

COLLUSION IN THE LABOR MARKET: INTENDED AND UNINTENDED CONSEQUENCES



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I. INTRODUCTION

Collusion in the labor market violates Section 1 of the Sherman Act, which forbids “[e]very contract, combination...or conspiracy in restraint of trade.”² Collusion among sellers has been proscribed as a *per se* violation of Section 1 for over 120 years,³ while collusion among buyers had largely been ignored.⁴ Recently, however, collusion among buyers has come under increasing scrutiny especially when employers collude in the labor market.

Collusion in the local labor market is not a rare event. In recent years, we have seen collusion among employers in hiring hardware and software engineers,⁵ digital animators,⁶ hospital nurses,⁷ medical school faculty,⁸ fashion models,⁹ and even au pairs.¹⁰

In each case, there are both intended and unintended consequences. The intended consequences include reduced wages and higher profit for the employers. The unintended consequences are reduced output with a corresponding increase in output price as well as a reduction in the wages and employment of complementary inputs. This leads to a further increase in employer profit.

In this article, we provide a careful explanation of the intended and unintended consequences of collusion in the labor market. We also examine the antitrust implications of our economic analysis. In Section 2, we define monopsony and monopsony power. In Section 3, we identify the intended consequences of employer collusion in the labor market. In Section 4, we explain the unintended consequences of employer collusion on the price and quantity in the output market as well as on prices and quantities of complementary inputs employed. We turn our attention to the antitrust implications of our analysis in section 5 and close with some concluding remarks in section 6.

² 15 U.S.C. §1

³ *United States v. Socony-Vacuum Oil Co., Inc.*, 310 U.S. 150 (1940). The Court found that: “Under the Sherman Act a combination formed for the purpose and with the effect of raising, *depressing*, fixing, pegging, or stabilizing the price of a commodity in interstate or foreign commerce is illegal *per se*.” emphasis added.

⁴ *Mandeville Island Farms v. American Crystal Sugar Co.*, 334 U.S. 219 (1948) is a prominent exception.

⁵ *United States v. Adobe Systems, Inc.* 10-cv-01629-RBW (2011).

⁶ *United States v. Lucas Film, Ltd.* 10-cv-02220-RBW (2010).

⁷ See, for example, *Cason-Merendo v. VHS of Michigan, Inc.* 2:06-cv-15601, U.S. District Court of Michigan (2015).

⁸ *Seaman v. Duke University*, 15-cv-00462 (2016).

⁹ The Council of Fashion Designers of America, Docket C-3621. (1995).

¹⁰ *Beltran v. InterExchange Inc.*, 1:14-cv-03074, U.S. District Court for the District of Colorado (2018).

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II. MONOPSONY AND MONOPSONY POWER

When all employers collude in the labor market, they collectively act as a monopsonist. The aim is to create and exploit monopsony power and thereby improve their profits. It is useful, therefore, to have a clear understanding of monopsony and monopsony power.

A. Monopsony

The term “monopsony” is the economist’s label for a market in which there is a single buyer. Although pure monopsony is rarely found outside of economics textbooks, close approximations can be found.¹¹ For example, dominant buyers behave like pure monopsonists while taking into account the presence of small, rival buyers. Oligopsony, which is a market with a few large buyers, may also exist and operate much like a monopsony.¹²

B. Monopsony Power

Since a monopsonist is the sole buyer of a well-defined good or service, the monopsonist may enjoy some degree of monopsony power, which is the ability of a buyer to control the price that it pays by adjusting the quantity it purchases. Both the existence and degree of monopsony power depend on the supply conditions in the market for the good or service in question.

If the supply is perfectly elastic, a monopsonist will not have any monopsony power because changes in the quantity purchased will not affect the price.¹³ When the elasticity of labor supply is finite, however, profit maximization leads to a gap between the wage paid and the value of labor’s contribution, which is termed the value of the marginal product (“VMP”). Joan Robinson referred to this gap as “monopsonistic exploitation.”¹⁴

We can adapt the Lerner Index of monopoly to the case of monopsony.¹⁵ The Lerner Index of monopsony power is the rate of monopsonistic exploitation, which is the VMP-wage gap divided by the wage.¹⁶ A profit maximizing monopsonist will expand its employment until the VMP is equal to the marginal expenditure (“ME”), which is sometimes referred to as the marginal factor cost.¹⁷ Thus, it can be shown that the Lerner Index is equal to the inverse of the elasticity of the labor supply.¹⁸

11 V. Bhaskar, Alan Manning, & Ted To, *Oligopsony and Monopsonistic Competition in Labor Markets*, 16 *Journal of Economic Perspectives* 155 (2002).

12 For analytical details, see Roger D. Blair & Christine Piette Durrance, *Economics of Monopsony*, in W. Dale Collins, ed., *Issues in Competition Law and Policy* (2008).

13 Jonathan Jacobson & Gary Dorman, *Joint Purchasing, Monopsony, and Antitrust*, 36 *Antitrust Bulletin* 1 (1991); and Jonathan Jacobson, *Monopsony 2013: Still Not Truly Symmetric*, *The Antitrust Source* (2013).

14 Joan Robinson, *The Economics of Imperfect Competition*, (1933).

15 Abba P. Lerner, *The Concept of Monopoly and the Measurement of Monopoly Power*, 1 *Review of Economic Studies* 157 (1934). For an adaptation to the case of monopsony, see Roger D. Blair & Jeffrey L. Harrison, *The Measurement of Monopsony Power*, 37 *Antitrust Bulletin* 133 (1992).

16 The Lerner Index of Monopsony is $\lambda = \frac{VMP-w}{w}$.

17 The rate of monopsonistic exploitation, $\frac{VMP-w}{w}$, may be written as $\frac{ME-w}{w}$. Since ME is equal to $w + L \frac{dw}{dL}$, we have $\frac{w + L \frac{dw}{dL} - w}{w}$ or $\left(\frac{L}{w}\right) \frac{dw}{dL}$, which is the inverse of the supply elasticity.

18 For a profit maximizing monopsonist, it can be shown that $\lambda = \frac{1}{\varepsilon}$.

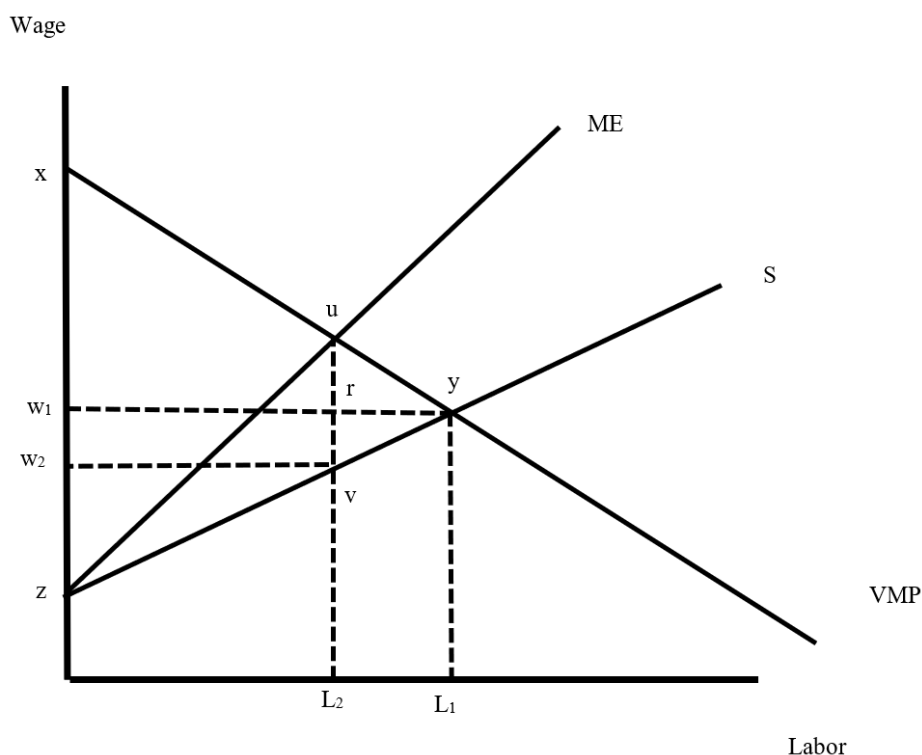
In perfectly competitive labor markets, an employer can hire as much or as little labor as it wishes without affecting the wage. The elasticity of the labor supply is infinite. Obviously, if the elasticity of supply is infinite, λ will be zero and $VMP=w$. When labor supply elasticities are low, the return to collusion in the labor market will be high.¹⁹

In the labor market, the elasticity of supply may appear to be infinite for small employers. In the aggregate, however, the labor supply elasticity is not apt to be infinite. If it were, each worker's reservation wage would have to be the same. This is unlikely due to differences in family circumstances, wealth, human capital, and age, among other things. Consequently, one would expect labor supply curves to be positively sloped and the supply elasticity to be finite.²⁰

III. INTENDED CONSEQUENCES OF COLLUSION

In a competitive labor market, the wage and employment level are determined by the supply and demand for labor. Since labor services are inputs in the employer's production process, the demand for labor services is derived from the demand for the employer's output, i.e. the consumers' demand for output directly affects the demand for inputs. This derived demand is shown as the negatively-sloped line labeled *VMP* in Figure 1.²¹

Figure 1



The supply of labor is shown as the positively-sloped line labelled, *S*, in Figure 1. In general, the supply of labor is positively sloped since individual employees have different reservation wages due to differences in age, education, family circumstances, and wealth, among other things.

19 For example, if the labor supply elasticity were equal to 2.0, then the Lerner index would be 0.5. In that event, the gap between labor's contribution and the wage paid would be 50 percent. At a wage of, say, \$20 per hour, labor's contribution would be \$30. If the labor supply were more elastic, e.g., if ϵ were equal to 5, then the Lerner Index would only be equal to 0.2. In that event, the gap between labor's contribution and the wage paid would be 20 percent. If the wage paid were \$20 per hour, the contribution would be \$24. For details, see Blair & Durrance, *supra* note 12.

20 Empirical estimates of labor supply elasticities are often quite low. Anna Sokolova & Tod Sorenson, *Monopsony in Labor Markets: A Meta-Analysis*. Working Paper 11966, IZA Institute of Labor Economics (2018) surveyed some 53 labor elasticity studies. They found that the mean supply elasticity was 3.75, while the median was 1.27.

21 *VMP* is the value of the marginal product, which is the price of the firm's output times the change in output resulting from the expanded employment. In Figure 1, *VMP* is the cartel's derived demand for labor. It is the horizontal sum of each employer's derived demand.

When the employers were competing in the local labor market, they employed labor at the point where *VMP* equaled supply, *S*. In Figure 1, the competitive wage and employment level are shown as w_1 and L_1 , respectively. At this competitive equilibrium, employer surplus is equal to area xyw_1 , while employee surplus is equal to area w_1yz . No other wage and employment level will generate a larger combination of employer and employee surplus.

If the employers collude in the labor market, they will maximize their cartel profits by reducing the employment level to the point where the group's marginal expenditure (*ME*) on labor is equal to the value of labor's marginal product or *VMP*.²² Since the employment is reduced, the wage paid also falls, which provides the incentive for the collusion.²³ In Figure 1, the immediate result of collusion is to reduce employment from L_1 to L_2 with a corresponding decrease in the wage from w_1 to w_2 .²⁴

The rectangular area, w_1vw_2 , had been employee surplus under competitive conditions, but was transferred to the employer through collusion in the labor market. This reduces employee surplus from area w_1yz to w_2yz . The net effect of collusion among the employers is to increase employer surplus from area xyw_1 to area $xvww_2$. Thus, collusion in the labor market benefits employers at the expense of the employees.

Additionally, collusion in the labor market creates a social welfare loss. Each unit of labor service between L_1 and L_2 produces output whose value to consumers exceeds the incremental cost of producing it as measured by labor's reservation wage. This allocative inefficiency results in a deadweight loss to society, which is represented in Figure 1 by the triangular area uyv . This welfare loss is the economic rationale for objecting to collusion in the labor market.

When employers collude in the labor market, they do not intend to misallocate resources and cause a reduction in social welfare. They do intend, however, to depress the wage paid to their employees and thereby increase their profits. In doing so, the employer cartel reduces labor surplus. These are the intended consequences of collusion in the labor market.

IV. UNINTENDED CONSEQUENCES OF COLLUSION

In the previous section, we identified the intended consequences of monopsony, i.e., reduced employment, depressed wages, and elevated profits. Now, we explore how this action affects the output market and other input markets.

A. Consequences in the Output Market

Before the firms began colluding in the labor market, they operated where demand (*D*) was equal to the industry supply (MC_1), as shown in Figure 2. The resulting competitive price and output were P_1 and Q_1 , respectively. Collusion in the labor market causes the marginal cost for the cartel to rotate to MC_2 . When colluding on labor employment, the producers consider that increasing labor employment increases wages, which is manifested in a higher marginal cost of producing output. Intuitively, since less labor is employed, there is a reduced capacity to produce goods or services in the output market. Even though the cartel members do not collude in the output market, the change in industry supply leads to a reduction in output from Q_1 to Q_2 and a corresponding increase in price from P_1 to P_2 .

Even though the firms did not intend to affect the output market, their collusion led to higher prices for their customers and a further increase in profits for themselves. In Figure 2, we can see that consumer surplus equal to $(P_2 - P_1)Q_2$ has been converted to producer surplus, i.e. profit for the cartel. Additionally, the collusion creates a deadweight loss equal to dbe since output that is socially beneficial is no longer produced.²⁵

²² The marginal expenditure (*ME*) is the added cost of hiring one more unit of labor. See Blair & Durrance, *supra* note 12 for more information and see *supra* note 17 for technical details.

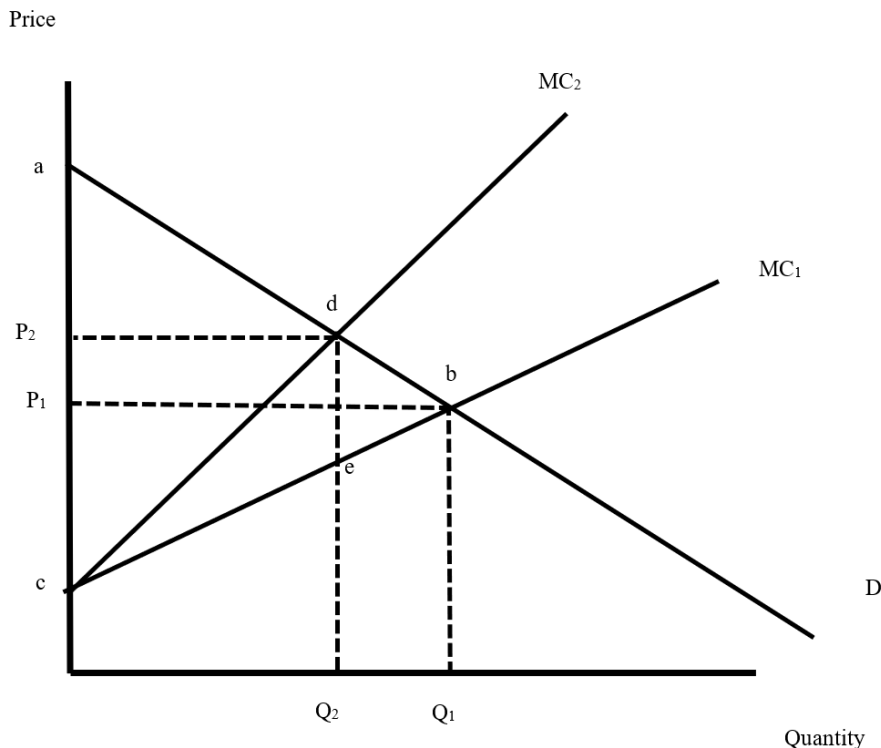
²³ The marginal expenditure also includes the increased cost of raising the wages of all other previously employed labor units, since we assume the employer cannot price discriminate. Thus, $ME > S$ at every point on the curve since $w + L \frac{dw}{dL} > w$.

²⁴ As can be seen, there is a gap between the wage and labor's contribution, i.e. $VMP - w$. Joan Robinson referred to this gap as "monopsonistic exploitation." Robinson, *supra* note 14.

²⁵ The deadweight loss, i.e., the social welfare loss, in Figure 1 and that in Figure 2 are equivalent. In other words, the area uyv in Figure 1 is equal to area dbe in Figure 2. For a brief explanation, see Roger D. Blair & Richard E. Romano, *Collusive Monopsony in Theory and Practice: The NCAA Cartel*, 42 *Antitrust Bulletin*, 681 (1997).

The increase in price from P_1 to P_2 causes a feedback loop which shifts the value of the marginal product of labor to the right (not shown in Figure 1), which causes the wage rate to go up and employment to increase.²⁶ Since the increased employment will result in more output, the output price will fall. The decrease in price causes another shift in the VMP curve, but this time to the left. The final equilibrium involves a reduction in employment and a corresponding reduction in the wage rate compared to the competitive equilibrium. It also causes output price to rise and quantity to fall below the competitive levels.

Figure 2



B. Consequences in Complementary Input Markets

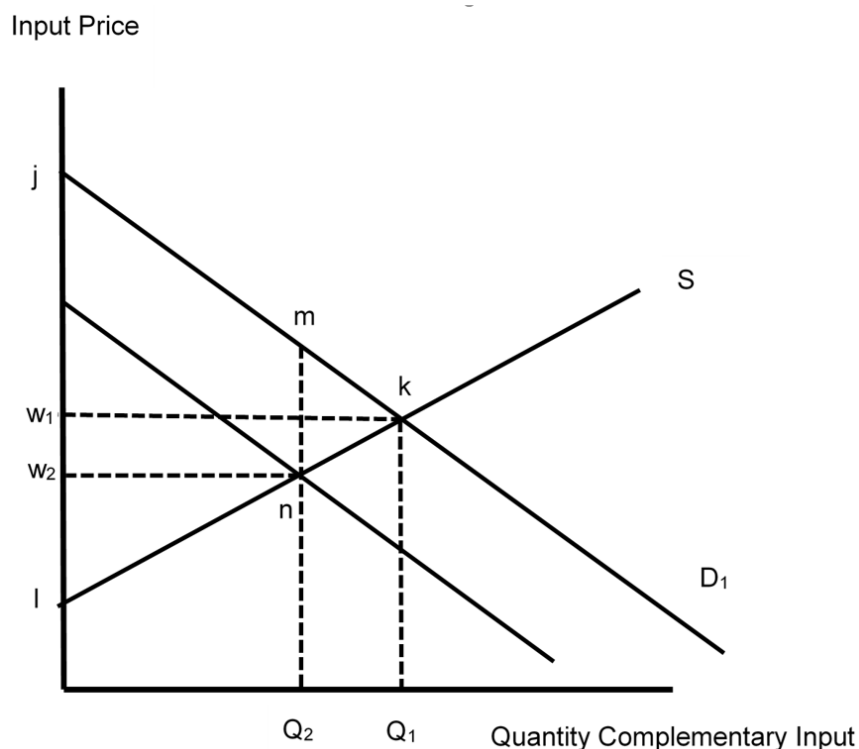
Now, we turn our attention to other input markets. In order to illustrate the effects in the output market, we had previously assumed that other input prices were constant, which is customary for partial equilibrium analysis.²⁷ The monopsonist, however, would naturally reduce the employment of complementary inputs due to the reduced employment of labor.

The quantity of labor and the quantity of complementary inputs employed are directly related through the production function. Thus, a reduction in labor employed reduces the marginal productivity of all complementary inputs, which causes the cartel's demands for those inputs to fall, i.e. shift to the left as is shown in Figure 3. If the supply curves of the complements are positively sloped (S), the fall in demand will lead to reduced prices of those inputs. The consequences of this action are clear. The prices of complementary inputs are depressed and a social welfare loss, represented by area mkn , is created. Some of the input suppliers' surplus, i.e. area w_1onw_2 , is transferred to the cartel as profit.

²⁶ Initially, $VMP = MP \cdot P_1$. Now, since the price has changed to P_2 , $VMP = MP \cdot P_2$. Since P_2 is greater than P_1 , VMP will shift to the right.

²⁷ Partial equilibrium analysis assumes that all other output and input markets are competitive. Collusion in one market would not affect these markets since the impact of collusion would be mitigated by the ability to sell or buy quantity to or from other firms.

Figure 3



The economic significance of the unintended consequence depends on the circumstances, i.e. the amount of harm depends on the elasticity of the supply. If the cartel’s employment of the complements is small in comparison to the entire market, the consequences will be minimal. For example, the cartel’s conduct may have a substantial impact on the local labor market but a negligible impact on the capital market, which is much broader.

Suppose, for example, that the hospitals in a local market collude in the nurse labor market. This will yield the results that we have described above in Figures 1 and 2. In addition, the demand for complementary inputs are reduced. This may have imperceptible effects in the market for hospital linens, plastic cups, and dressings. The effect on the local labor market for orderlies, however, may be far more pronounced.

In conclusion, monopsony has unintended consequences that reduce quantity in the output market, which harms consumers, and the quantity demanded of other inputs, which harms input suppliers.

V. ANTITRUST POLICY

The victims of collusion in the labor market — the underpaid employees — have standing to pursue private damage actions under Section 4 of the Clayton Act, which provides that “[a]ny person who shall be injured by reason of anything forbidden in the antitrust laws may sue therefor... and shall recover threefold the damages by him sustained.”²⁸

In various rulings, however, the judiciary has limited “any person” in several ways to promote effective antitrust enforcement. Notably, standing has been limited to the participants in the market in question. The favored classes of those with antitrust standing are usually foreclosed competitors and overcharged customers or underpaid suppliers.²⁹

²⁸ 15 U.S.C. §15.

²⁹ Herbert Hovenkamp, *Federal Antitrust Policy The Law of Competition and its Practice*, 4th ed. ¶16.4b (2011).

It is clear that the intended victims of an employer cartel have standing to redress their injuries. Sadly, this is not the case for the unintended victims. They are neither foreclosed employers nor underpaid employees. In other words, they are not one of the favored classes of antitrust plaintiffs.³⁰ In our example, collusion in the labor market reduces employment, tends to reduce output, which in turn increases prices for consumers, and decreases employment of other inputs. The overcharged consumers and other input suppliers, however, do not have standing to pursue antitrust damages. Additionally, the colluding employers may keep some of their ill-gotten gains since they are not required to compensate the unintended victims.

Neither the overcharged consumers nor the underpaid suppliers of complementary inputs have standing to pursue antitrust damages. They are the victims of an antitrust violation even though it was not aimed at them. They are innocent bystanders and deserve protection. Additionally, the employers should be held to account for the full damages that they have imposed.³¹

VI. CONCLUDING REMARKS

When employers collude in the labor market, they reduce both the wage paid and the total employment. The employers experience higher profits at the expense of their employees. Those intended consequences are vulnerable to private damage actions by the victims. The unintended victims, that is, the overcharged consumers and underpaid suppliers of complementary inputs, do not currently have standing to sue. Antitrust standing should be granted to both the intended and unintended victims so that the colluders will be responsible for the entire cost of their illicit conduct.

³⁰ For a detailed explanation of antitrust standing, see Phillip Areeda, Herbert Hovenkamp, Roger D. Blair & Christine Piette Durrance, *Antitrust Law IIA*, ¶¶339 (4th 2014).

³¹ This may pose some procedural difficulties, but we leave that for another day.

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