Chapter 16: Ethics and Economics

> This exchange society and the guidance of the coordination of a far-ranging division of labor by variable market prices was made possible by the spreading of certain gradually evolved moral beliefs which, after they had spread, most men in the Western world learned to accept. These rules were inevitably learned by all the members of a population consisting chiefly of independent farmers, artisans and merchants and their servants and apprentices who shared the daily experiences of their masters…. They held an ethos that esteemed the prudent man, the good husbandman and provider who looked after the future of his family and his business by building up capital, guided less by the desire to be able to consume much than by the wish to be regarded as successful by his fellows who pursued similar aims. (F. A. Hayek [1979/2011]. *Law, Legislation and Liberty, Volume 3: The Political Order of a Free People* [pp. 164–165]. University of Chicago Press; Kindle Edition.)

> Virtually every commercial transaction has within itself an element of trust, certainly any transaction conducted over a period of time. It can be plausibly argued that much of the economic backwardness in the world can be explained by the lack of mutual confidence. (K. A. Arrow [1972] "Gifts and Exchanges," *Philosophy and Public Affairs* I:372.)

I. Introduction: Should Microeconomic Analysis Include Ethics?

Until this chapter, this book has assumed that individuals have tastes that are largely practical in nature. Consumers are interested in material comforts, safety, and entertainment. Firms produce and invent things in order to realize the income associated with consumer demands for those activities. That income, in turn, allows firm owners and managers to pursue the same ends as consumers. As Adam Smith once wrote,

> "It is not from the benevolence of the butcher, the brewer, or the baker, that we expect our dinner, but from their regard to their own interest. We address ourselves, not to their humanity, but to their self-love, and never talk to them of our own necessities, but of their advantages. Nobody but a beggar chooses to depend chiefly upon the benevolence of his fellow-citizens."

> Smith, Adam. Wealth of Nations: Full and Fine Text of 1776 Edition (p. 6). www.WealthOfNation.com. Kindle Edition.

This is not necessarily because all economists believe that nothing other than self-interest influences individuals in market-relevant choice settings, but because narrow self-interest is sufficient to explain market transactions.

Nonetheless, there is a good deal of market-relevant behavior that is difficult to explain using rational-choice models grounded in narrow self-interest and pragmatism. For example, waiting lines are commonplace in most stores and most people calmly wait in those lines until they reach the place where the service of interest (help from a clerk, paying for a good, etc.) is reached. Why don't people in a hurry simply "cut" in line, pay others for "their place" in the line, or, if they are sufficiently big and strong, simply push folks out of their way? There are no formal laws that prevent this—although stores normally have informal rules of conduct that they expect their customers to abide by and may occasionally evict a customer that does not behave "properly." Of course, the latter is not always easy. What might be called waiting customs or waiting norms constrain individual behavior in busy retail stores. Those norms reduce transactions costs and thereby increase the scope of commerce.

Similar rules constrain conduct on the sidewalks and streets outside places of business. Again, there is little or no enforcement of such rules; they are simply abided by most persons. The informal rules of the road and sidewalk reduce transportation costs, and facilitate both commercially relevant travel and other personally relevant travel.

In addition, there are many rules that people internalize concerning what they should or should not consume and the appropriate times for doing so. In neoclassical models, such rules may be considered sources of "tastes," and simply taken as "given," and so beyond the scope of economic analysis. But such rules may change through time or differ among communities and help to explain variations in market-relevant preferences through time and among communities. Bicchieri (2006) refers to such rules as the grammar of society.

A subset of a community's norms is regarded as ethical in nature—such rules characterize, for example, good and bad conduct, right and wrong, good character, a good life, and a good society—where the meaning of the words "good," "bad," and "proper" varies with the systems of ethical rules internalized. Some of these are grounded in religious texts. Some are grounded in philosophical reasoning, and many others are grounded in a community's long-

standing norms and customs. The latter provide the rules of conduct that are transmitted from one generation to the next by adults without much thought—simply because they are believed to be "good" or "proper" practices.

Congleton (2022) suggests that the ethical rules internalized may promote or restrain economic activity. They may reduce conflict, discourage theft and violence, encourage promise keeping and industrious creative lives, and generate electoral support for public policies that are thought to improve their communities as places to live and trade. McCloskey (2010) and Rose (2011), for example, argue that particular ideas about virtue tend to increase the prosperity of a society. On the other hand, there are also norms that discourage all of these commerce-promoting activities.

This chapter develops an extended rational choice model that characterizes the processes through which internalized norms affect economically relevant behavior. It turns out that the norms emphasized by McCloskey and Rose may be prerequisites for flourishing markets. Civil law and self-interest do not provide a sufficient foundation for prosperous societies by themselves.

I. Team Production and the Value of a Work Ethic

The Shirking Dilemma Associated with Team Production

Although production by teams can be highly efficient, there is a sense in which team production is unnatural. Every person on every team has private incentives to underprovide services to the team. They are inclined to "shirk" rather than "work." Each member's effort increases the productivity of other team members, but these effects tend to be ignored by a person who decides to goof off a bit rather than fully devote him- or herself to team production or to following their team's rules.

To illustrate this dilemma, suppose that a team is organized as a "natural cooperative" and shares the output produced equally. Each person participates in the team's activities for eight hours. For purposes of illustration, the team's output is assumed to be two times the total effort invested in production (work effort). Suppose, however, that an individual's effort is unobservable to others—such as when a group tries to lift or carry a heavy object, separately searches for fruit to harvest and share, or jointly develops a complex computer program or phone app. The benefits of leisure in contrast to work effort (the absence of productive effort) are realized only by the person(s) shirking.

Table 16.1 illustrates the "shirking" dilemma for a two-member team, which of course is the smallest possible team. (The shirking dilemma tends to be larger for larger teams, because there are more persons to monitor and coordinate.)

The payoffs in the game matrix are net benefits measured in output units. They are the sum of each team member's share of the team's output plus the value of each player's own leisure. The value of an hour of shirking to the individual benefiting from it is assumed to be equivalent to 1.5 units of the team's output. Note that this choice setting has a single Nash equilibrium at the lower right-hand corner of Table 16.1. A good deal of shirking takes place in equilibrium.

Table 16.1 The Shirking Dilemma of Team Production in Natural Cooperatives (hours of effort)

		Harold		
		8 hours	6 hours	4 hours
Armen	8 hours	(A, H) 16, 16	(A, H) 14, 17	(A, H) 12, 18
	6 hours	17, 14	15,15	13, 16
	4 hours	18, 12	16, 13	14, 14

There are a wide variety of ways persons on teams may shirk. They may not work as hard or diligently as is in the team's interest. They may mislead others about what is possible and what is not. They may steal from the company's stores. They may ignore or abuse customers rather than serve them when not being monitored, and so on.

That a problem exists is implied by several normative theories, and in this case the Nash equilibrium also conflicts with narrow self-interests. There are other feasible outcomes that would make both team members better off. To the extent that shared output or shared profits are correlated with utility levels, both their utility levels could be increased relative to that at the Nash equilibrium. For example, both Armen and Harold would benefit if they both diligently worked eight hours each day instead of four.

To the extent that the output of the team contributes to a village's survival by increasing its material reserves, the shirking dilemma also diminishes the likelihood of a community's

survival in the long run. Social evolution thus tends to support norms that increase the effectiveness of team production.

The Economic Value of a Work Ethic

The shirking problem is an ancient problem and so are various ways of reducing it. In communities with governments, laws could be passed against shirking (idleness), as was done in some periods in ancient Athens and in the early Puritan colonies of Massachusetts. Productive organizations have their own governing rules, and the rules governing compensation often directly encourage working over shirking. This may be done with wages based on output as with piece rates and also by granting higher wages to those who have clearly worked harder and more diligently than others. However, these solutions are limited to cases in which an individual's output or effort can be observed, and also by the extent to which an organization's rules regarding employee compensation are honestly followed.

Alternatively, economic organizations may attempt to hire persons that have internalized rules that create dispositions that make them less inclined to engage in shirking. Formeteurs may, for example, hire only persons known to have a strong "work ethic" or attempt to induce all their team members to develop such internalized norms. It is through devising rules that tend to encourage work or discourage shirking, and through devising methods for detecting and punishing violations of those rules that many managers "earn" their salaries. Indeed, all readers who regard the term "shirking" to have a negative connotation have themselves internalized work-supporting norms.

Table 16.2 How a Work Ethic Reduces the Shirking Dilemma

		(hours of effort) Harold		
		8 hours	6 hours	4 hours
Armen	8 hours	(A, H) 16, 16	(A, H) 14, 17–$\mathcal{G}$	(A, H) 12, 18–2$\mathcal{G}$
	6 hours	17–$\mathcal{G}$, 14	15–$\mathcal{G}$,15–$\mathcal{G}$	13–$\mathcal{G}$, 16–2$\mathcal{G}$
	4 hours	18–2$\mathcal{G}$, 12	16–2$\mathcal{G}$, 13–$\mathcal{G}$	14–2$\mathcal{G}$, 14–2$\mathcal{G}$

Norms that reduce propensities to shirk can take many forms. The simplest is an internalized duty to work hard and diligently—a work ethic. Such internalized norms bring forth feelings of virtue (V) when one diligently performs all one's duties while at work and/or guilt ($\mathcal{G}$) when one does not. The "guilt" variety of a work ethic is incorporated into Table 16.2. In the case illustrated, Armen and Harold both feel a duty to work hard for 8 hours a day and feel at least a bit guilty if they do not ($\mathcal{G}$>0).

Table 16.2 demonstrates that a team composed of persons with sufficiently strong work ethics can solve the shirking problem. In the case illustrated, a sufficient work ethic would associate a guilt penalty greater than one unit of the practical reward, $\mathcal{G}$>1. Note that the result of an internalized work ethic is increased utility or net benefits for both team members (16>14>14–$\mathcal{G}$).[1] When a work ethic works well, no one feels guilty because no one shirks. In this case, guilt-avoidance indirectly increases happiness (and income) by increasing team output and team member rewards. The practical reward is a share of a commercial organization's larger output, or higher wages or piece rates when money goods emerge and labor markets are competitive.

Other norms such as promise keeping and reciprocity norms can achieve similar results by inducing team members to match each other's efforts and abide by formal and informal commitments made when joining the team. Such persons keep their commitments to show up on time, diligently undertake their duties of employment, and abide by both the explicit and implicit terms of contracts. Shared notions of "fair" or "reasonable" efforts may also induce fellow team members to chide, embarrass, or evict members who shirk their duties. Partially internalizing the benefits realized by others on the team—as persons with team spirit, utilitarians, and altruists tend to—can also reduce an individual's subjective gains from shirking.

The point here, as in the other illustrations of this chapter, is that a variety of internalized norms can solve dilemmas associated with commercial activities, and that communities that

[1] Although not important for the purposes of this illustration, some readers may be interested to know that the individual cell payoffs for Armen are $1.5\ (8 - E_A) + 2(E_A + E_H)/2$ where E_A is the number of hours Armen devotes to team production, rather than shirking. The payoffs for Harold are $1.5\ (8 - E_H) + 2(E_A + E_H)/2$. ($E_A$=4, E_H=4) is the Nash equilibrium of the continuous version of this game. The joint optimum is assumed to be an 8-hour day for each, although much longer workdays were commonplace in the late nineteenth and early twentieth centuries and are still common among "overachievers" today.

have such norms will tend to have more efficient commercial organizations and consequently broader, more effective markets than those that do not. The illustrations are the simplest ones possible to illustrate the essential problems, which often are more subtle, broader, and complex than the two-person varieties make them look.[2]

It bears noting that there are also normative dispositions that tend to undermine the productivity of teams. For example, a subset of team members may believe that shirking (sometimes called soldiering) advances goals such as solidarity or justice. Shirking may be praised as evidence of cleverness or "beating the system." Such norms tend to produce leisure for the relevant team members, but they also reduce team output and thereby the extent to which teams can be used to realize advantages of coordination and specialization in production. In such cases, the shirking dilemma may be market-wide rather than specific to a particular economic organization. Output diminishes and average material comforts tend to diminish as well.

It is possible that widespread norms that undermine team production or the absence of widespread work ethics may account for the fact that commercial organizations that employ large teams of free laborers (as opposed to slaves) were rare until a century or two ago.[3]

---

[2] The dilemma in the case illustrated emerges from the sharing rule rather than through effects on the marginal products of other workers. See Congleton (1991) for an illustration in which paying each worker exactly their marginal revenue product is not sufficient to solve all shirking problems. Commercial organizations have good reason to attempt to incentivize labor and may be able to do so when it is possible to monitor effort, as illustrated in both Congleton (1991) and the appendix. However, in cases in which monitoring is not sufficiently accurate to do so, conditional reward systems tend to be less effective than hiring persons with strong work ethics, as most readers will acknowledge from their own experience.

[3] That ethics can increase the productivity of teams has been studied by surprisingly few economists. See, for example, Congleton (1991), Buchanan (1994), and Rodgers (2009) for more general analytical assessments. Although Weber's (1909/2012) famous short book on the Protestant ethic seems to imply that the work ethic was first associated with Protestantism in Europe, this is not likely to be the case, although it is possible that Protestantism increased its relative importance. Several academic pieces, for example, have been written on the Islamic work ethic. See, for example, Murtaza et al. (2016). Based on the above illustration and the continuous version developed in the next section, work ethics and other norms that moderate shirking problems are likely to have emerged in most communities, although with somewhat different intensities and internalized duties.

A Somewhat More General Illustration of the Productivity of a Work Ethic

Suppose that barn production involves the use of two specialized kinds of labor: carpenters and masons. To simplify, without substantial loss of generality, suppose that a barn-building team consists of one mason and one carpenter, each having an identical Cobb-Douglas utility function defined over labor income and leisure, and each supplying labor to a Cobb-Douglas production function. Assume that the method of barn production exhibits constant returns to scale over the relevant range and that each worker receives a wage equal to his or her marginal product. For purposes of illustration, the exponents in all three Cobb-Douglas functions are assigned the value one half.

The labor-leisure choice of the Mason (Margaret, m) reflects her attempt to maximize her personal utility:

$$U_m = L_m^{.5}(wW_m)^{.5} \tag{16.1}$$

subject to her time constraint that $T_m = L_m + W_m$. Margaret's wage rate is determined by her marginal product on the barn-erecting team. The production function is:

$$B = W_m^{.5}W_c^{.5} \tag{16.2}$$

$$B_{W_m} = w = .5W_m^{-.5}W_c^{.5} \tag{16.3}$$

Using the time constraint to characterize leisure in terms of hours worked, $L_m = T_m - W_m$, and Margaret's wage rate from equation 16.3, then substituting into her utility function yields an optimization problem for Margaret with one control variable, W_m.

$$U_m = (T_m - W_m)^{.5}([.5W_m^{-.5}W_c^{.5}]W_m)^{.5} \tag{16.4a}$$

Or combining terms:

$$U_m = (T_m - W_m)^{.5}[(.5)^{.5}W_m^{.25}W_c^{.25}] \tag{16.4b}$$

Differentiating equation 16.4b with respect to W_m yields:

$$U_{mW_m} = .25(T_m - W_m)^{.5}[(.5)^{.5}W_m^{-.75}W_c^{.25}]$$

$$-.5(T_m - W_m)^{-.5}[(.5)^{.5}W_m^{.25}W_c^{.25}] \ = 0 \ \text{ at } W_m^* \tag{16.5}$$

The first term is the marginal benefit from additional work and the second is its marginal opportunity cost in terms of reduced utility from leisure. The ideal number of hours worked

sets its marginal benefit equal to its marginal cost in terms of utility. A bit of algebra can simplify this expression. Adding the marginal cost to each side of the equation and multiplying by $4(.5)^{(1/2)}$ yields

$$(T_m - W_m)^{.5}[W_m^{-.75}W_c^{.25}] = 2(T_m - W_m)^{-.5}[W_m^{.25}W_c^{.25}]$$

Cross multiplying and collecting exponents yields:

$$(T_m - W_m)^{.5}(T_m - W_m)^{.5} = 2[W_m^{.75}W_c^{-.25}][W_m^{.25}W_c^{.25}] \;\rightarrow\; T_m - W_m = 2W_m$$

Thus, Margaret's ideal workday is:

$$W_m^* = T_m/3 \qquad (16.6)$$

That the mason has a pure dominant strategy is a consequence of the Cobb-Douglas functions assumed, rather than a general result, but it is similar to that associated with the matrix characterization of this choice setting. Symmetry implies that the same result would hold for Charles the carpenter. $W_c^* = T_c/3$. Thus, at the Nash equilibrium each works a third of their waking hours and takes the rest of their waking day as leisure.

Whether a shirking dilemma exists or not depends on whether the independent choices of the team members have maximized their joint utility or not. This can be determined by characterizing the work combination that would maximize their joint utility. Using the equation 16.4b version of their utility functions, their joint utility is:

$$\text{U} = U_m + U_c = (T_m - W_m)^{.5}[(.5)^{.5}W_m^{.25}W_c^{.25}] + (T_c - W_c)^{.5}[(.5)^{.5}W_c^{.25}W_m^{.25}] \qquad (16.7)$$

Differentiating with respect to W_m and W_c yields two first-order conditions for their joint optimization problem—both quite similar to equation 16.5, but with one extra term in each that accounts for the spillover benefit generated for the other team member.

$$U_{W_m} = .25(T_m - W_m)^{.5}[(.5)^{.5}W_m^{-.75}W_c^{.25}]$$
$$-.5(T_m - W_m)^{-.5}[(.5)^{.5}W_m^{.25}W_c^{.25}]$$
$$+ .25(T_c - W_c)^{.5}[(.5)^{.5}W_c^{.25}W_m^{-.75}] = 0 \qquad (16.8)$$

$$U_{W_c} = .25(T_c - W_c)^{.5}[(.5)^{.5}W_c^{-.75}W_m^{.25}]$$
$$-.5(T_c - W_c)^{-.5}[(.5)^{.5}W_c^{.25}W_m^{.25}]$$

$$+ .25(T_m - W_m)^{.5}[(.5)^{.5}W_m^{.25}W_c^{-.75}] = 0 \qquad (16.9)$$

Both first-order conditions have to be simultaneously satisfied to characterize the combination of hours that maximizes their joint utility. Note that each first-order condition includes additional terms relative to those associated with the individual choices.

Expressed as joint marginal benefit equals joint marginal cost, equation 16.8 can be written as:

$$.25(T_m - W_m)^{.5}[(.5)^{.5}W_m^{-.75}W_c^{.25}] + .25(T_c - W_c)^{.5}[(.5)^{.5}W_c^{.25}W_m^{-.75}]$$
$$= .5(T_m - W_m)^{-.5}[(.5)^{.5}W_m^{.25}W_c^{.25}]$$

The terms on the left are the social marginal benefits from working, which include the worker's own marginal benefits from working and also spillover benefits on the other team member's productivity. The marginal cost term on the right is the same as in the individual's first-order condition (the second term in equation 16.5). This suggests that greater effort is required to maximize their joint utility than the individual choices realize.

Following steps similar to those used above allows the above expression to be simplified to:

$$(T_m - W_m)^{.5}[W_m^{-.75}W_c^{.25}] + (T_c - W_c)^{.5}[W_c^{.25}W_m^{-.75}]$$
$$= 2(T_m - W_m)^{-.5}[W_m^{.25}W_c^{.25}]$$

The team production game is symmetric if their choice settings are generally the same (e.g., if their payoff functions and strategy sets are the same). This requires each worker to have the same number of waking hours to allocate between labor and leisure, e.g. if $T_m = T_c$, and a team production function with the same exponent for each worker. In that case, it is very likely that the joint optimum will require $W_m^{**} = W_c^{**}$.

To determine whether the latter is true or not, it will be useful to assume that $W_m^{**} = W_c^{**} = W$ and $T_m = T_c = T$. The first equality can simply be regarded as a hypothesis about the combination of work effort that maximizes aggregate utility. That hypothesis can be analytically tested, as below. Together these modifications yield:

$$(T - W)^{.5}(2W^{-.5}) = 2(T - W)^{-.5}W^{.5}$$

Multiplying both sides by $.5(T - W)^{.5}W^{.5}$ yields: $T - W =$ W which implies that:

$$W_m^{**} = W_c^{**} = T/2 \qquad (16.10)$$

at the joint utility maximum for the members of this team. The algebraic derivation implies that $W_m^{**} = W_c^{**} = T/2$ satisfies the first-order conditions for joint utility maximization, and also implies that the ideal work effort is greater than the ones that were independently chosen by the team members (in that case, $W_m^* = W_c^* = T/3$).

Thus, shirking problems can exist even when every team member is paid their full marginal product.[4]

Complementarity between specialized labor inputs implies that output increases by more than the sum of their marginal products as ordinarily conceived. This spillover benefit or "externality" is ignored by each when choosing their optimal workday, which is the source of the shirking dilemma.

An internalized work ethic can be modeled as increasing the effective wage rate or reducing the value of leisure. Such effects would induce both workers to work a longer day.[5] The

---

[4] To check this result, one can substitute these two different combinations of work hours into Margaret's utility function and determine if utility rises with the longer workday. With the shorter day, $U_m = (T_m - W_m)^{.5}[(.5)^{.5}W_m^{.25}W_c^{.25}] = (.5)^{.5}\left(\frac{2T}{3}\right)^{.5}(\frac{T}{3})^{.5} = (\frac{1}{2})^{.5}(\frac{2}{3})^{.5}(\frac{1}{3})^{.5}T = .333T$ With the longer day, the mason's utility equals $(.5)^{.5}\left(\frac{T}{2}\right)^{.5}(\frac{T}{2})^{.5} = (.5)^{1.5}T = (.353)T$. So utility does increase for each team member by working a longer day—although not enormously so. The extra wage income is more than sufficient to compensate each for their reduced leisure. No self-sacrifice is required in this case to maximize their joint utility.

[5] Recall that the wage rate was assumed to equal each person's marginal product. An internalized work ethic increases the perceived value of work for its own sake, an effect that is over and above the income earned, or it reduces the value of leisure by associating a guilt decrement to leisure for its own sake. The effect of a virtue-based work ethic could be modeled by adding V to the actual wage. Alternatively, it could be modeled by adding another variable to the utility function for work hours with its own exponent. The larger V or higher the exponent for the virtue payoff from hours worked, the stronger the work ethic would be. (Note that it is possible for a work ethic to be too strong if, for example, it undermines team member work or productivity at the margin.)

perfect work ethic would induce each to work half of their waking hours rather than a third of those hours.

It bears noting that if teams (or employers) can identify persons with a work ethic, they will be inclined to hire them over persons without a work ethic—other things being equal. Their reduced inclination to shirk implies that team members are more productive themselves and also tend to make the entire team more productive. In this manner, a work ethic can have direct effects on labor markets and indirect effects on market supply and equilibrium prices, and thereby on the overall extent of commerce that takes place within a community or society.

II. The Problem of Fraud Revisited, Ethics and Law Enforcement as Substitutes

Internalized ethical dispositions can also reduce problems associated with the crimes examined in chapter 14. To see this, the fraudulent game matrix (Table 14.2) is revisited below as Table 16.3. Recall that the problem illustrated arose because buyers could not distinguish between high-quality and low-quality versions of the "same" good at the point of sale. The seller knew the quality and could profit from selling lower quality units as if they were the high-quality version because the low-quality version of the good is less costly to produce.

In the context of voluntary exchange, an offer by a seller has to be accepted by the prospective buyer if a sale is to take place. In the setting of interest, the making of offers and accepting them are both costly activities. Both require at a minimum time and attention. In addition, making and assessing offers may also require transportation and access to computer networks, both of which add to buyer and seller transactions costs.

Table 16.3: The Dilemma of Fraud

		Bob (buyer)	
		Accept or solicit offer	Ignore all offers
Al (seller)	Fraudulent offer	(A ,B) (3, –3)	(A , B) (–1, 0)
	Honest offer	(2, 2)	(–1, 0)
	Do not make offers	(0, –1)	(0, 0)

As noted in Chapter 14, legal penalties for fraud are one possible solution. If the expected fines for fraudulent offers are sufficient, the temptation to engage in them will disappear, as with a legal system that imposes an expected penalty greater than 1 ($F^e > 1$) in Table 16.3.[6]

Now suppose that $F^e = 0$, either because the fraud of interest is hard to detect and prosecute or because some kinds of misleading offers are completely legal in the community of interest.

Another possible solution is that at least a subset of merchants has internalized norms or rules that associate virtue with making honest offers. Such merchants realize a "virtue" payoff by making honest offers. If the virtue payoff is large enough (here $V > 1$) the merchant will not make fraudulent offers for the product in Table 16.3. Such an internalized norm also changes the Nash equilibrium in this choice setting.

[6] In this context, such penalties may eliminate the temptation for fraud without generating a market for the good in question. The bottom 2x2 game, has two equilibria, one where the gains are realized, and the other where they are not. But this is still an improvement over the case where the mutual gains to trade cell is never an equilibrium.

Table 16.4: The Dilemma of Fraud

		Bob (buyer)	
		Accept or solicit offer	Ignore all offers
Al (seller)	Fraudulent offer	(A ,B) (3-F^e, –3)	(A , B) (–1- F^e, 0)
	Honest offer	(2+V, 2)	(–1+V, 0)
	Do not make offers	(0, –1)	(0, 0)

In the case when V>1, there is again only one Nash equilibrium, namely the one at which gains from trade are realized. As long as such merchants can be recognized by at least a subset of buyers, they will have a thriving business. As their reputation for honesty spreads, such merchants will tend to draw customers away from the pragmatists who attempt to defraud their customers, who may be driven out of business or "forced" to pretend that they too are honest (as with money-back guarantees and so forth) to stay in business.

In this manner, some ethical dispositions can expand the domain of market transactions, allow more mutual gains from trade to be realized, and thereby increase the scope of economic activity in communities where such norms are common relative to those where they are not.

In communities where such internalized norms are not strong enough to curtail fraudulent offers, the penalties required from law enforcing institutions have to be larger than would have been necessary had anti-fraud norms been stronger. The expected fine in the illustration needs only to be greater than $3 - 2 - V$ rather than $3 - 2$.

III. Corruption: Ethics and Law Enforcement as Complements

Law enforcement solutions to the problem of fraud assume that law enforcers are themselves honest and diligent. In the environment routinely assumed in the law and economics literature, individuals are all pragmatists without internalized norms. Such law enforcers are unlikely to uniformly enforce a community's customary laws or its legal code. They are not bound by ethical or other normative anti-corruption norms, and as law

enforcers, they have discretion to choose whether to punish a fraudulent seller or not. Given that discretion, pragmatic sellers might offer to share their profits with pragmatic law enforcers if they will ignore the sellers' crimes. Pragmatic law enforcers will be willing to do so.

There are gains from trade that can be realized by fraudsters and pragmatic law enforcers, although those defrauded are made worse off by such agreements. A pragmatic seller can offer an amount up to the profits associated with fraudulent sales to the person(s) tasked with law enforcement (here, up to 3 – 2 = 1, when V = G = 0). The law enforcer would naturally bargain with the merchant and attempt to maximize his or her benefits from the exchange. However, this does not imply that the equilibrium rate of bribery is 1 or that the probability of imposing a fine will normally be zero.

Anti-Corruption Laws, Pragmatism, and the Extent of Corruption

The law and economics solution to the problem of bribery is the creation of anti-corruption laws and an anti-corruption unit of law enforcers. To reduce corruption, a community could create a two-tiered system of law enforcement in which the higher-level law enforcers (the anti-corruption unit) monitor the lower-level law enforcers that police the community. Anti-corruption laws in combination with appropriate fines could significantly reduce corruption among the anti-fraud enforcers and thereby reduce fraud in the community.

However, a moment's thought reveals that this is not likely to be the case if the new higher level of law enforcement is also staffed by pragmatists. Pragmatic anti-corruption law enforcers would be inclined to "turn a blind eye" to bribery in exchange for some fraction of the profits realized by the anti-fraud police.

Table 16.5 illustrates a choice setting in which each law enforcer is paid salary S and the bribes are equally shared between the anti-fraud enforcer and the anti-corruption enforcer. The person (Andrei) charged with enforcing the anti-fraud law can receive a bribe of amount B, but he would also pay a fine of amount F if the anti-bribery law is enforced. Anti-corruption laws will bind Andrei if the expected fine is greater than his or her bribe income, $F > B$.

Table 16.5 The Enforcement Dilemma: Enforcing Laws Against Fraud and Bribery

		Gordon (Enforces anti-corruption law)	
		Enforce law	Accept bribe
Andrei (Enforces anti-fraud law)	Enforces law	(A, G) S, S	(A, G) S, S
	Accepts bribe	S + B – F, S	S + B/2, S + B/2

Unfortunately, the enforcer of the anti-corruption laws (Gordon) may also be a pragmatist. By sharing the bribe, both pragmatic enforcers are enriched and neither law is well enforced. A single equilibrium emerges in this game, one that is mutually beneficial for both law enforcers. The assumption that the bribes are equally shared is used for illustration.

Other sharing rules with shares between 0 and 1 may yield the same result. Gordon would adjust his share to maximize his income from bribery. His share must be greater than zero to benefit from additional income, but it must be less than 1, or Andrei would not engage in efforts to collect bribes from fraudulent merchants.[7]

In contrast to the previous social dilemmas, there is no incentive for the law enforcers to propose or develop solutions, because the dilemma is external to the enforcement organization. The losers from their derelictions of duties are not the law enforcers, who are enriched by corruption, but are those who would have benefited from diligent law enforcement: consumers and honest merchants. Moreover, this enforcement dilemma

[7] Hillman and Katz (1987) show that bribe-sharing arrangements tend to generate competition to obtain the positions that receive such supplementary sources of income. Contests for such positions consume scarce resources (at least the time and energy of the officials) and so may dissipate the net gains from those jobs. In highly competitive environments, the rents are entirely dissipated, which means that the total cost of acquiring jobs with bribe income equals the average extra revenue obtained. Those at the top ranks of authority, as residual claimants, have incentives to adopt standing rules to reduce the associated reduction in their revenue flows—by reducing competition for bribe-receiving positions, as with nepotism, or with efficiency-based rules for promotion and fixed sharing rules of the sort used in the illustration.

cannot be solved by adding a third level of law and law enforcement. Pragmatists only enforce the laws when doing so increases their effective salaries or otherwise advances their narrow interests. Diligently enforcing the law is not likely when bribery and favoritism are profitable for law enforcers and the law enforcers are all pragmatists.[8]

Another possible source of revenue for law enforcers that is even more troubling is extortion. If there are more honest merchants than pragmatic ones, extortion may generate more income for enforcers than bribery. Unlike bribery, which generates modest law enforcement benefits for the community, extortion can make members of a community worse off than they would be without their simple government by extracting most of the net benefits associated with life in communities.

Ethical Dispositions as Prerequisites for Effective Law Enforcement

When only a few such dutiful law enforcers are available, they should be employed in the anti-corruption agency rather than in the anti-fraud agency, because the enforcement of anti-corruption laws encourages pragmatists in the anti-fraud agency to resist taking bribes. Table 16.6 illustrates this case.

Table 16.6 An Ethical Solution to the Enforcement Dilemma: Enforcing Laws Against Fraud and Bribery

		Gordon (enforces anti-bribery law)	
		Enforce Law	Accept Bribe
Andrei (enforces anti-fraud law)	Enforce law	(A, G) S, S+V	(A, G) S, S
	Accept bribe	S+B–F, S+V	S+B/2, S+B/2

In the case in which the anti-bribery enforcers regard the rewards of virtue to be greater than the temptation to share in the bribery, the anti-bribery laws would be enforced, which in

[8] Becker and Stigler (1974) suggest that the enforcement dilemma can be solved by efficiency wages, that is, by paying law enforcers somewhat more than the difference between their opportunity cost wage and their expected bribe revenue. They argue that the fear of being dismissed would induce such overpaid officials to diligently enforce the law. However, notice that the game represented above implies that the same partial enforcement of the laws tends to occur regardless of the salaries earned if punishment (here dismissal) is unlikely.

turn induces the enforcement of anti-fraud laws. In Table 16.6, avoiding the enforcement dilemma requires V>B/2 and F>B. Even the simplest government requires moral behavior on the part of government officials.

Strong internalized norms are most important for the officials with the most authority. In the case in which the lower-level enforcer is dutiful and the upper-level enforcer is a pragmatist, the anti-bribery laws may be enforced, but the upper-level enforcer will be unhappy with the idealistic behavior of the anti-bribery enforcer. He would rather have a bit of extra income than have the anti-bribery laws perfectly enforced. Consequently, upper-level pragmatists would make life difficult for honest anti-fraud enforcers. An anti-bribery law enforcer might, for example, file unflattering reports or falsely accuse such agents of corruption. Insofar as the anti-corruption bureau plays a role in hiring, pragmatists at that agency will prefer to staff the anti-fraud agency with fellow pragmatists to profit from their "flexibility."

Of course, it would be best to have dutiful enforcers at all levels of the law-enforcing agency, because bribery is difficult to monitor and anti-corruption laws are consequently difficult to perfectly enforce, even if all anti-corruption officials are virtuous and hardworking. In the absence of such dispositions at the most important nodes of government, extractive rather than productive enforcement of the laws is likely to characterize governance.

The profits of fraudsters and the bribes received by law enforcers are both affected by the probability of enforcement of anti-fraud laws and the magnitude of the profit sharing required to avoid enforcement. Profits fall to zero when anti-fraud laws are perfectly enforced (every fraudster is fined with certainty). They also fall to zero when they are not enforced at all (a probability of 0%) because of the disappearance of markets in which fraudulent offers are commonplace. Similarly, bribe receipts fall to zero when the profit sharing required to reduce enforcement approaches either 100% or 0% of merchant profits. In between is a probability and sharing rule that maximizes the bribes received by enforcers. The customary laws are partially enforced, but the result is a smaller economy than would have been the case if anti-fraud laws were fully enforced.

A More General Model of Fraudulent Activity with "Profit" Sharing

The bribery maximizing profit sharing rule (bribery rate) and probability of imposing a fine require knowing how consumers respond to random fraudulent offers. An increase in rates of fraud is analogous to an increase in the defect rate analyzed in chapter 4. It reduces the average marginal benefits of the product of interest. Drawing on results from Chapter 7, we

know that the demand for a good of uncertain quality can be characterized as $Q = q(f, P)$ where f is the probability of a fraudulent offer (here, an intentional defect, rather than an accidental one). Drawing on results from Chapter 14, we note that rational criminals respond to expected penalties. Suppose that the standard penalty for engaging in fraud is F and the probability that the fine will be imposed is $G = g(f) = \gamma f$, and that bribes are a share, s, of the profits realized. If the merchant has M customers, the profit from fraud can be written as:

$$\Pi = (1 - s)M\pi fQ - GF = (1 - s)M\pi fq(f, P) - \gamma fF \quad (16.11)$$

In that setting, the firm's optimal degree of fraud can be characterized by the first order condition associated with equation 16.11.

$$\Pi_f = (1 - s)M\pi\left[Q + fQ_f\right] - \gamma F = 0 \equiv H \text{ at f*} \quad (16.12)$$

Which implies that:

$$f^* = x(s, M, \pi, P, \gamma, F) \quad (16.13)$$

A revenue maximizing agent would set F and s to maximize his or her profit given the merchant's reaction function. We'll assume that the agent does not profit from imposing fines. However, we'll assume that the penalty is determined by law and the revenue goes to the government's treasury. The agent, however, can determine the rate, γ, at which fraudulent activity is punished. In that case the extra income from bribes is:

$$B = sM\pi f^*Q = sM\pi f^*q(f^*, P) \quad (16.14)$$ A pragmatic official who maximizes his or her receipts from bribes requires:

$$B_s = M\pi f^*Q + sM\pi f_s^*Q + sM\pi f^*Q_f f_s^* = 0 \text{ at } s^* \quad (16.15a)$$

And

$$B_\gamma = sM\pi f_\gamma^*Q + sM\pi f^*Q_f f_\gamma^* = 0 \text{ at } \gamma^* \quad (16.15b)$$

A somewhat idealistic official who has internalized a "fraud is wrong" norm, but also values extra income, maximizes a utility function of the $U = u(B, f^*)$ variety, where utility declines as f^* increases. That agent's choice is characterized by:

$$U_B\left[M\pi f^*Q + sM\pi f_s^*Q + sM\pi f^*Q_f f_s^*\right] + U_f f_s^* = 0 \quad (16.16a)$$

And

$$U_B\left[sM\pi f_\gamma^* Q + sM\pi f^* Q_f f_\gamma^*\right] + U_f f_\gamma^* = 0 \qquad (16.16b)$$

Note that without the last term in the two first-order conditions, the behavior of the norm-affected agent would be identical to that of the pragmatic agent. However, the internalized norm affects this agent's behavior. He or she is likely to both demand a higher share of the fraud profits and enforce the law at a higher rate than the pragmatist, since each would reduce the rate of fraud to levels below that which results from the pragmatist's choice.

The point here is not restricted to anti-fraud laws. The mere creation of laws that define and assign punishments to particular crimes is not sufficient to assure that the laws are well enforced.

It bears noting that a variety of internalized ethical theories—although not all—can induce law enforcers to dutifully enforce laws. Agents may have strongly internalized the norms that produced the laws, as discussed above. Agents that have promised to enforce "the law" when they accepted their jobs may feel duty-bound to abide by their oaths because they have previously internalized a duty for keeping promises. Enforcers may simply regard their community's laws to be very special or to have divine origin and thus are deemed worthy of support simply because it is the law of the land or divine law.[9]

Others may have internalized general normative theories, such as those associated with some forms of utilitarianism and contractarianism in which law enforcement is regarded as the foundation of civil society, as argued, for example, by both Hobbes and Mill.

IV. Internalized Norms and the Demand for "Virtuous" Products

There have long been a variety of normative, ethical, and religious claims about the relative merits of particular goods and services. These include ordinary claims that particular foods are "best" for health, for holidays, or as a means to improve one's soul or character. There

[9] See Congleton and Vanberg (2001) for evidence that such "enforcer" dispositions may emerge and be viable in settings in which multi-person prisoner-dilemma-like settings exist and individuals are free to exit from dysfunctional small groups. They demonstrate that persons with the ability to target punishments at persons who engage in uncooperative behavior tend to improve team performance enough that such dispositions are evolutionarily supported even if there are nontrivial costs associated with imposing penalties on "shirkers." In an economic context, such persons would make good monitors or managers.

are also goods and services that are complements for various religious and military activities. Similar conclusions are also often reached by persons that have internalized secular ideas about "proper behavior" or a "good society" that are unconnected with religion or military activities. For example, environmental virtue often implies that one "should" purchase only certain types of automobiles and foods—often those with the lowest carbon footprint. Persons that have not internalized those norms would purchase quite different automobiles and foods and would do so without the faintest sense of guilt or moral regrets.

Such "virtue goods" are often demanded partly for their own sake as in the usual models of consumer choice and partly to advance norms that individuals have internalized. The latter often differ among cultures and subcultures, and differences in the norms internalized provide a systematic way of explaining differences in patterns of buying among various subgroups around the world and within particular countries and regions.

Rational choice models of consumer choice can easily be extended to account for norms regarding the things one "should" purchase because they are good in some normative or moral sense. For example, suppose that Al is allocating W dollars between goods 1 and 2, and that good 1 is a virtue good that a "good" person would purchase Q_1^V units of. Doing so would maximize the feeling of virtue (a good) associated with purchases of good 1. Al's utility function may thus be characterized as: $U = u(Q_1, Q_2, |Q_1^V - Q_1|)$ The last term is Al's virtue loss or guilt from purchasing quantities of Q_1 other than Q_1^V . Our interest here is in modeling how the existence of this purchasing norm affects Al's behavior.

Al's budget constraint is the usual one $W = P_1Q_1 + P_2Q_2$, which implies that Al's purchase of good 1 determines his or her purchase of good 2, $Q_2 = (W - P_1Q_1)/P_2$. This allows us to use the substitution method to derive Al's demand for good 1.

$$U = u(Q_1, (W - P_1Q_1)/P_2, |Q_1^V - Q_1|) \qquad (16.17)$$

As characterized, Al's guilt ($\mathcal{G}$) increases with the deviation from the ideal level of good 1 characterized by his or her normative theory. This intermediate type of norm—rather than more is always better or always worse—turns out to induce novel problems when interpreting first-order conditions and is used partly for that reason. If all consumption of good 1 is deemed immoral or improper, $Q_1^V = 0$ and the moral component of good 1's effect on utility would reduce utility monotonically. On the other hand, if the norm implies that the more Q_1 is consumed the better, then a different way of modeling the effects of

such norms is necessary. The guilt argument would be replaced with a virtue argument and the virtue component of utility would rise monotonically as consumption of Q_1 increases.

We'll assume that Al's utility function is strictly concave and twice differentiable (as usual)—although for some norms, parts of that function may be lexicographic, or the utility function may be strictly concave only within a subset of the $Q_1 x Q_2$ domain.

One novel feature of derivatives of functions with variables that are absolute values is that the derivatives differ a bit according to whether Q_1 is above or below Q_1^V . The sign of $\mathcal{G}_{Q_1}$ is negative below and positive above Q_1^V.

Differentiating equation 16.17 with respect to Q_1 and setting the result equal to zero yields:

$$U_{Q_1} = u_{Q_1} - u_{Q_2}\left(\frac{P_1}{P_2}\right) - u_{\mathcal{G}} = 0 \equiv H^a \text{ at } Q_1^* \qquad \text{for } Q_1 < Q_1^V \qquad (16.18a)$$

$$U_{Q_1} = u_{Q_1} - u_{Q_2}\left(\frac{P_1}{P_2}\right) + u_{\mathcal{G}} = 0 \equiv H^b \text{ at } Q_1^* \qquad \text{for } Q_1 > Q_1^V \qquad (16.18b)$$

Note that the third term is new—it is not part of the usual first-order condition for utility maximizing purchases of a good.

That term, $u_{\mathcal{G}}$, is the normative supplement or decrement associated with consuming more of good 1, which in the case being examined, varies with the values of good 1 being purchased and consumed (or otherwise used in a utility enhancing way). Guilt is diminished by consuming more of Q_1 when Q_1^* is less than Q_1^V and is increased if Q_1^* is larger than Q_1^V.

In the range in which guilt is reduced by consuming more, the marginal benefit of consuming that good increases, and so more will be consumed. In the domain where additional consumption increases guilt, the marginal cost of consuming more of the ethically relevant good increases. This induces Al to reduce his or her consumption of the ethically relevant good relative to what it would have been had Al not internalized the norm. Figure 16.1 illustrates the effects of this type of normative support for a subset of goods.

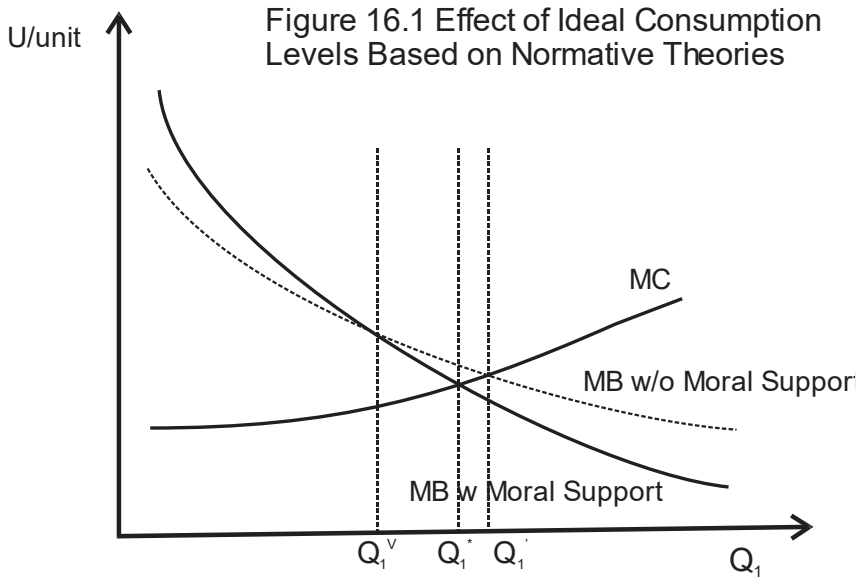

Figure 16.1 Effect of Ideal Consumption Levels Based on Normative Theories

In the case depicted, Al purchases more than the "ideal" implied by his or her internalized theory of "proper" consumption levels, $Q_1^* > Q_1^V$. However, this is less than he or she would have consumed, had the norm not been internalized, $Q_1^* < Q_1'$.

The implicit function theorem implies that Al's demand function for good 1 can be written as:

$$Q_1^* = q_1(P_1, P_2, Q_1^V) \tag{16.19}$$

We are mainly interested in the effect of Q_1^V on Al's consumption of good 1. We'll analyze the case where $Q_1^* > Q_1^V$, which we can characterize using the implicit function differentiation rule on equation 16.18b. (The mathematics of the other case is similar.)

$$Q_{1Q_1^V}^* = \frac{H_{Q_1^V}^b}{-H_{Q_1}^b} = \frac{-u_{Q_1\mathcal{G}} + u_{Q_2\mathcal{G}}\left(\frac{P_1}{P_2}\right) - u_{\mathcal{G}\mathcal{G}}}{-U_{Q_1Q_1}} > 0 \tag{16.20}$$

For "over" consumers, case b, the derivative of guilt ($\mathcal{G}$) with respect to the quantity of good 1 consumed is positive, because in that case G is simply a monotone increasing function of $Q_1^* - Q_1^V$. However, in that domain the first and second derivatives of the utility function with respect to guilt have signs that differ from the usual case, because guilt is a "bad" (i.e., is to be avoided) rather than sought, as is true of activities and purchases considered to be "goods." In the "over-consume" domain, it is clear that $U_{\mathcal{G}}$ is less than zero rather than greater than zero. If the marginal loss of utility from guilt is subject to diminishing marginal

returns, then the negative marginal utility curve becomes less negatively sloped as $\mathcal{G}$ increases, and thus $U_{\mathcal{G}\mathcal{G}} > 0$.

If, however, guilty feelings intensify rather than diminish as the activities that generate it increase beyond what is ideal, which is plausible for many normative theories, then the marginal utility curve becomes more steeply negative, $U_{\mathcal{G}\mathcal{G}} < 0$. In this domain, the cross partials with respect to $\mathcal{G}$ are not as obvious as in the usual cases (e.g. all those previously modeled). It is arguably the case that when $Q_1^* > Q_1^V$, guilt reduces the marginal utility realized from the other good, rather than increasing it as usually assumed.

All these possibilities affect our conclusion about the effects of an increase in Q_1^V on consumption of Q_1^* for persons that over consume the morally relevant good. Two cases are of particular interest. First there is the case in which all the effects of guilt (from over or under consumption of good 1) are captured by the guilt term (e.g. the third argument in the utility function). In that case, the cross partials are all zero and the effect of an increase in the moral ideal is determined by the sign of $u_{\mathcal{G}\mathcal{G}}$. If that derivative is negative (as is plausible for most normative systems), then the effect of an increase in the ideal or norm for good 1 for individuals who over consume is to further increase their consumption of good 1,

$$Q_{1_{Q_1^V}}^* = \frac{-u_{\mathcal{G}\mathcal{G}}}{-U_{Q_1Q_1}} > 0.$$

In the second case, the cross partials are all negative rather than zero, because of interactions between guilt and the satisfaction realized by consuming more of good 1 and good 2 at the margin. This effect would tend to be greater for the morally relevant good (good 1) than for morally neutral goods (good 2). In this case, the positive effect of the first term is very likely to exceed the negative effect of the second, and again the sign of equation 16.20 would tend to be positive—although not unambiguously so. Increasing the normatively ideal level of a morally relevant good tends to increase consumption of it—even if prices and income levels are not affected. A reduction in the ideal would have the opposite effect.

Notice that much the same logic applies to the health recommendations known by health-conscious persons. As the recommendations increase the ideal levels of a food or drink, they will tend to consume more of it—although tastes, per se (the enjoyment of the food or drink for its own sake), have not changed.

V. A Few Conclusions

The field of ethics, as true of the fields of law and politics, extends well beyond the domain of economics, and yet there is an overlap between economics and ethics that is relevant for microeconomics. Ethical dispositions can affect both market prices and the extent and scope of markets. This chapter has shown that such effects can easily be incorporated into rational choice models, and thereby into microeconomic analysis. The choice settings analyzed show both how the effects of ethical dispositions can be modeled and also why they directly affect the extent of markets. They may have effects on behavior that tend to reduce principal-agent problems, reduce transactions costs, and alter patterns of demand. Such dispositions may also improve the behavior of government officials in policy areas that affect economic development—as with the diligence with which anti-fraud laws are enforced.

Although only a few illustrating choice settings were explored in this chapter, they are non-trivial ones. Insofar as diligent support for civil and criminal law is an important prerequisite for economic development, ethical dispositions that encourage rule-following behavior and honest, diligent law enforcement may be prerequisites for economic development. Insofar as some forms of economic crimes are not technically illegal and/or some kinds of crimes and breaches of contracts are difficult to prosecute, ethical dispositions can—at least potentially—fill in where formal law enforcement is incapable of solving significant problems.

As true of most chapters in this book, the aim of the chapter is introductory rather than comprehensive. It attempts to show why ethical dispositions should be taken into account in one's understanding of markets. It does so by demonstrating that such dispositions may affect market outcomes in a variety of ways.

Insofar as norms change through time, innovations in rules of conduct and theories of the good life and good society can have significant effects on the extent and type of economic development that takes place.

II. References

Bicchieri, C. (2006). *The grammar of society: The nature and dynamics of social norms*. Cambridge University Press.

Buchanan, J. M. (1978). Markets, states, and the extent of morals. *American Economic Review*, 68(2), 364–368.

Buchanan, J. M., & Yoon, Y. J. (1994). Increasing returns, parametric work-supply adjustment, and the work ethic. *The return to increasing returns*. University of Michigan Press.

Congleton, R. D. (1991). The economic role of a work ethic. *Journal of Economic Behavior & Organization*, *15*(3), 365–385.

Congleton, R. D. (2022). Solving social dilemmas: Ethics, politics, and prosperity. Oxford University Press.

Cowen, T. (1989). Are all tastes constant and identical? A critique of Stigler and Becker. *Journal of Economic Behavior & Organization*, *11*(1), 127–135.

Denzau, A. T., & North, D. C. (1994). Shared mental models: ideologies and institutions. *Kyklos*, 47(1), 3–31.

McCloskey, D. N. (2010). *The bourgeois virtues: Ethics for an age of commerce*. University of Chicago Press.

Mokyr, J. (2017). *A culture of growth*. Princeton University Press.

Rose, D. C. (2011). *The moral foundation of economic behavior*. Oxford University Press.

Shleifer, A., & Vishny, R. W. (1993). Corruption. *Quarterly Journal of Economics*, *108*(3), 599–617.

Tabellini, G. (2008). The scope of cooperation: Values and incentives. *Quarterly Journal of Economics*, *123*(3), 905–950.

Stigler, G. J., & Becker, G. S. (1977). De gustibus non est disputandum. *American Economic Review*, *67*(2), 76–90.

Vanberg, V. J., & Congleton, R. D. (1992). Rationality, morality, and exit. *American Political Science Review*, *86*(2), 418–431.