Revolution, Reputation Effects, and Time Horizons

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Ernest Hemingway said that "courage is grace under pressure." We would not expect a courageous or moral man to begin cheating, stealing, or looting when life gets tough. But not everyone is courageous, and few people, including lawyers and economists, appear particularly graceful. This article explores how people act under an extreme kind of pressure: the pressure of an imminent revolution that would likely transmogrify pre-existing legal rights and change the relations among persons. Let me reveal my conclusion first, before developing the model and attempting to apply it: as people begin to expect a truly radical revolution, the importance of reputation effects diminishes. For their reputation in the ancien régime will be irrelevant in the new regime. Thus, the society would see a decrease in the degree of cooperation, trust, and trade, leading to a rapid decline in the economy.

To portray the model, I will be using a few economic tools, including game theory and present value analysis. First, I will sketch a model that roughly depicts the choice between acting honestly and acting dishonestly. I will argue that the choice depends upon the present value of the expected benefits of the acts. Second, I will demonstrate that the time frame is extremely important in the decision process. Third, using the Prisoners' Dilemma framework, I will suggest that as revolutions appear imminent, we would see behavior that indicates a shift from the cooperative quadrant to the unilateral defection quadrant, and finally to the mutual defection quadrant. Fourth, as an empirical case, I will make a preliminary examination

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of the behavior of residents of Saigon, South Vietnam in April 1975, when the North Vietnamese invaded.

Is Honesty the Best Policy?

A Present Value Model

With due respect to Immanuel Kant and one's Sunday school teacher, honesty is not always the best policy, if one's goal is to maximize material benefits. Happily, honesty usually is the best policy to maximize both moral and monetary matters. Two forces dissuade even amoral egotists from cheating or stealing, especially in business. The first, the fear of being punished by the law. The second, the fear that a bad reputation will repel others from dealing with them in the future. The key phrase in the last sentence is "in the future." The model must, then, posit a choice that considers future and present benefits. A modified version of the familiar present value equation shown in equation 1 works rather well:

$$\sum_{k=0}^{t} \frac{(1-p)\,(Bd)}{(1+r)^k} = \frac{(Bh)}{r}, \tag{1}$$

where p is the probability of being punished by the law, Bd is the benefit of dishonesty, r is the discount rate, t is the number of transactions (years), and Bh is the benefit of honesty.

Each of these variables is crucial to the decision. Essentially, this model suggests that economic actors will act as if they assess the probability of getting away with dishonest acts. They then consider the future and discount to the present the benefits of acting dishonestly. The left side, or the sinister side, of the equation is compared with the right side of the equation, which gives the present value of honest acts. Let us examine the variables and see why honesty is usually the best policy. If the probability (p) of being caught is high (so that [1-p], the probability of succeeding in the dishonest act, is low), the benefits of dishonesty are obviously diminished. If the discount rate (r) is high, the value of the future benefits is diminished. If the number of transactions (t) is high, the value of future benefits is increased.

Notice that the right side of the equation is discounted by r. There is no t term, which makes the formula a perpetuity. That is, the fraction calculates the present value of a particular benefit if it is received each year forever. For example, \$100/.10 = \$1,000 indicates that \$1,000 is the present value of receiving \$100 forever when r = 0.10. Why is the left side of the equation not a perpetuity? I assume

that because of reputation effects, a dishonest businessman could not get away with dirty tricks forever. The factor t represents the length of time it takes before he is made a pariah. Contravening Abraham Lincoln, I presume you cannot fool even some of the people all of the time. Only honest acts can be performed in perpetuity. The model is, of course, simpler than it could be, if we considered other factors. For instance, we may want to include a growth term on the right side of the equation, indicating that honest business brings in more business, that is, positive reputation effects or goodwill. Thus, the right side could be written (B/r-g). We could also add a growth term with a positive sign to the denominator of the left side to indicate the added likelihood of being exposed or apprehended after committing dishonest acts. Furthermore, we could modify the numerator of the left side by considering the punishment received when apprehended. Equation 1 assumes only that apprehension or exposure ends one's participation in transactions and results in restitution of the loot robbed in only the last act, rather than additional punitive damages. Nonetheless, the simple model portrays the most important general factors without forcing us to specify the particular dishonest act in question. Our present value model is not specified as comprehensively as other models of criminal behavior devised by Ehrlich (1973) and Becker (1968), for example. But the goal here is not to prove how the individual may maximize income subject to constraints. Instead, the goal is to show how important the time factor actually is. I assume that p, which has two components, the probability of apprehension and the probability of being exposed, is a positive function of t.[1]

How can we apply this model? Assume that a dishonest man, Iago, will buy an item wholesale on credit and then resell the item for $100, keeping the gross revenue and then hiding from the wholesaler. He "earns" $100. The honest man, Othello, who also buys from the wholesaler, will resell at a profit of only about 10 percent, or $10. Further, honest Othello could sell an infinite number of items. If the discount rate is 3 percent, the present value of honesty is $333.33. What is the present value of dishonesty? We must know how many suckers there are. Assume no policemen and that the dishonest man finds one sucker each year for four years, before his reputation precedes him. Dishonesty pays. For in present dollars Iago would expect to earn $100 in the first year, $97.10 in the second, $94.30 in the

[1]I recognize the conflation of time with the number of transactions. The variable r should not necessarily indicate the annual interest rate but the discount rate applied to future transactions, whether they are next year or after lunch today.

third, and $91.50 in the fourth. The total equals $382.90. Even if the honest man sells an item each year for a million years, dishonesty on four occasions has a higher present value. If we say that the probability of apprehension equals 50 percent each time, Iago would have to succeed eight times.

Since reputation effects limit the evil acts, making dishonesty a short-run strategy, an increase in the discount rate, which reduces future benefits, affects honest Othello more than Iago. For instance, if r grows to 0.10, Iago need steal only once to equal Othello's perpetual honesty.

Why does honesty usually pay? (1) Apprehension rates through civil remedies or criminal penalties are significant; (2) discount rates per transaction are usually low; and (3) businessmen tend to imagine at least large and uncertain, if not perpetual, turnover.

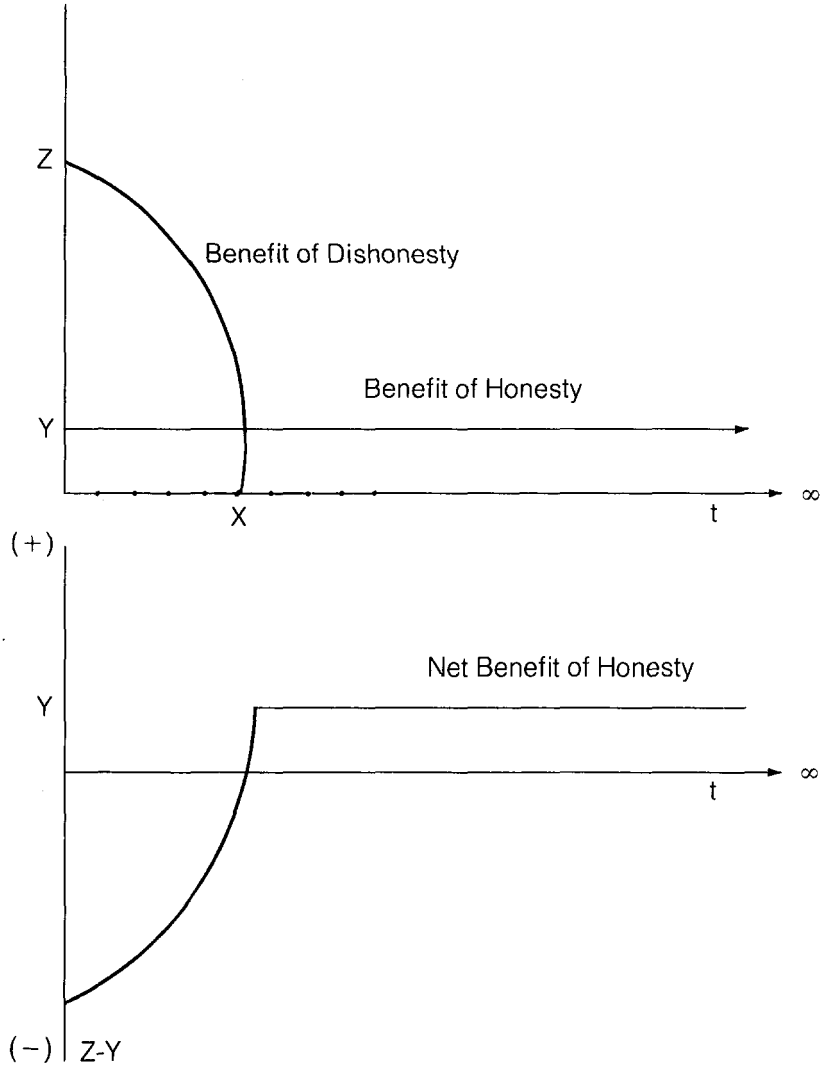
Notice that the curves in Figure 1 cross very quickly, after only the Xth transaction or time period. The short-run strategy might also be exploited by a person who gets out of the dishonest business quickly, for example, by selling his business to a bona fide buyer in good faith who assumes that the past profits came licitly and that future licit profits will follow. In a classic tax shelter fraud, a shady entrepreneur sold his stake in cattle herds to a truck leasing corporation, which later found itself in bankruptcy court, as well as civil court, to defend against the fraud perpetrated by the entrepreneur. The short-run strategy worked even more quickly and efficiently than even the entrepreneur had planned—he died not long after selling his stake for over five million dollars.[2]

What happens if a revolution becomes imminent that is so profound that it will twist future property arrangements and legal rights? Obviously, with increased uncertainty, the discount rate would rise and the probability of apprehension or punishment after the revolution would decline. Clearly, South Vietnamese capitalists would not knock on the doors of their new communist judges and claim that peasants owed them financial capital from before the revolution. More dramatic than these effects, though, people would shrink their time frames and consider the future to be a finite period. If t = 4, whereas it used to be infinite, the benefits of dishonesty overwhelm the benefits of the previous probity. Reputation does not matter as the Huns come riding over the hills with swords drawn. Hobbes said that before government, lives were "solitary, poor, nasty, brutish, and short." He was probably empirically wrong. Furthermore, he was theoretically wrong, for even if p in our equation is small, if t is

[2]See Ingenito v. Bermec Corporation et al. (1977) and Penn (1976).

FIGURE 1

A PRESENT VALUE MODEL OF HONESTY



large enough, reputation effects matter a great deal, and people will have good reason to cooperate. Only if time frames shrink severely (or if cooperation yielded no benefits), would the Hobbesian nightmare seem valid.

What kind of behavior would we see if this hypothesis is correct? We can consider this from different perspectives. If invaders or revolutionaries will expropriate property and extinguish legal claims, we should see both ex ante and ex post changes in behavior. The ex ante changes would include, for example, a reduction in contracts, a decrease in the extension of credit, and a rise in crime. Ex post effects would include breaching contracts and refusing to pay back loans, for instance. These kinds of results severely contract an economy. Since the slope of the dishonesty curve is so steep, the economy should collapse rather briskly once enough people shrink their horizons. Thus, when revolution is imminent, we should not see a gradual economic decline, but a swift response. The kind of revolution is surely important. The most piquant examples are those in which commercial economies are replaced by totalitarian or noncommercial authoritarian regimes as in Vietnam and Iran. The effects of bourgeois revolutions on pre-industrial economies would be different and perhaps minimal.

Although I focus on revolutions, this framework has more general applications, for whenever time frames shrink, choices are affected. Similar effects follow when a subset of the population faces expropriation or deportation. Both the victims-to-be and nonvictim bystanders will shrink their time horizons—except that the bystanders will shrink their horizons only with respect to the victims. Robert Axelrod (1983, p. 328) quotes Caesar on Pompey's allies: "They regard his prospects as hopeless and acted according to the common rule by which a man's friends become the enemies of adversity." How do people treat aliens who will be deported? The treatment of Jews by many citizens during World War II would suggest that certain deportation often enhances and ensures victimization prior to the departure (see Dawidowicz 1975). The performance of laborers for impending bankrupt firms would provide another example, along with the treatment by customers of imminently bankrupt manufacturers.[3]

Remember, however, that even if the bystander will not have future contacts with the victims, others will see how he treats victims.

[3]See, for instance, Mayer (1980, p. 280): "once a manufacturer begins to go under, even his best customers begin refusing payment for merchandise, claiming defects in quality, failure to meet specifications. . . ."

Thus, reputation effects are not entirely eliminated. One who quits a job often does so politely, so that he may have a reference for a future employer. Society has many institutions to gauge reputation, including credit reference companies. Of course, the information available may not be helpful or applicable in all contexts. If a potential creditor calls American Express, for example, the credit card company may reveal that Othello is generally creditworthy, but it will not tell how he performs when barbarians invade or when he is infected by jealousy, that is, radical revolution presents a different scenario.

A Game Theoretic Framework

Before applying the present value model, I will place it within a game theoretic framework. The standard Prisoners' Dilemma model shown in Figure 2 can be fitted with the following values to match the previous discussion: quadrant (1), mutual cooperation, each

FIGURE 2

THE PRISONERS' DILEMMA

		OTHELLO: Cooperate	OTHELLO: Defect
IAGO: Cooperate		(1) 10, 10 mutual gain	(2) −100, 100 Othello wins
IAGO: Defect		(3) 100, −100 Iago wins	(4) 0, 0 mutual defect

receives profits of 10; quadrant (2), successful defection by Othello, who receives 100 and Iago − 100; quadrant (3), successful defection by Iago, who receives 100 and Othello − 100; and quadrant (4), mutual defection, each gets 0.

Because time horizons are generally long, the economy benefits from mutual cooperation and trade. The law of comparative advantage is exploited, and the economy is extroverted rather than insular. The economy settles in quadrant (1). Although some cheaters exist, they do not invade the system, since legal restraints and reputation effects prevent them from continually playing the game and defecting.

If the time horizon shrinks, however, more players are tempted to defect, since successful defection pays. The economy first moves to either quadrant (2) or quadrant (3). But soon defectors arouse enough suspicion that even the categorically honest might defect just to protect themselves against loss. More likely, though, those who would not defect because they listen to Kant or their Sunday School teachers will simply cease to engage in market transactions that cannot be accomplished contemporaneously and with full information. In either case, an economy in which only short-term decisions and contracts can be engaged in cannot grow and will certainly shrink from a more developed state. The model need not assume that people weigh costs and benefits—only that they act as if they do.

Through the shrinking of the time horizon, we move from an infinite series of games to a finite series of games. As Luce and Raiffa taught (1957, pp. 94–102), when egotists play a finite game, there is no incentive to cooperate. On the last move each will defect. Thus, on the next to last move, there is no incentive to cooperate for the sake of future expectations. Therefore, each will defect on the next to last move. And the process unravels back to the first move.

Following the lead of inventive mathematicians, some social scientists have attempted to use the catastrophe theory apparatus to model certain social events. If we played out the above scenario, the shift from quadrant (1) to quadrant (4) would show a catastrophic path. An economy can move back and forth between higher and lower discount rates, with gradual effects on the level of economic activity, if t remains infinite and p remains high. Even if p falls, reputation effects will help maintain order and economic activity if t remains high (although a decrease in activity would still occur). But if t falls, the economy collapses and tumbles out of what Axel Leijonhufvud (1973) calls the "corridor of stability." Possibly, this could be avoided if p approaches 1. However, if t falls, p would likely plunge also, for the discipline of police and court systems also depends on reputation

effects. Therefore, as t decreases, a catastrophic path begins and the economy collapses.[4]

In sum, an expectation that revolution will overwhelm a previous regime should lead to economic collapse, through a catastrophic recoiling of the time horizon, a decrease in the probability of apprehension and, to a lesser extent, an increase in the discount rate.

An Empirical Case: Saigon, Vietnam

In applying the model to a historical situation, we face insurmountable obstacles. In particular, although econometric models can estimate how important apprehension probabilities are to the crime rate, it is impossible to specifically attribute economic behavior to the time horizon factor. As stated above, there is a relationship between p and t. To some extent, p is determined by t (reverse causation is also plausible). During a revolution, a confluence of smaller time horizons and lower p rates takes place. In econometric terms, we have a multicollinearity problem, making isolation of independent variables extremely difficult.

The clear and present danger of a radical revolution, through a shrunken time horizon, injures all societal tools for enforcing promises and promoting benevolent behavior, including reputation effects and civil laws. To assign specific values to reputation effects is too ambitious a task even for this project. Nonetheless, we can say with surety: nobody likes to be an unrequited seller, lender, or lover. Radical revolutions usually lead to bankrupt firms and broken hearts. To avoid these pains, prudent individuals will try to avoid initial performance of economic acts, as well as other sorts.

My intent for an empirical case is modest. I wish only to describe why Vietnam presents a good test for the hypothesis and to suggest behavior indicative of the hypothesis.

Several other countries might provide powerful support for my hypothesis, including Iran and Lebanon. Yet these revolutionary regimes with their embattled warlords release little factual evidence to the public, especially evidence that would impeach their administrative prowess. Though similarly fractured, Vietnam of 1975 allows for a better case study, because Western reporters and officials maintained their posts until the final, dramatic moments of overthrow and because the revolutionary forces arrived with warning rather than in a sudden coup d'etat.

One other example may truly test this model in the coming years: Hong Kong. So far, the government of China promises to keep the

[4]On catastrophe theory, see E. C. Zeeman (1977) and Balasko (1978).

capitalist territory free of communist rule after Britain relinquishes control in 1997. Serious doubts about China's honesty would quickly encourage capital flight as well as human flight. Should China appear to break its word, not only would it lose face, but it would also lose a potent engine of economic growth located on its shore.

In early January 1975, the North Vietnamese forces launched a massive campaign, the Ho Chi Minh Offensive. By mid-March they conquered most of South Vietnam. Refugees came streaming southward, 100,000 of them jamming the city of Hue. And by the end of the month, half a million stragglers and fugitives descended on Da Nang, South Vietnam's second largest city—located 370 miles northeast of Saigon. So frightened were refugees that those with access to motor transporation could charge up to $1,200 to drive people southward. However, government propaganda still persuaded residents of Saigon that they were safe from attack. As April proceeded, the situation looked worse. Saigon's vulnerability seemed apparent when a renegade pilot bombed the presidential palace on April 8th. In mid-April, U.S. Secretary of Defense James Schlesinger testified before Congress that over 200,000 South Vietnamese would be endangered if the Communists took over Saigon. The report appeared in Saigon newspapers the next morning, making more vivid the nightmares of atrocity and plunder that refugees were telling frightened residents.

The military situation continued to deteriorate. Finally, on April 29th and 30th, 1,400 Americans and 5,600 South Vietnamese were airlifted out of Saigon, just as North Vietnamese troops approached. During the month of April well over 100,000 South Vietnamese left their country. Many more tried desperately yet unsuccessfully. One of the last Americans out reported seeing from a helicopter "along the spiderweb of highways leading in . . . literally thousands of [North Vietnamese] trucks and tanks . . . inching their way forward, their headlights blazing . . ." (Snepp 1977, p. 453).

The scenario provides a good test case. Few contemporary examples would exhibit such a shrinking of time horizons. First, many residents of Saigon expected a violent confrontation in their city in which the Communists would win. Many tried quixotically to flee. Even if they would not be faced with violence, they surely would have property rights critically changed. Many expected both, for they had heard of the North Vietnamese land reform of the mid-1950s, which left 30,000 to 50,000 intransigent peasants and landowners dead or imprisoned.

How did the Vietnamese act under excruciating pressure? We can see both social and economic responses. The economic responses are not well documented. As early as 1974 banks became reluctant

to make new loans, and small and medium-sized businesses resisted new investment. By early April, residents scrambled for cash and liquidity, inciting chaotic scenes at banks. The government-linked Credit Commercial lost more than 70 percent of its deposits in a week (although this includes losses from branches taken over by Communists); local banks averaged a 40 percent loss. Even foreign banks lost 14 percent. According to the *Far Eastern Economic Review* (1975), the panic was staunched not by a vote of confidence, but by a feeling that collapse was not necessarily imminent. At the height of panic, the black market rate soared from 900 piastres to 1,800 per dollar (official rate = 700). Later it reached 3,800. Credit cards and travelers checks no longer were accepted. The First National City Bank at one time refused to honor even its own travelers checks!

The rapid switch in currency seems to indicate an ex ante abandonment of the Vietnamese economy and a drive for liquidity. As a switch to dollars was made, a significant jump in velocity of the piastre followed, confounding anti-inflationary policy (Dacy 1986, pp. 140–49). Not long before, the government abandoned short-term treasury bonds and offered long-term bonds at real interest rates of about 0 percent. I do not have reliable data on how well the bonds sold. It appears that government instruments yielded far lower rates than private instruments. In the years preceding April 1975, non-government affiliated lenders charged a real interest rate of about 20 percent. Surely, this would be a minimum for the real interest rate at the end of April (United Nations 1976, pp. 43–57).

The conversion to dollars did not signal that the Communist government would use dollars as their currency. Instead, dollars were used to pay for transportation away from Vietnam. Vietnamese barge owners charged from $5,000 to $10,000 in cash. It would be interesting to know whether anybody paid in advance and was left waiting on the dock.

The situation continued to deteriorate. Frank Snepp (1977, p. 273) writes: the "malaise at the top levels of government was matched by a growing sense of defeatism throughout the society." By mid-April, "the thieves' market . . . had become a cornucopia of discarded luxury. Iceboxes, stereos, air conditioners, anything too large to fit in a suitcase could be had for a third or a fourth of the usual bargaining price . . . beautiful old French villas were being boarded up and abandoned as their owners departed precipitously, often without making a sale."

People who would not have bribed before, did. Under-the-table gratuities for a passport reached $3,000 in two weeks in early April, and the legal order began to crumble. U.S. officials had to pay over

$50,000 in bribes to South Vietnamese police and military personnel to ensure the evacuation of Vietnamese. Most pathetic, a young economist for the Deputy Premier asked an American friend to marry his three-month pregnant wife. He would pay $10,000 (*New York Times* 1975). The CIA station chief reported that the agency lost over five million dollars worth of equipment from the Saigon office in just two weeks.

Looters and army stragglers broke into the British and American embassies, while government soldiers began to desert units, engage in thievery, and sneak aboard airlifts intended for civilians. According to newspaper reporters, thousands, including civilians and police, stripped the apartment building where U.S. officials lived. In Da Nang, "a good number of the city inhabitants" joined South Vietnamese soldiers in "incredible" looting during the last "hours of madness," reported the director of the French Cultural Center. In other towns, commercial life quickly ceased (*The Times* [London] 1975).

Even the nation's chief economist, Economics Minister Hao, broke the law. The United States tried to persuade South Vietnam to deposit its gold reserves—worth $220 million—in the name of the country in the New York Federal Reserve Bank. Government officials agreed. But the Communists told Hao in early April that he would be treated leniently if he prevented the gold from leaving. When the North Vietnamese arrived, the gold was sitting in a cargo room. According to the CIA, Hao was not a Communist nor a Communist agent. But he did believe that the North would win, and he was willing to cheat the South.

The final scene on April 29th was chaotic. The population ignored the 24-hour curfew and all residents frenetically took to the streets. The U.S. ambassador's aide described "cars and trucks . . . hurtling everywhere. Blind old mama-sans and panicked army officers . . . behind every wheel" (Snepp 1977, p. 391).

None of the hellish scenario proves the model. Much of the law breaking can be attributed to a reduction in the probability of being apprehended for illegal acts. But what caused this probability to fall? Why did policemen renege on their civic duties? I submit that the shrinking of time horizons heavily influenced the incentive to monitor illegal behavior.

Data on breaches of contract, repayment of debt, and whether anybody continued to engage in long-term transactions would be very helpful. A conclusion on reputation effects in South Vietnam cannot be reached yet. But the evidence so far seems suggestive.

Conclusion

My hypothesis does not explain why revolutions take place, nor precisely why time horizons shrink. It simply asserts that when time horizons shrink, the economic effects are likely to be severe and rapid. Some wit once remarked that socialism is no good because it takes up too many evenings. According to my model, the more evenings we think we have, the more social we will be.

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