

Illicit Drugs and Economics: Examples for the Principles Classroom

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Abstract

Principles of economics texts are generally packed with interesting examples of economics in action. Unfortunately, the multitude of examples can overwhelm students. Here, we take the “less is more” approach to teaching microeconomic principles. A principles course that teaches economic phenomena by using focused examples may do a better job of solidifying key topics. In this paper, we show that many core economic principles are easily taught using examples from illicit drug markets. These core topics include consumer rationality, scarcity, supply and demand, elasticity, the difference between competition and monopoly, and externalities.

Introduction

The economics profession is awash in long textbooks conveying a seemingly endless number of “principles.” Topics such as utility maximization, opportunity costs, and supply and demand analysis are included as “principles” in all introductory texts. However, some texts also offer very detailed discussions of public goods, the tax system, oligopoly, the theory of consumer behavior, and open-economy macroeconomics. Concern that too many “principles” are being taught in the introductory economics course was voiced as far back as Mandelstamm (1971): “Every year, it seems, more and more concepts, which previously had been reserved for the intermediate theory or even the advanced theory sequences are being taught as part of elementary economics.” These same sentiments are shared by others (McConnell 1980 and 1998, Frank 1998, and Boskin 1998).

Amid this plethora of core economic “principles,” some professors have argued for a “less is more” approach to teaching economics.² The “less is more” approach argues that students should be proficient in a more narrow set of standard economics principles.³ Economics instructors should hammer home the core principles with example after example after example. Currently, economics texts are dotted with page after page of examples to teach the core principles.

We take the “less is more” mantra one step further. We surmise that some economic principles may get buried under the avalanche of unrelated (or uninteresting) examples. Consequently, we propose that a set of *related* examples of different economic principles throughout the principles of economics class may create continuity and increase concept retention. A set of related examples *from just one market* might prove even more beneficial. It is our goal to show that the principles of microeconomics can be easily emphasized by appealing to a wealth of examples from illicit drug markets.

Why illicit drug markets? Might that choice send an inappropriate message to students? While we do not support or condone the trafficking or use of illicit drugs, there is no denying that fewer of our students might enroll in principles of economics courses were the courses not required. Therefore, it is essential to capture students’ attention

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² We are not sure who, exactly, coined this phrase, but the phrase appears, ironically, in the preface of Frank and Bernanke’s 800 page *Principles of Economics* textbook.

³ Economics instructors differ in what they think constitutes a standard economic principle. The National Council on Economic Education has attempted to identify 20 key economic principles. These principles are located at <http://www.ncee.net/ea/standards/>.

in order to be effective. Illicit drug markets frequently are in the news and the movies (e.g., *Clear and Present Danger*, *Traffic*, etc.). The *Sourcebook of Criminal Justice Statistics* reported that teenagers have consistently ranked drugs the number 1 problem facing the US for the past four years.⁴ Unfortunately, many of our students have experience with illicit drugs, either directly or indirectly through other students. As a learning tool, the study of illicit drug markets highlights a number of government blunders – another area that students often find interesting.

Is the Decision to Use Drugs an Economic (Rational) Decision?

A discussion of illicit drug markets can bring a principles class to life in even the earliest stages of the course when an instructor introduces the basic assumptions of utility maximization as a basic assumption of economic analysis. Most principles of economics texts approach individuals and firms as rational agents, meaning that these agents weigh the costs and benefits of their actions. Becker and Murphy (1988) take this “rationality” approach a step further and apply the cost-benefit paradigm to addiction; they posit that even drug addicts maximize utility (where preferences are stable) while considering the current benefits and the future consequences of their drug use. Is it possible that drug addicts behave “rationally?”

Becker (1992) defines an “addiction” by first defining a “habit.” When the current consumption of a good is positively related to past consumption, an individual has developed a habit. For habitual behavior to develop, greater past consumption must increase the marginal utility of present consumption. An addiction is simply a strong habit.

Not all drug users, however, are addicts, even though past drug consumption reinforces current drug use. Users that limit their current drug intake are balancing the present benefits of drug enjoyment with the potential harmful future consequences. Those that increase current drug use heavily favor the present over the future. On the other hand, if a person does become addicted to drugs, it doesn’t mean that the future is viewed as unimportant; addiction may simply mean that users may not have had a clear picture of what the future might hold. For example, a user who doesn’t realize that drug use erodes future wages may become an addict. As well, a user may not be able to forecast that drug use may generate more cravings (in physical terms) than expected (Becker and Murphy, 1988; Becker, 1992).

Even if drug addicts heavily discount the future, this doesn’t mean that they don’t consider the future; any permanent increase (decrease) in the full price of drugs may decrease (increase) the quantity of drugs demanded. In other words, users take into account the higher price of drugs in all future time periods. Becker (1992) considers this to be the explanation as to why the loss of a job or the dissolution of a marriage may spark an addiction – the future becomes less valuable and lowers the “price” of drug consumption. On the other hand, a college student nearing graduation or a person about to become a parent may discontinue drug use altogether.

Bohanan (1991) uses the rational addiction framework to explain why drug addiction treatment fails, on average, to cause the cessation of drug use while other addicts permanently discontinue drug use without any treatment.⁵ An addict who estimates that the future costs of drug use outweigh the present benefits will discontinue drug use. If, however, an addict is treated before the anticipated costs exceed the benefits, treatment slows the time that it takes for the costs to grow. Thus, future costs are reduced and continued drug use (after treatment) is likely. To support his point, Bohanon appeals to the notion in the Alcoholics Anonymous literature that alcoholics must “bottom-out” before treatment can work.

At this point, students skeptical of economic analysis must pause. If drug addiction can be explained using simple cost-benefit analysis, economic analysis might have much to say about other issues! Pointing this out at the earliest stages of the principles course may hook even the most disinterested students.

Drug Markets, Opportunity Costs, and the Productions Possibilities Frontier

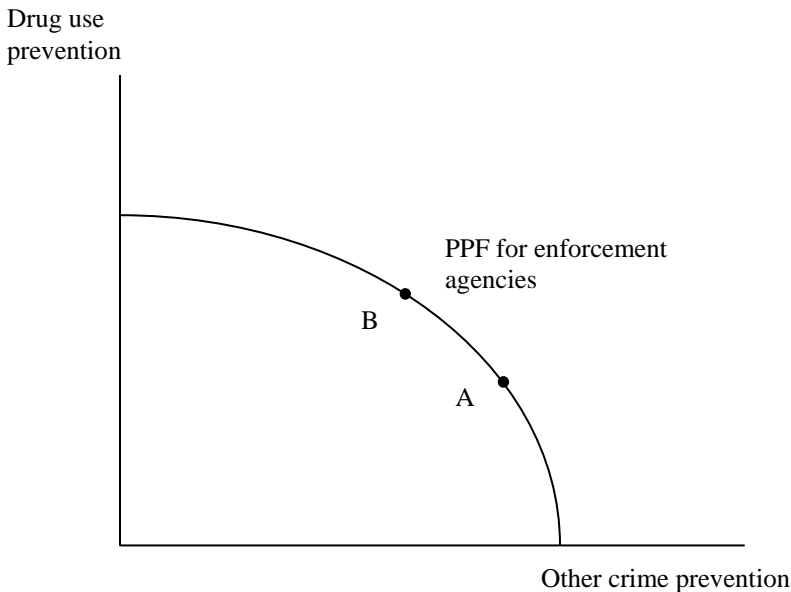
Rightly so, the concept of opportunity costs is included in the first few chapters of any principles level text. The concept of opportunity costs can also be reinforced using examples for illicit drug markets. The outputs capable of being produced by law enforcement agencies can be dichotomized into those activities directed at drug-related crime or those directed at all other types of crime. The opportunity cost, then, is how much of other types of crime can be

⁴ In contrast, adults list terrorism, war, and the economy as top problems.

⁵ Bohanon (1991) summarizes drug research findings by stating: “If 100 addicts enter a treatment program, then a two-year follow-up will reveal that 65 have returned to abusive drug patterns, 20 are abstinent, and 15 are engaging in controlled or asymptomatic use....The rub, however, is that if an identical population of addicts were left untreated, then a two-year follow-up would reveal similar results.”

endured when enforcement efforts shift at the margin from all other crimes to drug enforcement. This trade-off is displayed in Figure 1; the drug war of the 1980s was characterized by a movement in police resources from point A to point B.

FIGURE 1



When crime enforcement resources are shifted to drug enforcement, many policy makers suspect that both property crime and drug use will be decreased because arresting and either jailing or rehabilitating drug users reduces crime related to the financing of addiction. Kim et al. (1990) show, however, that the relationship between drug use and property crime is weak. They find that drug criminals who have been released from jail and then rearrested for another offense are most often arrested for another drug offense. If drug users were also property criminals, this would not necessarily be true. Therefore, Benson et al. (1992), citing the work of Kim et al. (1990), suggest that when enforcement resources shift from other crime to drugs, the “price” of crime for violent criminals and property criminals is reduced and non-drug crimes should increase. Benson and Rasmussen (1991) show that a 1 percent increase in the ratio of drug arrests relative to Index 1 arrests in the state of Florida results in a 0.2 percent drop in the probability of arrest for a property crime. This translates, roughly, to a 10 percent increase in property crime as drug arrests relative to Index 1 arrests increased by 41% during the war on drugs in Florida. Rasmussen and Benson (1996) report a similar occurrence in the state of Illinois. In Illinois, the ratio of drug arrests to Index 1 arrests increased by 40% during the war on drugs of the 1980s. While property crimes did not escalate, DUI arrests fell by 22.5%; it seems that the traffic enforcement budget was sacrificed to finance drug enforcement.

Compounding the problem is that many of these violent and property criminals will be released from incarceration earlier due to the influx of criminals convicted of drug crimes (Benson and Rasmussen, 1996). This also reduces the price of crime by effectively shortening the sentences that non-drug criminals face; when prisons and jails become overcrowded, criminals serve shorter sentences. Benson and Rasmussen (1996) report that prison crowding in Illinois resulting in the release of defendants with bonds up to \$50,000. In production possibility frontier parlance, this, again, would be tantamount to shifting resources from fighting other types of crime to fighting drug crime. It seems that resource allocation is a real concern for drug policy makers.

Depending on instructor preferences, the early part of a course is when concepts such as market failure and the role of government in a market-oriented economy are often introduced. Students often figure out quickly, however, that government activity does not necessarily lead to improvement, and may often lead to unintended consequences. For drug law enforcement, the notion of a utility maximizing police chief or county sheriff can be used to show that even public minded law enforcement agents respond to changes in the incentive structure they face. Benson et al. (1995) argue for example, that simple changes in a 1988 federal crime law might go a long way towards explaining the increased levels of drug law enforcement in the early 1990s. The change allowed local police jurisdictions to share in the proceeds from federal asset forfeitures that resulted from drug supplier and user arrests. For a discretionary-budget maximizing law enforcement official, shifting resources towards drug law enforcement was a

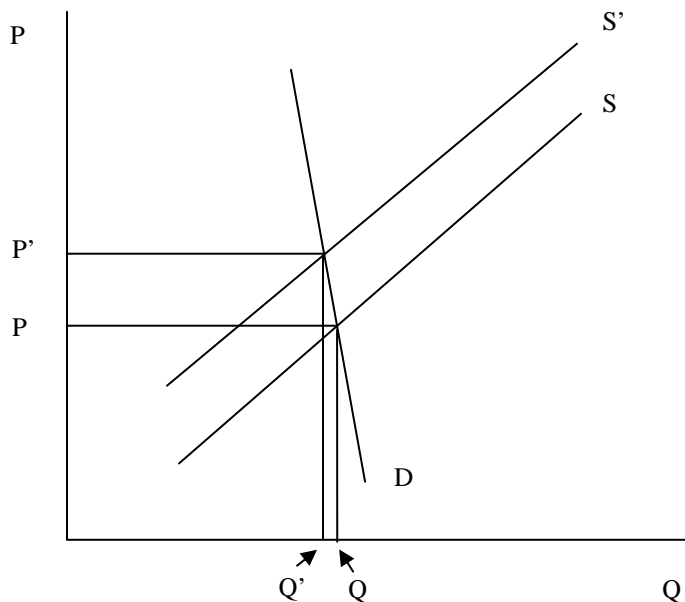
rational response as cracking down on drugs provided better internal returns than reducing other types of crime.

Supply and Demand Analysis in Drug Markets – Part 1

Principles-level market analysis of drug markets is usually straightforward. The supply of drugs is upward sloping while the demand for drugs is downward sloping and inelastic. In other words, a change in drug prices does little to the quantity of drugs demanded, presumably because users are addicts. This has obvious implications about the impact of various types of government enforcement efforts. These efforts are generally either supply reduction efforts (including interdiction, source country crop eradication, or trafficking prevention) or demand abatement efforts (including consumption prevention, drug education, and treatment). Historically, the U.S. federal government has allocated a slightly larger percentage of their resources to supply reduction efforts than to demand abatement efforts; today, the Executive Office of the President (2005) reports that around 55% of the federal drug control budget is allocated to supply reduction efforts.

Figure 2 shows the impact of law enforcement efforts designed to reduce the supply of drugs. The supply curve shifts to the left, increasing the equilibrium price and decreasing the equilibrium quantity of drugs traded. Because the price elasticity of demand for drugs is inelastic, equilibrium price rises by a higher percentage than equilibrium quantity falls. Thus, drug market expenditures (revenues) increase.

FIGURE 2



Such supply reduction measures might result in a variety of unintended consequences, including an increase in other types of criminal activity (Sollars, 1991). These drug market changes may increase crime for three primary reasons. The increase in user spending may be financed by increased theft since addicts are already committing one crime (drug use) and may not be averse to committing other types of crime. In addition, drug users may acquire human capital in alluding police while purchasing and consuming drugs. This human capital is then applied to other types of crime.⁶ Finally, the increase in drug revenues may lead to increased turf war violence as drug dealers fight over the increased revenues (Wisnotsky, 1983). Obviously, this would violate the guiding principles for drug policy making, namely, decreased consumption and drug related harm (Reuter and Caulkins, 1995).

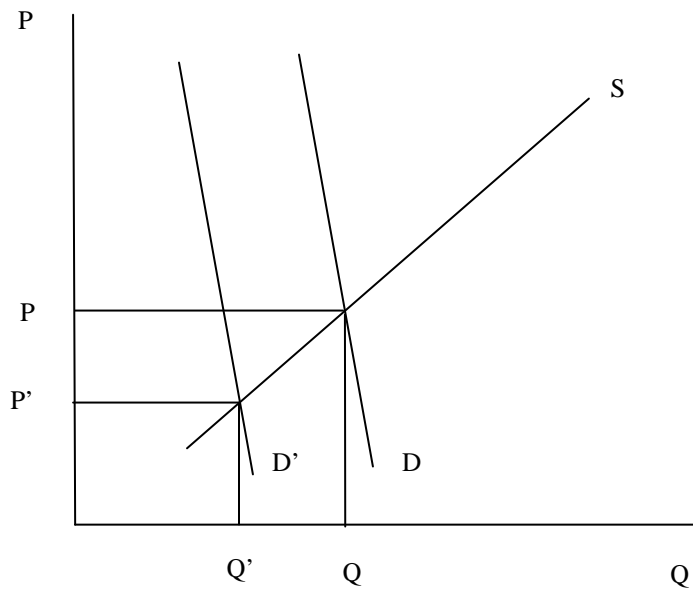
On the other hand, Figure 3 shows the impact of demand abatement drug policies. A leftward shift in the demand for drugs decreases both the equilibrium price and quantity traded of drugs. Thus, drug consumption, drug market expenditures (revenues), and associated crime (theft and turf war violence) are decreased.

Student learning of supply and demand can certainly transpire if the examples from illicit drug markets dig no deeper than the examples above. However, there appears to be a richer mixture of possible learning examples available – including some less predictable outcomes – by expanding along the lines suggested in the next section.

⁶ See Mankiw's *Essentials of Economics* (2004).

Please remember that this is not intended to be an exhaustive discussion of illicit drug markets; these are examples that can spark student interest and improve student comprehension.

FIGURE 3



Supply and Demand Analysis in Drug Markets – Part 2

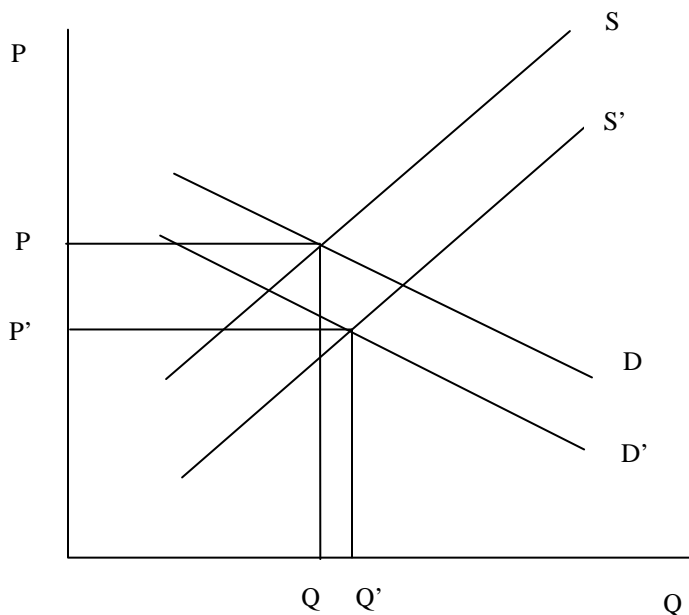
The discussion in the previous two sections shows that policy-making may not be as easy as simple supply and demand analysis may indicate. Even though simple supply and demand analysis recommends demand abatement, abatement programs like drug treatment may not work because they lower the cost of addiction, and “busting” users may not be effective if resources are diverted away from fighting other types of crime. Thus, spending more on or diverting money to demand abatement may be inefficient. In this section, we show that the basic supply and demand model may not even apply to drug markets because legal markets differ from illegal ones.

Lee (1993) constructs a model of drug user and drug dealer behavior to determine whether policies designed to reduce demand actually decrease drug use. If drug use were legal and drug markets competitive, the usual supply and demand analysis would apply, and demand abatement policies (assuming effective design) would reduce drug use. Lee posits, however, that illicit markets cannot be modeled as legal markets. In Lee’s model (a model very similar to the Baumol-Tobin money demand model) users purchase drugs from dealers and must weigh the costs and benefits of making drug transactions. A transaction is costly because the user must engage in an illegal activity and risk exposure to law enforcement agents. On the other hand, increased transactions are beneficial because the user’s average daily drug holdings are smaller, resulting in reduced possession penalties in the event of capture. The model, therefore, shows that an increase in the expected penalty for transactions (i.e., being arrested for engaging in a drug transaction) results in less drug use, fewer transactions, and increased drug holdings (on average). If expected penalties for drug possession increase, the user reduces drug use, makes more transactions, and holds, on average, less drugs.

Transactions also impact supply. If the number of transactions increases, this imposes an additional cost, above and beyond production costs, on drug dealers who also face an increased probability of arrest if the number of transactions is increased. Thus, an increase in possession enforcement increases dealer costs as users increase the number of transactions. On the other hand, an increase in transactions enforcement targeted at users will decrease dealer costs.

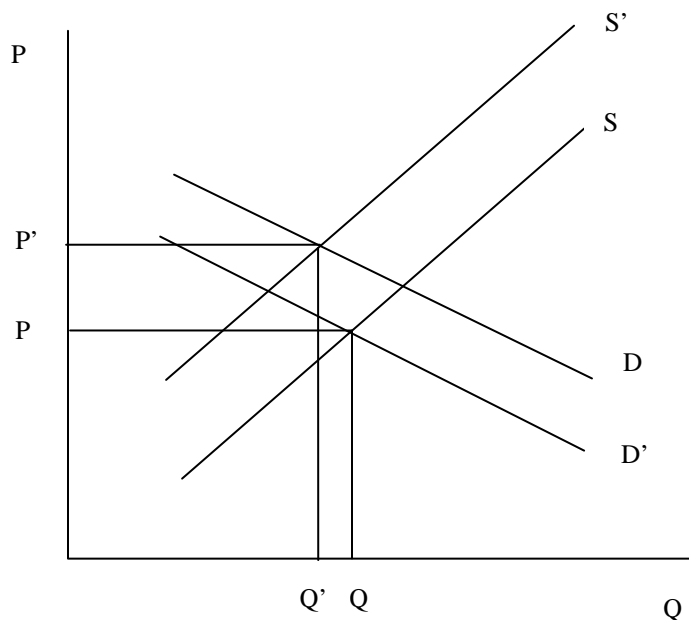
These arguments can be easily depicted on supply and demand graphs. If user enforcement is increased by increasing expected transactions penalties, demand decreases. This policy, however, decreases the number of transactions users make and, consequently, decreases dealer costs. This serves to increase supply. These opposite shifts may increase drug use while decreasing drug prices and are on display in Figure 4.

FIGURE 4



On the other hand, an increase in drug possession penalties would decrease demand curve while decreasing supply as transactions would be increased (see Figure 5). In this case, drug consumption is decreased but drug prices may increase. If drug prices increase, drug market revenues may also increase, giving rise to increased theft and violence.

FIGURE 5



Lee (1993) argues that during the war on drugs of the 1980s, expected possession penalties increased relative to expected transactions penalties. During the same time period, high school seniors suggested that drugs were easier to purchase. The data, therefore, may favor the analysis in Figure 5 (over that of Figure 4).

Note that the illicit drug market is different than legal markets. While students constantly desire to shift both demand and supply curves when, for example, the price of a substitute changes, classroom economists challenge them never to shift both curves when only one market force changes. This challenge does not apply to illicit drug markets where the behavior of the user – as the user responds to law enforcement efforts – has a direct impact on

suppliers. By discussing this example, students may then become aware of the circumstances that must prevail for both curves to shift in response to only one market force. In other words, students would then see the error of shifting, in a legal market, both the curves in response to a change in only one market force.

The Price Elasticity of Illicit Drugs

By this point in the course students will have learned to manipulate supply and demand curves. But better students will want to know how this “theory” can now be used to answer real world questions. This deeper understanding requires a new set of empirical tools, and the first tool introduced in the course is elasticity. As we will see, the assumptions about the price elasticity of demand for drugs may not be accurate. Policy conclusions based on the assumption that illicit drugs have inelastic demand curves are, perhaps, faulty.

Many early studies have shown that, even though many illicit drug substances are addictive, the demand for illicit drugs varies, to some degree, with the price of drugs. While Silverman and Spruill (1977) estimate that the demand for heroin in Detroit is price inelastic at -0.26 , Roumasset and Hadreas (1977) argue that the price elasticity of demand for heroin in Oakland is approximately unitary elastic, and Nisbet and Vakil (1972) estimate a price elasticity of demand for marijuana at anywhere from -0.36 to -1.5 for U.C.L.A. students. In addition, White and Luksetich (1983) argue that the demand for heroin has both a price-elastic region and a price-inelastic region. Moore (1990) supports this conclusion by contending that drug users are distinguished as either addicts, who have inelastic demand, or dabblers, who have elastic demand. Thus, over certain ranges, the price elasticity of demand for the illicit drugs is certainly elastic.

More recent studies have attempted to estimate the price elasticity for cigarettes, alcohol, and drugs using large data sets with individual level data.⁷ These studies show that addictive substance users may be quite responsive to changes in price. Lewit et al. (1981) estimate that the price elasticity of cigarette demand, for youth and young adults, is -1.44 .⁸ In another paper, Lewit and Coate (1982) estimate that the price elasticity of cigarette demand for adults was -0.42 ; however, they also found that the price elasticity of cigarette demand for young adults was more elastic at -0.89 . Chaloupka and Wechsler (1997) find the price elasticity of cigarette demand for college students to be approximately -1.11 . These studies suggest that young adults may be more price sensitive than adults given increases in cigarette prices.

Grossman et al. (1998) test Becker and Murphy’s (1988) rational addiction model to determine whether future increases in alcohol prices actually decrease current consumption (recall that a rational addict takes the future into account when deciding how much of the addictive substance to consume today). They estimate that the long-run price elasticity of alcohol demand for high school seniors is approximately -0.65 while the short-run price elasticity of demand is around -0.41 and the price elasticity when ignoring addiction was -0.29 . This confirms the theory of rational addiction, and suggests that while the long-run price elasticity of alcohol demand is not elastic, consumers are, indeed, fairly responsive to changes in the permanent price of an addictive substance.⁹

Studying illicit drug markets, DiNardo (1993) finds that cocaine participation is not significantly related to the price of cocaine; however, Saffer and Chaloupka (1999) and Grossman and Chaloupka (1998), find that drug demand is responsive to changes in price. Saffer and Chaloupka (1999) estimate that the price elasticity for cocaine is -0.28 while the price elasticity for heroin is -0.94 . They suggest that the decriminalization of cocaine and heroin would lead to around 260,000 and 47,000 new cocaine and heroin users, respectively. The Grossman and Chaloupka (1998) paper employs the rational addiction framework to estimate a long-run price elasticity of total cocaine consumption (annual participation multiplied by frequency of use) of -1.35 .

In sum, the evidence confirms that even users of cigarettes, alcohol, and drugs decrease addictive consumption when confronted with an increase in price. In the cases of young adult cigarette smokers, and cocaine users, the price elasticity of addictive consumption is elastic (and the price elasticity is nearly elastic for heroin).

These findings should cast some doubt about the conclusions generated by simple supply and demand analysis assuming that the price elasticity of demand for addictive consumption was inelastic. Recall that supply and demand models favored the use of demand abatement policies because supply side policies do not significantly reduce drug

⁷ These data sets include, among others, the Second National Health and Nutrition Examination Survey (cigarettes), the Harvard Alcohol Study (alcohol and cigarettes), and the Monitoring the Future panel (drugs).

⁸ Lewit et al. (1981) also estimate a price elasticity of smoking participation of -1.2 .

⁹ For an excellent summary of other alcohol related research, see Chaloupka et al. (2002).

use and generate higher prices, increased expenditures, and, thus, higher property and violent crime rates. If the demand for drugs is relatively price elastic, however, these results would reverse; supply side policies would greatly reduce drug use, and would yield lower drug market expenditures.

By introducing students to actual drug market findings, instructors can show that economists do contribute to policy analyses – economics is not simply a discipline of esoteric graphs. In fact, optimal drug enforcement policy hinges on the often dreaded but highly useful concept of elasticity. Students are also challenged to test their assumptions; policy should not be implemented on speculation and guesswork but on careful analysis.

Drug Markets: Competitive or Monopolistic?

When confronted with different types of markets, students frequently resort to memorization of complex graphs and fail to understand the important policy implications of market structure. That can be remedied by discussing, first, whether illegal drug markets are competitive or monopolistic, and, second, by showing students that the assumption of market structure impacts policy conclusions.

The evidence about the market structure of illicit drugs is conflicted. Most illicit drug markets are characterized by several layers between the producer and the consumer. Rottenburg (1968) identifies six different distribution levels for heroin: the importer, the kilo connection, the connection, the weight dealer, the street dealer, and the pusher. Lee (1993) argues that illicit drug markets are competitive at the retail level for cocaine, heroin, and marijuana with each dealer serving on a few users. In addition, Lee supports the assumption of competitive drug markets by arguing that users have good information about the drugs they purchase; heroin users, it is claimed, are constantly comparing notes on the best heroin to purchase.

Other studies claim that illicit drug markets are characterized by at least some monopoly power. Miron and Zwiebel (1995) attribute this market power to the fact that antitrust laws are (obviously) not enforced in illicit markets. Because dealers cannot appeal to the judicial system to settle disputes and because drug turf yields monopoly profits, the marginal benefit of using violence to acquire drug turf increases compared to a legal market. As well, a dealer acquires, over time, human capital in alluding law enforcement officers. This acquisition diminishes the marginal cost of using violence to acquire turf. Because, in illicit drug markets, the marginal benefits of using violence increase and because the marginal costs of using violence decrease, violence will be greater in illicit markets than in legal markets. Benson et al. (1993) suggests that levels of violent crime are highly correlated with differential levels of drug law enforcement because police crackdowns disrupt the spatial equilibrium that exists among drug dealers. Violence results as a new spatial equilibrium is ground out over time as drug dealers seek to fill the void left by their incarcerated fellow dealers.

To the extent that drug markets are competitive, turf war violence may increase if supply reduction policies are used in illicit drug markets (assuming that the price elasticity of demand for illicit drugs is inelastic – an assumption challenged in the previous section). Burrus (1999) points out, however, that the same may not be true if dealers have monopoly power. If supply reduction efforts are increased, this would inevitably lead to increased marginal costs for the dealer because the expected penalty for drug dealing would be increased. The increase in marginal cost results in higher drug prices and lower drug use as depicted in Figure 6. Since monopolists operate in the elastic portion of demand, dealer profits would erode, giving dealers less of an incentive to fight over drug turf.

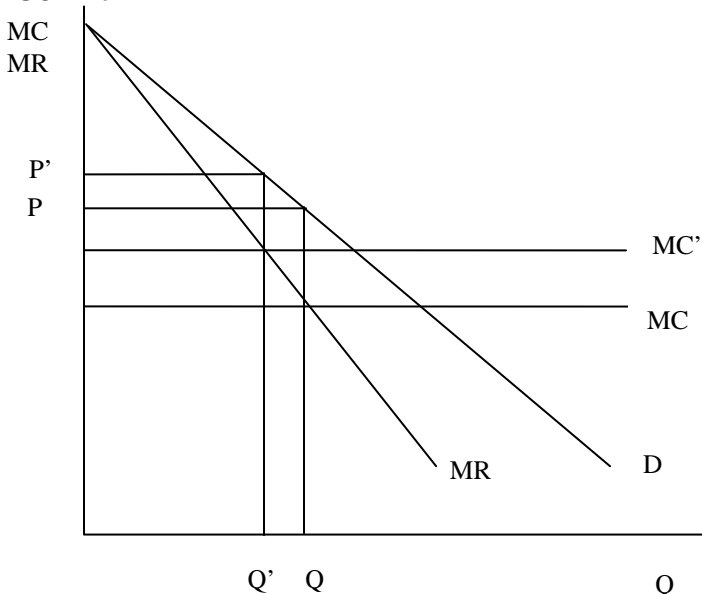
Burrus (1999) supports the assumption of monopolistic drug markets by appealing to illicit drug data of the 1980s and 1990s. These data show that drug related violence increased during the 1980s and decreased during the 1990s, even as supply reduction federal drug expenditures increased. Burrus attributes the increased and then decreased violence to increased monopoly power among drug dealers. Dealers committed violence in the 1980s to secure monopoly turf in the 1990s. Thus, drug markets changed from being competitive to monopolistic, a conjecture supported by Fagan and Chin (1989), Moran (1989) and White and Luksetich (1983).

This is a clear example showing that the assumption of market structure matters when making policies that impact markets. It is straightforward for students to understand and helps the students appreciate the often difficult lectures about competition and monopoly.

Drug Markets and Externalities

Students are taught that when someone's actions impact the well being of another – whether in a positive or negative sense – an externality exists. In these situations, it is commonly the case that private costs or benefits differ from social costs or benefits. Illicit drug markets can again be used to clarify this point to students.

FIGURE 6



Beginning in the heightened drug enforcement era of the 1980s, significant increases occurred in corporate drug-screening of applicants as well as random testing of employees. Beginning with approximately 20% of major US corporations in 1987, an estimated 75% of major US corporations engaged in these actions by 1996 (Zimmerman, 2001). Obviously drug-free workers and, supposedly, drug-testing corporations, benefit in an environment of employee testing. Less certain, however, is whether social welfare is, on net, improved under these circumstances.

When some but not all corporations adopt drug-screening tests, prospective workers are sorted in what may very well be a socially beneficial manner. The first corporations to adopt testing are those in which employee performance will be most significantly (negatively) impacted by drug use. At this point, there are still many employers who have not adopted drug testing and, therefore, overall unemployment rates have not increased. Students may be asked whether a positive externality will be created (or enlarged) by increasing the number of corporations that utilize drug screening. The answer is yes, up to a point where optimal sorting of employees has transpired (Zimmerman, 2001). From this point on, the pool of eligible workers takes on an unhealthy increase in the proportion of drug users. This may serve to increase the general level of unemployment and, although more difficult to prove, decrease productivity in corporations that hire drug users. Suggesting to students that an economy can implement too much drug-screening may seem counterintuitive, but it forces students to consider whether all positive or negative externalities are as unambiguous as they initially appear.

Another externality is created through the uneven drug enforcement policies of differing communities. If a neighboring community toughens their stance in enforcement, those in the drug trade may relocate to the relaxed enforcement community. In addition to the increase in drug-related crime, other types of crime may increase as well in the relaxed area. This may intensify to the point where adjacent communities are caught in a form of prisoner's dilemma; relaxed enforcement jurisdictions may be forced to escalate their enforcement beyond a desired level in order to counteract the impact that the tougher enforcement communities are causing (Sollars et al., 1994).

Conclusions

Principles of economics courses are perceived to be difficult by many students, and this perception can dampen students' enthusiasm for learning. Many economists, therefore, espouse a "less is more" philosophy towards teaching principles courses. This philosophy centers on focusing class time on a limited number of topics so that students become proficient in core economics concepts. Here, we suggest limiting the number of text and class examples and focusing the remaining examples into a specific market or theme. We expect this pedagogical treatment to improve the understanding of students who complete the course.

We illustrate the "less is more" philosophy by relating several concepts appropriate for a principles course via illicit drug markets. Certainly the selection of this market for our focused examples will raise some eyebrows; our

intent *is not* to promote the use of drugs or to glamorize those involved in these markets. Our intent *is* to find a topical focus that students may find interesting, as well as a focus in which the explanation of economic principles may be richer than first expected. Although we consider illicit drug markets to have the characteristics that permit our intentions to be fulfilled, we encourage those instructors who cannot accept examples from these markets not to abandon the “less is more” philosophy, but to develop their own examples from a preferred market focus.

References

- Becker, Gary S. 1992. “Habits, Addictions, and Traditions.” *Kyklos* 45: 327-46.
- Becker, Gary S. and Kevin M. Murphy. 1988. “A Theory of Rational Addiction.” *Journal of Political Economy* 96: 675-700.
- Benson, Bruce L. and David W. Rasmussen. 1991. “Relationship between Illicit Drug Enforcement Policy and Property Crimes.” *Contemporary Policy Issues* 9: 106-15.
- Benson, Bruce L., Iljoong Kim, David W. Rasmussen, and Thomas W. Zuehlke. 1992. “Is Property Crime Caused by Drug Use or by Drug Enforcement Policy?” *Applied Economics* 24:679-92.
- Benson, Bruce L., David W. Rasmussen, and David L. Sollars. 1995. “Police Bureaucracies, Their Incentives, and the War on Drugs.” *Public Choice* 83: 21-45.
- Bohahon, Cecil E. 1991. “An Economic Explanation for the Ineffectiveness of Addiction Treatment.” *Contemporary Policy Issues* 9: 116-119.
- Boskin, Michael, J. 1998. “Some Thoughts on Teaching Principles of Macroeconomics.” In William B. Walstad and Phillip Saunders, eds., *Teaching Undergraduate Economics*. Boston, MA: Irwin/McGraw Hill.
- Burrus, Robert T. 1999. “Do Efforts to Reduce the Supply of Illicit Drugs Increase Turf War Violence? A Theoretical Analysis.” *Journal of Economics and Finance* 23: 226-34.
- Case, Karl E. and Ray C. Fair. 2004. *Principles of Economics*. Upper Saddle River, NJ: Prentice Hall.
- Chaloupka, Frank J., Michael Grossman, and Henry Saffer. 2002. “The Effects of Price on Alcohol Consumption and Alcohol-Related Problems.” *Alcohol Research and Health* 26: 22-35.
- Chaloupka, Frank J. and Henry Wechsler. 1997. “Price, Tobacco Control Policies and Smoking among Young Adults.” *Journal of Health Economics* 16: 359-73.
- DiNardo, John. 1993. “Law Enforcement, the Price of Cocaine, and Cocaine Use.” *Mathematical and Computer Modelling* 17: 53-64.
- Executive Office of the President. 2004. National Drug Control Strategy: FY 2005 Budget Summary. Washington, DC: Executive Office of the President.
- Fagan, Jeffrey and Ko-Lin Chin. 1989. “Initiation into Crack and Cocaine: A Tale of Two Epidemics.” *Contemporary Drug Problems* 16: 579-617.
- Frank, Robert H. 1998. “Some Thoughts on the Micro Principles Course.” In William B. Walstad and Phillip Saunders, eds., *Teaching Undergraduate Economics*. Boston, MA: Irwin/McGraw Hill.
- Frank, Robert H. and Ben S. Bernanke. 2004. *Principles of Economics*. Boston, MA: McGraw Hill/Irwin.
- Grossman, Michael and Frank Chaloupka. 1998. “The Demand for Cocaine by Young Adults: A Rational Addiction Approach.” *The Journal of Health Economics* 17: 427-74.

- Grossman, Michael, Frank Chaloupka, and Ismail Sirtalan. 1998. "An Empirical Analysis of Alcohol Addiction: Results from Monitoring the Future Panels." *Economic Inquiry* 36: 39-49.
- Kim, I, Bruce Benson, David Rasmussen, and Thomas Zuehlke. 1993. "An Economic Analysis of Recidivism among Drug Offenders." *Southern Economic Journal* 60: 169-83.
- Lee, Li Way. 1993. "Would Harassing Drug Users Work?" *Journal of Political Economy* 101: 939-59.
- Lewit, E. M. and D. Coate. 1982. "The Potential for Using Excise Taxes to Reduce Smoking." *Journal of Health Economics* 1: 121-45.
- Lewit, E. M., D. Coate, and M. Grossman. 1981. "The Effects of Government Regulations on Teenage Smoking" *Journal of Law and Economics* 24: 545-69.
- Mandelstamm, Allan B. 1971. "The Principles Course Revisited." *Journal of Economic Education* 3: 41-44.
- Makiw, N. Gregory. 2004. *Essentials of Economics*. Mason, OH: Thompson/Southwestern.
- McConnell, Campbell. 1998. "Reflections on the Principles Course." In William B. Walstad and Phillip Saunders, eds., *Teaching Undergraduate Economics*. Boston, MA: Irwin/McGraw Hill.
- McConnell, Campbell R. 1980. "Economics 101: Where do We Stand?" *Journal of Economic Education* 12: 15-22.
- Miron, Jeffrey A. and Jeffrey Zwiebel. 1995. "The Economic Case against Drug Prohibition." *Journal of Economic Perspectives* 9: 175-92.
- Moore, Mark. 1990. "Supply Policy and Drug Law Enforcement." In Michael Tonry and James Q. Wilson, eds., *Drugs and Crime*. Chicago, IL: University of Chicago Press.
- Moran, Richard. 1989. "Bring Back the Mafia." *Newsweek* 118: 8.
- Nisbet, T. C., and F. Vakil. 1972. "Some Estimates of Price and Expenditure Elasticities Among UCLA Students." *Review of Economics and Statistics* 54: 474-475.
- Rasmussen, David W. and Bruce L. Benson. 1994. *The Economic Anatomy of a Drug War*. Lanham, Maryland: Rowman & Littlefield Publishers, Inc.
- Rasmussen, David W., Bruce L. Benson, and David L. Sollars. 1993. "Spatial Competition in Illicit Drug Markets: The Consequences of Increased Drug Enforcement." *Review of Regional Studies* 23: 219-236.
- Reuter, Peter and Jonathan P. Caulkins. 1995. "Redefining the Goals of National Drug Policy: Recommendations from a Working Group." *American Journal of Public Health* 85: 1058-63.
- Rottenberg, Simon. 1968. "The Clandestine Distribution of Heroin, its Discovery and Suppression." *Journal of Political Economy* 76: 78-90.
- Roumasset, James and John Hadreas. 1977. "Addicts, Fences, and the Market for Stolen Goods." *Public Finance Quarterly* 5: 247-272.
- Saffer, Henry and Frank Chaloupka. 1999. "The Demand for Illicit Drugs." *Economic Inquiry* 37: 401-11.
- Sollars, David L. 1992. "Assumptions and Consequences of the War on Drugs: An Empirical Analysis." *Policy Studies Review* 11: 22-39.

Sollars, David L., David Rasmussen and Bruce Benson. 1994. "Drug Enforcement and the Deterrence of Property Crime among Local Jurisdictions" *Public Finance Quarterly* 22: 22-45.

Silverman, Lester P. and Nancy Spruill. 1977. "Urban Crime and the Price of Heroin." *Journal of Urban Economics* 4: 80-103.

U.S. Department of Justice. Various Years. *Sourcebook of Criminal Justice Statistics, Online.* <http://www.albany.edu/sourcebook/index.html>

Wisotsky, Steven. 1983. "Exposing the War on Cocaine: The Futility and Destructiveness of Prohibition." *Wisconsin Law Review*: 1305-1426.

White, Michael D., and William A. Luksetich. 1983. "Heroin: Price Elasticity and Enforcement Strategies." *Economic Inquiry* 21: 557-64.

Zimmerman, Jason. 2002. "The Economics of Pre-employment Drug Testing." *Journal of Economics* 28: 47-65.