should be integrated into the modeling of regulatory effects, including implications for workers' wages, working conditions, and employment. The most rigorous form of such an analysis would examine firms' and workers' decisions on the intensive

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<sup>50</sup> Boris Hirsch, Elke J. Jahn, and Claus Schnabel, “Do Employers Have More Monopsony Power in Slack Labor Markets?,” *ILR Review* 71, no. 3 (2018): 676–704; Douglas A. Webber, “Labor Market Competition and Employment Adjustment Over the Business Cycle,” *Journal of Human Resources* 58, no. 5 (2023): S87–S110.

<sup>51</sup> See Venkataraman Bhaskar and Ted To, “Minimum Wages for Ronald McDonald Monopsonies: A Theory of Monopsonistic Competition,” *The Economic Journal* 109, no. 455 (1999): 190–203. Debate continues on the employment effects of minimum wage laws. See José Azar et al., “Minimum Wage Employment Effects and Labour Market Concentration,” *The Review of Economic Studies* (forthcoming), <https://www.restud.com/1511-2/>; David Neumark and Peter Shirley, “Myth or Measurement: What Does the New Minimum Wage Research Say About Minimum Wages and Job Loss in the United States?,” *Industrial Relations* 61, no. 4 (2022): 384–417; Arindrajit Dube, *Impacts of Minimum Wages: Review of the International Evidence* (Her Majesty's Treasury, U.K. 2019); Doruk Cengiz et al., “The Effect of Minimum Wages on Low-Wage Jobs,” *The Quarterly Journal of Economics* 134, no. 3 (2019): 1405–1454; David Card and Alan B. Krueger, “Minimum Wages and Employment: A Case Study of the Fast-Food Industry in New Jersey and Pennsylvania,” *The American Economic Review* 84, no. 4 (1994): 772–793.

<sup>52</sup> See Suresh Naidu and Eric A. Posner, “Labor Monopsony and the Limits of the Law,” *Journal of Human Resources* 57, no. S (2022): S284–S323 (discussing the difficulty of effective policy design).

<sup>53</sup> Suresh Naidu, Eric A. Posner, and Glen Weyl, “Antitrust Remedies for Labor Market Power,” *Harvard Law Review* 132, no. 2 (2018): 536–601.

<sup>54</sup> Anna Stansbury and Lawrence H. Summers, “The Declining Worker Power Hypothesis: An Explanation for the Recent Evolution of the American Economy,” *Brookings Papers on Economic Activity* (Spring 2020): 1–77; Samuel Dodini, Kjell Salvanes, and Alexander Willén, “The Dynamics of Power in Labor Markets: Monopolistic Unions versus Monopsonistic Employers,” IZA Discussion Paper No. 15635 (2022), <https://docs.iza.org/dp15635.pdf>; Sean Wang and Samuel Young, “Unionization, Employer Opposition, and Establishment Closure,” CES Working Paper No. 23-35 (2023), <https://www.census.gov/library/working-papers/2023/adrm/CES-WP-23-35.html>.

and extensive margins, and may need to consider sectors beyond those directly regulated to estimate the total labor market effects of the regulation and their distribution.

## *Analyzing and Accounting for Competition Effects*

### Overview

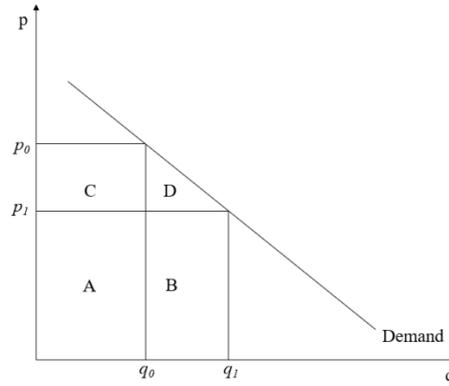
A regulatory analysis of any set of policy options is most useful when it provides information about the relative strengths and weaknesses of each option. It is preferable—where feasible—to monetize competition effects in the analysis, because where all important regulatory effects can be quantified and expressed in monetary units, the regulatory alternative with the greatest net benefits (i.e., benefits minus costs) indicates which regulatory alternative would be welfare-maximizing. The expected changes in outcomes, in terms of market prices or other changes (in sales volumes, product quality, etc.) that would result from an increase or decrease of competition, are a measure of a regulation’s competition effects. However, many of the most important benefits of competition can be difficult to measure. In many cases competition effects will not be readily reducible to quantifiable metrics; it therefore remains important to engage in qualitative assessment of how regulatory action may affect the competitive process in many cases.

### Modeling Competition Effects

Consider a regulation that relaxes licensure requirements that regulated entities need to meet in order to sell widgets. We would expect such a regulation to increase the number of firms that enter the market to sell widgets and lower the price of widgets. And because the price of widgets falls, consumers that value a widget between the old (higher) price and the new (lower) price are now willing to purchase widgets, and are better off (i.e., consumer surplus<sup>55</sup> increases) assuming the change in licensure does not reduce widget quality. When the widget demand function of consumers is known, the benefit to consumers of the regulatory change—that is, the gain in consumer surplus caused by the regulation—can be calculated relatively easily. However, when this demand function isn’t able to be estimated more precisely, often the most tractable assumption is that consumer demand is linear. Under this assumption, the regulation’s benefits to consumers could be calculated with relative ease if data on the responsiveness of demand to changes in prices is available. Consider the following diagram of total consumer demand for a quantity ( $q$ ) of widgets at a given price ( $p$ ):

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<sup>55</sup> Consumer surplus is the value to all consumers who are able to purchase the product for less than their willingness to pay for the product. Graphically, in the single-market diagram below, it is equal to the area of the triangle bounded by the y-axis (price), the horizontal line at the market-clearing price ( $p_0$  or  $p_1$ ), and the demand curve.



Assuming linear demand, change in consumer surplus =  $C + D = (p_0 - p_1)q_0 + \frac{1}{2}(p_0 - p_1)(q_1 - q_0)$ .

Although this sort of perfectly linear consumer demand may be rare in real life, it may provide a reasonable approximation when the consumer demand is close to linear over the relevant range. Another tractable assumption often made is a demand function with a constant elasticity of substitution, i.e., assuming that a 1% decrease in the price of widgets always causes an x% increase in demand for widgets, whatever the current price. In such a case, demand would be curved (convex) in the diagram above, instead of linear, and therefore the formula above for the linear case would result in a slightly larger change in consumer surplus than in the constant elasticity case. You can find more guidance on analyzing such cases, and other more complex assumptions that may allow for more accurate estimation of consumer surplus as well as producer surplus, in many microeconomic textbooks.<sup>56</sup> See the section “*Additional Methods for Analyzing Competition Effects*” for details on more advanced methods of monetizing competition effects.

In practice, however, accounting for competition effects in a comprehensive, monetized form is often infeasible. The fact that it is not feasible for you to monetize a regulatory proposal’s competition effects should not stop you from giving due consideration to those competition effects in your analysis. In such cases, regulatory analyses should, ideally, account for quantified—but not fully monetized—competition effects, or can discuss competition effects that can be described only qualitatively.

Quantification, but not monetization, of competition effects can occur in many situations where some but not all magnitudes are known. For example, an agency may be able to estimate that a regulation will cause the number of producers or buyers in the market to increase by a certain amount, but not be able to estimate the related change in prices. In other cases, only qualitative information about the relevant competition effects may be available (as in the diagram above, absent quantitative parameterization), and so even quantification will not be possible. That is, in some cases, an agency may not be able to quantify any changes to the number of producers in the market, to prices, or to quantities of sales. In such situations, a policy

<sup>56</sup> See, e.g., Hal R. Varian, *Intermediate Microeconomics: A Modern Approach*, 9th ed. (New York: W.W. Norton & Company, 2014).

option with the greatest *monetized* net benefits will not necessarily provide a strong indication of which policy would be welfare-maximizing.

Accounting for the non-monetized competition effects of a regulation is not always straightforward. There are several techniques discussed in more detail in Circular A-4—such as break-even, threshold, and order-of-magnitude analyses—that help to structure an analysis that accounts for non-monetized effects (often alongside monetized benefits and costs), which you may find helpful in different contexts. When you are unable to fully monetize effects, including competition-related effects, it is helpful to outline what data collection or analytic tools would enable you to monetize the effect in the future, even if doing such data collection or analysis is infeasible in the near term. Doing so may encourage research or guide reporting requirements that would allow for such effects to be monetized in future regulations.

### ***Additional Methods for Analyzing Competition Effects***

When sufficient data, expertise, and resources are available, and the analysis is of sufficient importance that the increased analytic effort is justified, it may be advisable to employ more sophisticated methods for analyzing and quantifying the prospective competition effects of changes in regulations. This section does not attempt to provide all of the background necessary to implement these methods and should be considered only as an introduction and a starting point to access additional resources.

#### Retrospective Studies

Making prospective forecasts about the effects of new policies and regulations can be difficult. Agencies can seek out analyses of similar policy changes to aid in developing estimates or informing discussion of the competitive impacts of the regulation. Retrospective analysis of similar regulations or regulations affecting the same market may provide a good basis for assessing competitive impacts. Periodic reviews of regulations under E.O. 13563 may provide useful information about the likely types, direction, and magnitude of effects that would be relevant to a prospective analysis. Published studies of similar policies in other markets or geographical areas, with appropriate caveats, may also help identify likely competitive effects. For example, a study of competitive procurement in local passenger rail in Germany might be useful in predicting the direction and order of magnitude of effects for a similar policy in the United States.<sup>57</sup> The FTC maintains a Merger Retrospective Program that analyzes the effect of consummated mergers to help guide future actions and policies.<sup>58</sup> Such studies can also provide information about potential effects of consumers, firms, workers, and market structure in response to other changes in market conditions.

#### Counterfactual Simulation

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<sup>57</sup> See, e.g., Rafael Lalive and Armin Schmutzler, “Exploring the Effects of Competition for Railway Markets,” *International Journal of Industrial Organization* 26, no. 2 (2008): 443–458.

<sup>58</sup> “Overview of the Merger Retrospective Program in the Bureau of Economics,” U.S. Federal Trade Commission, accessed Sept. 22, 2023, <https://www.ftc.gov/policy/studies/merger-retrospective-program/overview>.

Counterfactual simulation methods for quantifying complex economic outcomes use econometric models of underlying supply and demand relationships or parameterized structural models to simulate alternative policies and estimate the effects on market participants. Such methods can sometimes helpfully capture general equilibrium or dynamic effects that would be difficult to estimate, and are employed in many academic, industry and government settings; however, they often have large data, computing, and technical requirements.<sup>59</sup> These types of analyses are sometimes used in regulatory impact assessments for Federal regulations. When you are using such a model in a regulatory analysis, you should consider whether it can be augmented to take into account the potential impacts on market structure and competition in affected markets, and whether it would be worthwhile to do so.

### ***Other Considerations***

#### **Markets with Bargaining or Auctions**

Policies and regulations are often assessed from a baseline that assumes a market operating on the basis of competitive markets where no individual firm can influence the price of the good or service being sold. The most common alternative to this is to assume that firms have some pricing power, face downward-sloping demand, and choose the price that maximizes their profits. These assumptions are useful because they allow economists to model how firms will react to each other—and to regulations or incentives—under a wide variety of circumstances. But if these assumptions are not valid for a particular market, then such predictions are likely to be wrong. Two common cases of this are in markets with bargaining and in markets with auctions.

In markets where contracts for goods or services are negotiated, price is not simply cost or set by one single firm choosing the price that maximizes its' profits. In these settings, the price and terms—and even the ability of parties to negotiate a beneficial contract—will depend on many market factors, such as the respective size of the parties involved and the number of alternative suppliers or buyers. In these markets, both competition and the effects of new policies and regulations will be influenced by the relative bargaining power among economic agents. Some research has suggested that the standard directional change in welfare resulting from certain interventions may not always hold in markets with bargaining.<sup>60</sup> This can have substantial implications for competitive effects and their analysis. If you find that the regulation will affect one or more markets where negotiations over price or terms are commonplace, consider using a bargaining model rather than a competitive or price-setting model.<sup>61</sup>

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<sup>59</sup> See, e.g., Stephen P. Ryan, “The Costs of Environmental Regulation in a Concentrated Industry,” *Econometrica* 80, no. 3 (2012): 1019–1061; Charles Taragin, Michael Sandfort, Shlok Goyal, “Antitrust: Tools for Antitrust Practitioners,” <https://cran.r-project.org/web/packages/antitrust/index.html>; Carlos Rodríguez-Castelán et al., “Distributional Effects of Competition: A Simulation Approach,” IZA Discussion Paper No. 14043 (2021), <https://docs.iza.org/dp14043.pdf>.

<sup>60</sup> See, e.g., George Symeonidis, “Downstream Competition, Bargaining, and Welfare,” *Journal of Economics & Management Strategy* 17, no. 1 (2008): 247–270.

<sup>61</sup> For further reading, see Robin S. Lee, Michael D. Whinston, and Ali Yurukoglu, “Chapter 9 - Structural Empirical Analysis of Contracting in Vertical Markets,” *Handbook of Industrial Organization* 4, no. 1 (2021): 673–742.

Similarly, in some markets, prices are set by an auction process rather than chosen directly by the sellers. These may explicitly be auctions—for example, when valuable art is sold to the highest bidder—or they may take the form of “requests for proposal” or similar mechanisms where the contract is awarded to the lowest (or highest) bidder. As in the case where prices are set by negotiation, the standard directional change in welfare resulting from certain interventions may not always hold in markets with auctions. If you find that the regulation will affect one or more markets where auctions or auction-like mechanisms are common, consider using an auction model rather than a competitive or price-setting model.<sup>62</sup>

### Market Design

Some regulations affect competition by setting parameters for markets in which the government is the buyer or the seller. Auctions may be of particular importance in government policies, since procurement based on auctions is common. A robust literature exists on designing efficient and competitive bidding processes as well as their economic assessment.<sup>63</sup> In addition, the rules set for auctions can have significant implications for market competition and can even make collusion among bidders easier. Regulatory changes to procurement requirements or bidding processes may affect market participation and result in competition-related effects.

### ***Additional Resources***

Competition regulators and enforcers also provide helpful guidance documents for both conceptualizing and analyzing competitive effects. A few of these resources are provided below as a starting point for further reading.

- U.S. Federal Trade Commission: [Guide to Antitrust Laws](#)
- U.S. Federal Trade Commission: [Competition Guidance](#)
- U.S. Department of Justice: [Three Economist’s Tools for Antitrust Analysis: A Non-Technical Introduction](#)
- Organisation for Economic Co-operation and Development: [Options for Integrating Competition Assessment into Regulatory Impact Analysis](#)
- U.S. Department of Justice & U.S. Federal Trade Commission: [Draft Merger Guidelines](#)

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*Note:* this guidance is not intended to, and does not, create any right or benefit, substantive or procedural, enforceable at law or in equity by any party against the United States, its departments, agencies, or entities, its officers, employees, or agents, or any other person.

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<sup>62</sup> See Ali Hortaçsu and Isabelle Perrigne, “Chapter 11 – Empirical Perspectives on Auctions,” *Handbook of Industrial Organization* 5, no. 1 (2021): 81–175.

<sup>63</sup> *Ibid.*