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Economic Organization and Conflict

by

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Economic institutions and the structure of economic organizations can play a large role in either accentuating or diminishing tensions between groups. I draw on two lines of economic research: the theory of the firm, including agency theory, and international trade. I show that there is a fundamental externality that tends to accentuate conflict among groups. By altering trade patterns and firm structure, conflict can be reduced and output increased. (JEL: L 14, D 23, D 47)

1. Introduction

Though one may wish otherwise, the level of strife between ethnic or national groups shows no signs of diminishing. Almost daily, one is bombarded with headlines about terrorist attacks, revolts, and various other expressions of hatred. This paper makes a simple point. Economic institutions and the structure of economic organizations can play a large role in either accentuating or diminishing tensions between groups. I draw on two lines of economic research: the theory of the firm, including agency theory, and international trade. I show that there is a fundamental externality that tends to accentuate conflict among groups. Undoing this externality requires various types of intervention that create "economic space" between agents to a transaction. Indeed, I show that with two groups, each group's welfare can be enhanced if one group invests in the other to create this "economic space" even if the investors have no property rights in the private returns generated to members of the benefitted group.

Before beginning the analysis, I would like to provide two warnings to the reader. First the topics considered cut across fields much broader than economics, specifically political science and sociology. I claim no special expertise in these fields and, though I have tried to read relevant literature in these areas, I am sure I have overlooked some insightful articles on conflict. However, I am

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not interested in discussing all possible causes of conflict, but rather in illuminating the role that economics can play in understanding conflict. Second, I have found virtually nothing in the economic literature on the specific topic of this paper. Although there are papers on related topics (especially Becker [1971]), it is curious that the economists’ models take economic institutions for granted and ignore their role in the creation of destructive activity that reduces the value of property. Even economic historians who have been at the forefront of analyzing the role of economic institutions in facilitating trade and growth (e.g., Grieff [1993] and North [1981]) seem not to have focused on the relationship between economic organization and conflict. Perhaps this lack of attention arises because most U.S. economists do not view conflict as particularly important in understanding economic activity. (Curiously, the race riots in the United States in the 1960s hastened the development of urban Economics, a field that has since declined in popularity perhaps because it was never particularly successful at analyzing strife.) Because the relationship between economic institutions and conflict is a relatively unexplored topic, as with all initial inquiries, I suspect that several of the points I raise will require further analysis before firm conclusions, especially for public policy, can be drawn.

This paper is organized as follows. Section 2 explains some simple results from the theory of discrimination and uses them together with agency theory as background to explain the simple externality that generates excessive strife among groups. I label this the hostility externality. Section 3 builds on the results of section 2 to generate suggestions about how strife can be mitigated while section 4 suggests how to implement these suggestions. Section 5 uses some simple models from trade theory to identify those segments of each group that would lose the most and gain the most by a restructuring of trade designed to reduce conflict. Section 6 presents conclusions.

2. Source of Conflict – The Hostility Externality

In this section, I first present some simple models of discrimination. I then explain how certain kinds of economic transactions can generate hostility between groups and how this hostility can lead to destruction. I finally describe the hostility externality.

2.1 Discrimination

Let me begin with a discussion of discrimination because research on the topic has given considerable insight into how markets work when certain groups dislike each other. I will then highlight some similarities as well as differences between discrimination and the hostility externality.

One now standard method of describing discrimination is to postulate that some individuals have utility functions in which contact with another group
generates disutility (Becker [1971]). Because of this preference, for example, a firm owner does not want to employ the disfavored group, workers who are employed with the disfavored group demand a wage premium, and customers who deal with the disfavored group demand a price discount. This approach to modeling discrimination can be thought of as generating interpersonal interactions whose effects are totally borne by the persons involved in the relevant economic transaction. For example, the owner of the firm who does not like employing members of the disfavored group bears the cost of exercising his preferences. Similarly, if one group of workers dislikes working with a disfavored group, the owner of the firm will internalize the cost because of the wage premium he will have to pay to induce workers to work with the disfavored group. Becker’s contribution was to develop these models and work out the general equilibrium implications.

Becker is careful to distinguish between market segmentation and market discrimination. Market segmentation occurs when, for example, the two groups are employed in firms with homogenous employees. There need be no difference in wages earned when markets are completely segmented. Market discrimination exists when the wage rates or prices paid by the two groups differ. In some of Becker’s models, market discrimination results because owners of capital dislike employing a particular group. These owners suffer a low property value as a result of their preference when the equilibrium is one where some of the disfavored group are employed by these owners. In Becker’s models, there are no externalities in the sense that there are no transactions where there is a gap between the private and social value placed on a transaction. Moreover, as Becker points out, nothing in his models distinguishes love from hate. If he had postulated, for example, that one group’s owners of capital employ that group’s workers because the members of the group love each other, while bearing neither ill will toward nor affection for the other group, the exact same theory of discrimination would apply.

2.2 Generation of Hostility

With the theory of discrimination as background, let us now examine a model of hostility between groups. In contrast to the discrimination model, in this model there need be no market discrimination – all factors are paid the same amount as long as their marginal physical products are equal and all consumers pay the same price for identical goods. However, there will be a distinction between love and hate.

Suppose that people belong to one of two groups: Group A or B. “Belonging” to a group means that the utility of the group matters to an individual and that the individual shares some core preferences with other group members, so that people belonging to different groups are different in some way. The difficult question of why one identifies with a particular group if the individual has an option is left for further research, as are questions of how the group can
mold an individual's core preferences and how a group can decide to alter its core preferences. (Religion and national identity are closely related to these questions which I leave for further study. See e.g. Weber [1927], [1964], [1993].)

Each economic transaction between a member of Group A and Group B generates not only a trade but an "economic experience." By economic experience, I mean that an individual from Group B may infer some trait about members of Group A from the economic transaction. For example, if B works for A and A tells B what to do, B may decide that A has treated him unfairly. Or, if B buys from A, B may believe that A has taken advantage of him and charged a high price. To keep the model simple, the members of Group B will dislike Group A, though it is not necessary for Group A to dislike Group B.

Two effects arise from a personal experience with an economic transaction. First, à la Becker, it could create a preference for Group B to deal only with itself. Second, it could generate or reinforce negative stereotypes of Group A. I focus on this second effect. The consequence of the negative stereotype is that when members of Group B get together, those leaders of Group B who invest time to organize and oppose Group A can use the negative stereotype to foster hatred and incite destruction of Group A property.

Some examples can clarify this second effect. Throughout the centuries, middlemen who happen to belong to a minority in a country have been singled out for hatred and had their property destroyed. Middlemen often require heavy personal involvement in a transaction and lots of bargaining. When the middlemen comprise an identifiable group, there can be trouble because then the natural hostility that many consumers feel toward middlemen can be attributed to the characteristics of an entire group.

Why do people feel a natural hostility to middlemen? I do not know except that after searching to buy a new car recently, I had the feeling that some car salesmen were less than trustworthy. Perhaps the reason for the general hostility toward middlemen comes from the apparent zero sum nature of the bargaining. Conditional on buying a car from a dealer, there is a zero sum aspect to the bargaining. The individual focuses on the ex post not ex ante incentive and wants to obtain the car at the dealer's wholesale cost. He wants to make no contribution to the dealer's overhead. The customer takes the dealer's existence as a given and recognizes that the better informed dealer can take advantage of the customer's ignorance in agreement on a price. But, at least in the United States, car salesmen come from many ethnic groups, so it would be irrational

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1 It is of course possible that interaction between A and B will promote understanding and lessen hostility. I have assumed the reverse for reasons discussed later. It is an empirical question to determine whether a particular transaction promotes hostility or understanding. I return in the conclusion to possible interactions that could promote understanding.

2 See e.g. Bonacich [1973] and Sowell [1993]. See also Brenner [1983], [1985] for an analysis of middlemen (and war) from the viewpoint of risk taking.
to attribute my negative feelings about car salesmen to any particular ethnic group.

The lack of appreciation for middlemen activities, or distribution in general, is widespread, even though distribution often is a key sector in many of the advanced economies. For example in the United States, distribution is an important sector with retail and wholesale trade accounting for about 16 percent of GNP. Because distribution was widely regarded with suspicion in the former communist countries in Eastern Europe, the distribution function was and is less developed than in capitalist countries such as the United States.

"Marxist thought viewed marketing, advertising, retail trade and related services as unproductive activities and of inferior social importance to the production of goods. As a result, Russia has a very undeveloped retail sector. There are many fewer retail sales and services outlets per capita (in aggregate and by sector) than in Western countries or even in Eastern Europe."  

Even today distribution accounts for a relatively small fraction of GNP in certain Eastern European countries. In the former USSR, distribution accounted for only 7 percent of GNP in 1988. Though distribution is an important economic function, its relative lack of importance in some economies illustrates the disdainful characteristics with which it is associated. Indeed, ethnic groups specializing in distribution have sometimes made a conscious effort to go into other lines of business. For example, early Zionists stressed the importance of employing Jewish settlers in what was then Palestine in activities other than distribution – specifically farming.

These negative feelings toward a distinct ethnic group engaged in highly personal economic transactions are common. The Jews of Europe, being excluded from many commercial activities, engaged in money lending, while at various periods Christians either chose not to or were prohibited from doing so. This led to the stereotype of Jews as greedy and fanned the flames of antisemitism. As any businessman will attest, banking can be highly personal and one can rationalize the negative feelings that result when one’s business loan is foreclosed with the belief that lenders are greedy and unreasonable rather than acknowledging that the business venture failed. The consequence of Jewish involvement in commercial activities requiring personal contact with non-Jews was frequent mass expulsion and horrible destruction of property and life.

Other examples of middlemen whose ethnic group generated ill feelings include the Koreans in Los Angeles who own many of the small local businesses that service the black ghetto. Often willing to open businesses where no one else will, these Koreans find themselves the object of black hatred and their bu-

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4 Joskow, Schmalensee and Tsukanova [1994; 19].
5 Central Intelligence Agency [1989, 59].
nesses in the recent Los Angeles riots were the object of destruction. Similar stories attend Chinese businessmen in Malaysia, East Indians and Pakistanis in eastern Africa, Armenians in the Ottoman Empire, Japanese in Peru, Tamils in Sri Lanka and Ibos in Nigeria. These examples, in my view, establish the empirical relevance of my assumption that economic transactions can influence how one group views another and that transactions between groups can heighten hostility. The examples suggest that the personal nature of the transaction together with dominance of a profession by one group is important to understanding conflict.

The theory of agency (e.g. Holmstrom [1979]) can be used to understand the source of conflict arising from economic transactions involving personal contact. The middleman can be viewed as an agent of the customer. Similarly in an example involving employees, there is the obvious agency relationship where the employee is the agent of the owner. The creation of hostility from a principal agent relationship can arise for at least three reasons. First, any initial hostile beliefs can be confirmed as occurs in models with statistical discrimination (Arrow [1972]) or signaling (Spence [1973]). Second, the monitoring and enforcement functions that attend all agency relationships can accentuate feelings of distrust. The greater the monitoring required, the greater the distrust. Third, and this reason is a bit outside standard economic assumptions, the individual will often hold beliefs (that are hard to falsify by evidence) when these beliefs make him feel better. So, for example, an individual feels better if he can believe that his poor success is attributable to outside forces. Because the essence of a principal agent relationship is the non-observability of effort, such relationships are likely to be amenable to the creation and perpetuation of hostile beliefs.

In an employment relationship, where a principal belonging to one group employs an agent belonging to another group and promotes and compensates the agent depending on performance, the unobservability of objective performance measures has the potential to create ill will between groups. If the group comprising the agents does not succeed as well as it expects relative to the other group, it may be difficult to convince the relatively unsuccessful group that its lack of success is its own fault rather than the fault of the principal to treat it fairly. I suspect such problems will be severe when the relative endowments in education of the two groups lead to sizable income differences.

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6 Bonacich [1973] and Sowell [1993]. For further reading on ethnic minorities as middlemen, see Carr and Landa [1983], Cooter and Landa [1984], and Landa [1981].
7 See Frey [1993].
8 Psychologists have studied such behavior under the general topics of cognitive dissonance and forced compliance. See Akerlof and Dickens [1982] for an economic application.
9 Even in the absence of such perceived differences in treatment, as already noted, there could still be individual resentment because of the asymmetric information associated in either the employment or selling functions.
In a retailing environment, a similar phenomenon exists. Where customers of one group see their group’s income level below that of successful middlemen belonging to another group, they look for explanations other than they may not work as hard or as well. The easy face-saving explanation is that the middlemen’s success comes from “exploitation” rather than hard work or clever insights.\footnote{Although I have assumed, for simplicity, that Group A does not dislike Group B, the existence of such dislike by some members of Group A will likely cause transactions to generate more hostility on Group B’s part than when no such dislike is involved.} \footnote{However, if it is possible to observe the treatment received by the other group, having Group A and Group B together as, for example, customers or workers could reveal no systematic difference in treatment. For example, if unit prices are posted then Group B may be less likely to develop hostile reactions than if haggling over price occurs with the final price unobservable. With posted prices, Group B could correctly infer that they are being treated the same as Group A.}

In summary, I assume that highly personal transactions – idiosyncratic exchange in illiquid markets – generate hostility. I now explore the consequences of this assumption.

2.3 Hostility Leads to Destruction

We have now established how some economic transactions can lead to hostility. Let us now link hostility to destruction. Imagine that the likelihood of destruction depends on two factors. One is what I will call group hostility which depends on the economic experience of the individuals in the group. The other is the effort of leaders who foster conflict. The leaders are more likely to succeed in generating conflict the more the members of their group believe that the other group has been unfair to them and the greater is the number of members of their group that have had contact with the other group. If leaders of Group B are successful in generating conflict, the conflict may lead to the destruction of Group A’s property. In essence, the destruction of property operates like a general tax on all Group A property owners.

Leaders are needed to turn Group B’s hostility into destruction of Group A property. A seemingly innocent event can, with the right “spin,” be turned into a case to incite. The leaders must exert effort to convince their Group B constituents to spend time listening to the leaders and obeying their orders. When hostility exists, destruction of Group A’s property will provide utility for all Group B members, not just its leaders. This creates a demand for destruction and a derived demand for leaders to produce destruction.\footnote{The destruction of property (or of life) will likely increase expenditures on protection and hence can cause a loss in resources in addition to the actual expected damage.} However, destruction is not sold, so the leaders have to figure out how to finance their activities. (Destruction is easier than theft, otherwise theft would be preferable.) If the leaders are externally financed (by, for example, a third country), their task
becomes much easier. Otherwise, they must finance themselves by an explicit or implicit tax on Group B, who I assume will be primarily workers. The more impoverished Group B, the harder to finance the activity of the leaders. However, the more impoverished Group B, the less costly to use Group B labor as the generator of destruction. Low wages and unemployment make the use of mass labor the desired way to produce destruction.\(^\text{13}\) (Attempts by Group A to use the police to control large masses of Group B members could in turn lead to further hostility.) In contrast, high wages and high levels of employment will make it costly to use a lot of Group B workers to foment destruction.

2.4 The Hostility Externality

We can now explain the hostility externality. Let us use the context of labor. An owner of capital who belongs to Group A decides how many workers to hire from Group B. If the Group A owners hire Group B workers, the Group B workers will have an economic encounter with the Group A owners and this economic experience may be used by some leaders of Group B to generate group conflict, which increases the probability of destruction of the property of all of Group A. No individual Group A owner of capital has a private incentive not to hire a Group B worker because the effect of hostility on property destruction is an effect on primarily all the other Group A property owners. The likelihood that the hostility will be directed to any individual Group A owner is so remote that it is not a consideration for a group A owner concerned exclusively with his own private gain.\(^\text{14}\) Unlike what occurs in the theory of discrimination, Group A owners do not internalize the effects of Group B's dislike of Group A. Moreover, there need be no market discrimination between the wages of Group A and Group B workers. Finally, unlike models of discrimination, hate and love are distinguishable in their effects. Hatred generates a negative externality. Loves does not. (Love could produce a positive externality.)

The result of this negative externality is that Group A capital owners hire too many Group B workers. Moreover, the Group B workers are hired into jobs that require too much personal contact with Group A supervisors. There is also an effect on A’s investment decision. In deciding in which sectors to invest, Group A property owners will choose to engage in too much retail trade (or other middlemen activity) where there is close contact with Group B customers.\(^\text{15}\)

\(^{13}\) There is obviously an income and a substitution effect. Low wages reduce the expenditures available for destruction but cause a shift toward production of destruction with more labor and less capital.

\(^{14}\) Group A owners could internalize this externality collectively. This internalization could occur if each Group A owner placed sufficient weight on the welfare of his group.

\(^{15}\) Had I assumed that personal trade reduces the conflict between groups, there would still be an externality but it would lead to too little instead of too much personal trade between groups.
3. Economic Institutions and Organization of Trade

One role of economic institutions is to facilitate trade. Since the pioneering work of Coase [1937], we have seen that transactions within firms occur when the costs of doing so are lower than using a marketplace. The literature building on Coase has emphasized how transaction costs depend on the nature of the product sold. The more idiosyncratic a product is — the more customized it is between two firms — the higher the transaction costs and the greater the likelihood of opportunistic bargaining. My thesis is that it is precisely such opportunistic bargaining that can generate hostility. Of course, there are private gains from making the product idiosyncratic and these gains are balanced against the private transaction costs. But when, as already explained in the previous section, these transaction costs also generate the hostility externality, there will not be enough product standardization in a competitive equilibrium. The first implication of the analysis is then: When a Group A firm trades with a Group B firm, the good is overly idiosyncratic.\(^{16}\) Trade between Group A and Group B should involve more standardized goods than the competitive equilibrium produces.

It is common to characterize transactions in markets as “impersonal” while resource allocations within firms and families are commonly considered personal.\(^{17}\) That sharp dichotomy does not hold, as the literature building on Coase [1937] and especially Williamson [1975] has shown. It is more accurate to say that trade is more personal in some markets than others.\(^{18}\) Reliance on impersonal markets rather than personal ones should reduce hostility, and that observation leads to an investigation of how to make trade less personal. Organized exchanges long ago solved this problem. For example, a buyer of a futures contract does not know who the corresponding individual selling to him is. The purpose of the organized exchange is to place itself between the buyer and seller so that each can trade, know its trade will be consummated, and not investigate the characteristics of the individual on the other side of the transaction. There is a cost to creating such a market. To ensure the volume of liquidity needed to justify creation of such a market, traded products must be sufficiently standardized (or gradeable) so that the characteristics of the particular product sold or bought do not differ from trade to trade. Standardization makes trade more liquid but reduces the good's value in any particular exchange where an idiosyncratic good would lead to greater surplus. Another cost of an organized exchange is the hierarchy of mechanisms used to ensure performance. For example, a broker demands a margin deposit from the customer. A clearing-

\(^{16}\) The implications in this section are premised on the assumption that lessening conflict and thereby increasing output (perhaps of each group) is desirable. Completely eliminating the hostility externality is unlikely to be desirable because it eliminates all gains from trade. See section 5.

\(^{17}\) See Ben-Porath [1980] for an analysis of personal trade.

\(^{18}\) Trade is personal if the characteristics of the buyer and seller influence the outcome.
house typically guarantees the broker's trade and demands a deposit from him. These economic institutions (together with the associated employees) are the costs of creating an impersonal trade. As long as Group A transactors deal only with Group A brokers and Group B transactors deal only with Group B brokers, we can reduce the amount of personal trade between Group A and B.19

Even when there are futures markets, delivery is usually pursuant to individually negotiated forward contracts. I've always taken this as evidence of the very high cost of relying on purely impersonal trade. However, even with forward contracts, pricing often is based upon the readily available futures price so that the need to bargain extensively over price is eliminated. Futures markets also cause the product sold in the forward market to become more standardized so that it is more like the standardized products sold in the futures market (so therefore the futures price becomes a better price benchmark for the forward contract). In order to reduce conflict, trade between Group A and Group B should be more impersonal, with greater reliance on economic institutions and standardized products to minimize trading in highly idiosyncratic products.

The agency relation associated with employment was seen earlier to be a possible source of conflict. The conflict is likely to be greatest where there is a lot of specific human capital developed in the job. The second implication of the analysis then is this: When Group A owners employ Group B workers, they use them in tasks that generate too much specific human capital, the value of which must be divided between owners and workers.

Specific human capital generates quasi-rents that need to be divided. This division places the Group A owner and Group B worker in conflict (unless perhaps the division can be standardized so that enough similar Group A and Group B workers know they are treated alike). One solution is to place Group B workers in jobs where only general human capital (easily transportable to other firms) is needed. Another is to cause the firm to disintegrate vertically so that the Group B workers have a Group B owner. Rather than having several tasks within one firm, we run the theory of the firm "backwards" and jettison those activities that generate the most conflict. There is, of course, a cost, but because of the hostility externality there is also a gain.

The third implication is: Firms composed primarily of Group B workers should be encouraged in preference to vertically integrated firms where Group B workers work for Group A owners. The Group B firms can produce inputs for the Group A firms. From the first implication, the inputs should be

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19 Some simple models explaining the benefits of a market are as follows: With N buyers and M sellers, there need be NM contacts without a market, but with a market there need be only N + M contacts. (N buyers contact with the "market" as do M sellers.) The same logic suggests here that economic institutions can be designed to facilitate trade and reduce personal contact between Group A and Group B.
non-idiomatic and, if possible, sold on an exchange that facilitates impersonal exchange. By reducing the number of principal agent contracts between Group A and Group B, conflict will fall. Therefore, this third implication is related to altering the supervisory hierarchy in firms in order to reduce the instances in which Group A supervises Group B. Similar reasoning applied to middlemen suggests that Group B customers would feel less hostility if they dealt with Group B salesmen rather than Group A salesman. This reasoning also suggests that in retailing the use of Group B workers (or firms) to serve Group B customers instead of Group A workers would reduce hostility.

The fourth implication is: Conflict will be reduced if a trade does not become specialized to one group. Because the occasion of an economic exchange can be used to reinforce negative feelings about a group, it may make sense to prevent a particular occupation or industry from becoming specialized to one group. For example, if a consumer can and does buy from stores owned by either a Group A or Group B person, then any attributes associated with the product sale – rather than idiosyncratic group characteristics – will be less likely to be perceived negatively and incorrectly attributed to the group. If all store owners treat customers similarly and charge similar prices, it is difficult to use the characteristics of the economic transaction to infer something negative about the group to which the store owner belongs.²⁰

The final economic institution I analyze is the complicated one of government. Governments often can be used to transfer income from one group to another. Governments also are usually monopolies so that their rules and actions are not always in intense competition with other competing organizations. Although trade in idiosyncratic products is less disciplined by competition than exchange in standardized products, at least some market discipline exists to protect each side of the transaction. This market discipline constrains the conflicts that can arise from opportunistic behavior in a marketplace. There are no such (or, at least, many fewer) constraints on government so their actions can be a great source of conflict. With no constraints on their behavior, governments can discriminate in employment and in the provision of services and generally behave in arbitrary ways, thereby generating conflict.

There are two implications that follow from this discussion of government. First, there is an advantage of relying on a market and not a government to produce goods and services, especially when one group is perceived as controlling the government. Second, probably the government function that has the most potential to antagonize and generate hostility is the police. Where feasible, having Group B be responsible for at least some of its police functions

²⁰ Another way to reduce group hostility is to break up the group. This was a practice sometimes followed by conquerors to gain control of new lands when the conquerors dispersed those conquered throughout the large empire. I will not pursue this idea here because it requires an analysis of why groups form and remain cohesive – a topic beyond the scope of this paper.
could reduce conflict. (This is a bit tricky because the leaders of Group B intent on creating and exploiting hostility could use the Group B police force to foment destruction depending on the training of Group B police officers.)

4. Influencing Economic Institutions and Infrastructure

If one accepts the implications enumerated in the previous section, a natural question arises as to whether any steps can and should be taken to encourage amelioration of conflict.\textsuperscript{21} I am not a political strategist, so will only offer a few simple suggestions. Let me first note an inherent tension. To correct the basic externality associated with hostility, a government (or some group collectively) must act. But we have seen that a government itself can generate conflict; indeed it can be a very effective generator of hostility.

The development of organized trading exchanges should be encouraged to promote impersonal trade. Such exchanges usually have high start-up and high fixed costs. Their development alone will spur firms to produce more standardized commodities regardless of whether they are traded on the organized exchange so that the organized exchange’s benefits can be more fully exploited. For example, the fact that contracts will use prices from organized exchanges as a benchmark will create an incentive for the firm to make the characteristics of the good conform to those of the good on the organized exchange. As we have seen, trade in more standardized commodities reduces conflict by reducing the need for negotiation.

I see no easy way to encourage alternative hierarchies in firms or vertical disintegration of firms other than by some direct tax or intervention scheme, neither of which I am fond of. One possible alternative is to exploit some of the insights of urban economics. We know that workers dislike commuting and like to live close to their job. This means that existing and new business locations together with the road structure have an enormous effect on how local economies develop with a subsequent effect on the pattern of trade. For example, one way to reduce hostility is to have Group B workers work in more separate firms or to have Group B workers supervise other Group B workers (so that the ratio of Group A to Group B labor falls). One way to achieve this is to have some industrial parks near the Group B members, farther away from Group A.\textsuperscript{22} This effectively raises the relative wage that the firm must pay to attract Group A workers. Investing in infrastructure is probably the best way to encourage firms to restructure. Indeed, it may be profitable for Group A to finance an industrial park near Group B and give it to Group B. (Although it

\textsuperscript{21} Again, elimination of all conflict is not necessarily desirable because gains from trade are also eliminated. See section 5.

\textsuperscript{22} Of course, this could cause Group A members to move, but often neighborhood effects (preferences to live with your own group) will prevent this from happening.
may appear that I am advocating the scope of government to expand, that is not necessarily true because many infrastructure investments must be made anyway.) The reduced destruction that follows from the lessening of hostility could more than pay for the industrial park. (Group A must guard against creating an incentive for Group B to become hostile in order to receive the industrial park.)

Because the production function for destruction requires leaders, it is possible to influence the level of conflict by affecting participation of the leaders. Putting jail aside (which incidentally could heighten hostility), alternative employment is obviously desirable. Many of the skills of leaders — risk taking, charisma, decisiveness — are also valuable in pursuits other than destruction. For example, many of the former leaders of the Red Guard appear to be the leading entrepreneurial forces in China.\(^{23}\) The key to reducing conflict seems to be to provide feasible alternatives before leaders develop such specific skills in fomenting rebellion that they have a continued interest in conflict. The production function for destruction also requires members of the group to carry out the destruction. Making sure that the masses are fully (or over-) employed deprives leaders of a key input. Subsidizing employment of the destructive group either directly through wage subsidies or indirectly by subsidizing business locations near Group B could therefore lead to higher net output.

5. Gains and Losses From Trade

In most (all?) economic models, groups with different endowments or production functions gain from engaging in trade with each other. What is evident (and disturbing) is that this need not be true when hostility exists between groups. Economists have been so well trained to believe in the gains from trade that they often pay no attention to the hostility externality. The trick is to control the hostility externality without giving up too many of the gains from trade.

Let us use some simple trade models to illustrate the consequences of the hostility externality. Suppose that the same production function is used to produce output when capital owned by Group A or capital owned by Group B is used to produce the single output. Labor is mobile in the sense that a worker can work with capital owned by either Group A or Group B. Capital is not mobile between groups in the sense that Group B cannot purchase Group A capital.\(^{24}\) I envision Group A as having more capital per capita than Group B,


\(^{24}\) If capital is mobile, it moves to sector B until no B’s are employed in sector A. This is similar to results in the theory of discrimination. There, as here, we assume that such wholesale transfers may not occur under competition because of capital market or other constraints. Otherwise there is no interesting problem to analyze with constant returns to scale.
so the natural consequence is that Group B workers will be employed in the Group A sector.

With no hostility externality, labor migrates between the two sectors (i.e., the sector consisting of capital owned by Group A or by Group B) so as to equate the marginal product of labor. Assuming the production function is homogeneous of degree 1, we obtain that the capital labor ratio in each sector will be identical.

Let $K$ stand for capital, $L$ for labor, a subscript (A or B) indicating group membership, a superscript (A or B) indicating the sector employed in, and $F(K, L)$ be the production function. So, $L_A^A$ is Group B labor employed in sector A. At the competitive equilibrium and under the assumed conditions, the following is maximized: $F(K_A^A, L_A^A + L_B^A) + F(K_B^B, L_B^B)$. In equilibrium,

$$\frac{K_A^A}{L_A^A + L_B^A} = \frac{K_B^B}{L_B^B} = k^*$$ holds. (Note that $L_B^A = 0$ under the assumed conditions.)

Now, add the hostility externality. Initially suppose the externality is invariant to the scope of economic transactions and equals $t$. The hostility externality will act like a tax with the exception that the usual deadweight loss for a tax ignores the "transfer" component. Here, the "transfer" component represents a resource loss, and therefore the magnitude of the loss that the externality creates is many times greater than a tax. I will model the externality as affecting the total output in sector A, though other ways to model the externality might make sense depending on the circumstances.

In competitive equilibrium, labor migrates to equalize the wage. The competitive equilibrium maximizes $(1 - t)F(K_A^A, L_A^A + L_B^A) + F(K_B^B, L_B^B)$. The hostility externality causes labor to migrate from sector A to sector B. Hence the capital labor ratio in sector B falls below $k^*$ while the capital labor ratio in sector A rises. Because the production function is homogeneous of degree 1, the wage and earnings after paying wages (payment to capital) are uniquely determined by the capital labor ratio.

We can therefore state that as a result of the hostility externality, three consequences follow. First, total physical output falls both because of the destruction and because of the reallocation of labor. Second, the wage rate (which is identical in both sectors) falls so that all laborers are worse off. Third, the capital owners in sector B are better off because they now have more labor working with their limited capital. The capital owners in A are worse off. Their capital labor ratio rises, which lowers payments to capital, and then the hostility externality further lowers payments to each factor. Therefore, the big winners from the hostility externality are the owners of capital in sector B. Stepping

\[25\] In the rent seeking literature, the deadweight loss of a tax also ignores the transfer (or some of it). See Posner [1975] and Fisher [1985].

\[26\] I am ignoring the increased utility that Group B (or its leaders) may derive from destruction of Group A's property. I return to this point in the conclusion. Arrow [1973] discusses the reverse situation in which leaders gain utility from creating property for others.
outside the simple model for a second, we see that leaders of B who wish to foment rebellion will find it less costly to employ members of Group B to create destruction in the presence of the hostility externality because of the lowered wages. We also see that if the leaders control the capital in sector B, they gain from the hostility externality.

Let us now express the hostility externality as $\alpha h(L_A^B)$ where $h(0) = 0$, $\alpha > 0$, and $h' > 0$. This formulation recognizes, as stressed in the earlier sections, that economic interaction between the As and Bs affects the magnitude of the externality. The positive constant, $\alpha$, can perhaps be influenced by certain economic restructurings (such as hierarchies within firms or altering trading relations through exchanges).

The analysis of $\alpha$ is straightforward. The higher is $\alpha$, the lower are wages, the better off are capital owners in sector B and the worse off are capital owners in A. Leaders of Group B interested in destruction wind up worsening the lot of their workers as they foment destruction by increasing $\alpha$. The reverse occurs if the government can lower $\alpha$.

Now let us turn to an examination of $h$. In competitive equilibrium, no individual firm in sector A takes account of the positive value of $h'$ in making its economic decisions. Therefore, in competitive equilibrium, there are too many Group B workers employed in sector A. The consequence of moving from the competitive equilibrium to the optimal solution is that the wage rate falls, the capital labor ratio in sector A rises, that in sector B falls, and property owners in B benefit.

Would the members of Group A ever be better off giving capital to sector B? The answer is yes because by doing so capital in B attracts B labor that otherwise would be in sector A causing the hostility externality. Even in this simple model, making the Bs more independent and separate from the As is a valuable collective investment for the As even if the capital is a gift. Of course, collective action is required since it is in no one's individual interest to effect this transfer using his own capital. (Group A must beware of creating an incentive for Group B to become hostile in order to receive capital.)

To illustrate these ideas, I report in Table 1 the competitive equilibrium when $\alpha h(L_A^B) = 0$, when $\alpha h(L_A^B) = 0.10$, and when $\alpha h(L_A^B) = \frac{L_A^B}{45}$. Notice that in the last case, Group A has higher total income even though it has transferred capital to sector B (i.e., compare case 3a to case 3b in Table 1).

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27 I.e., the one maximizing $[1 - h(L_A^B)] F(K_A^B, L_A^B + L_B^A) + F(K_B^B, L_B^B)$.

28 Property owners in A may or may not benefit. The destruction from the hostility externality falls but the capital labor ratio in sector A rises.

29 There is an analogous question in the trade literature associated with transfers between nations. It is not possible for a transfer of purchasing power (as distinct from a transfer of resources) to improve the terms of trade so that the transferring country is better off in a two country model. See Caves, Frankel and Jones [1993].
Table 1*

\[ F(K, L) = K^{2.5} L^{0.75} \]

<table>
<thead>
<tr>
<th>( K_A^0 = 4 )</th>
<th>( K_B^0 = 1 )</th>
<th>( L_A^0 + L_B^0 = 10 )</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Case 1</th>
<th>Case 2</th>
<th>Case 3a</th>
<th>Case 3b**</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \alpha h(L) = 0 )</td>
<td>( \alpha h(L) = 0.10 )</td>
<td>( \alpha h(L) = L_A^0/45 )</td>
<td>( \alpha h(L) = ) same as case 3a</td>
</tr>
<tr>
<td>( K_A = 3.8, K_B^0 = 1.2 )</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Output</th>
<th>14.14</th>
<th>13.05</th>
<th>13.05</th>
<th>13.26</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wage Rate</td>
<td>.53</td>
<td>.49</td>
<td>.49</td>
<td>.50</td>
</tr>
<tr>
<td>Payments to ( K_A )</td>
<td>2.83</td>
<td>2.36</td>
<td>2.36</td>
<td>2.29</td>
</tr>
<tr>
<td>Payments to ( K_B )</td>
<td>.71</td>
<td>.89</td>
<td>.89</td>
<td>1.03</td>
</tr>
<tr>
<td>Total Factor Payments to Group A</td>
<td>8.13</td>
<td>7.258</td>
<td>7.258</td>
<td>7.262</td>
</tr>
<tr>
<td>Total Factor Payments to Group B</td>
<td>6.01</td>
<td>5.79</td>
<td>5.79</td>
<td>6.00</td>
</tr>
</tbody>
</table>

* Entries may not add up because of rounding.

** Labor constraints are same as in cases 1, 2, and 3a.
In a more complicated model, the losers from hostility will be those owners of scarce resources in A that utilize B labor. For example, managers in A who supervise B labor will lose. The most vexing case is when the leaders of B who wish to foment destruction are the owners of either capital in B or possess supervisory skills, because then they gain the most from destruction of Group A's property at the expense of the workers in Group B and all of Group A.

6. Conclusion

This paper has explained how certain types of economic transactions and settings can generate hostility that leads to destruction. The hostility externality causes the competitive equilibrium to fail to reach an outcome that maximizes output. By encouraging the development of certain economic institutions, and influencing the location of firms and their internal hierarchies, output can increase as destruction declines.

I worry that some will misinterpret this paper as a justification for massive government intervention in the economy to control the hostility externality. In fact, we already have massive government intervention in the economies of most countries. All I am suggesting is that the effect of the hostility externality be recognized together with the role that economic transactions play in generating hostility.

I also worry that the paper may be misinterpreted as a justification for complete segregation, which would be wrong for several reasons. First, even under the model's assumptions, that extreme solution is likely to eliminate too many gains from trade. Second, the assumption driving many of the results of the analysis is that certain transactions between groups increase conflict. It may be possible (and certainly many would hope so) to identify certain types of transactions between groups that promote group understanding and thereby reduce conflict. If so, these transactions obviously should be encouraged and would lead to greater interaction among groups than occurs in the competitive equilibrium. Unfortunately, the evidence identifying such transactions is quite limited, especially in contrast to the evidence documenting the hostility that certain transactions create. This subject of identifying transactions that promote understanding strikes me as an important area for further research. I just add that from the analysis so far, joint ventures between members of different groups in which equal equity owners have their fortunes tied to each other's efforts are more likely to promote understanding than joint ventures where participants don't share (or contribute) equally.

30 I discuss here reasons related only to the analysis of the model.
31 In contrast, a venture where one group contributes the equity and the other the debt seems less likely to promote understanding because the traditional debt-equity conflict of interests can arise.
and B deal with each other, who in turn deal with their own, less tolerant members, also suggests itself.

I have also assumed that it is desirable to reduce conflict and thereby increase output of each group. That, of course, may not be the view of Group B, which may want to see Group A destroyed or removed from power and perhaps see Group B's output rise relative to Group A's. In such a case, Group B could be better off resisting any reduction in conflict even if it leads to higher aggregate output. If one desires to increase conflict, it is possible to read this paper in reverse – not as a prescription for how to reduce conflict and increase output, but instead as a prescription for how to increase conflict and create war. Regardless of one's view on the desirability of conflict, the simple point is that economic structure can have a significant effect on the level of conflict and that the competitive outcome does not account for this externality.

References


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